LEARNING TO BE BAD: ADVERSE SOCIAL CONDITIONS, SOCIAL SCHEMAS, AND CRIME*

RONALD L. SIMONS
Department of Sociology
University of Georgia

CALLIE HARBIN BURT
School of Criminology and Criminal Justice
Arizona State University

KEYWORDS: crime, criminological theory, social schemas, discrimination, integrated theory

In this article, we develop and test a new approach to explain the link between social factors and individual offending. We argue that seemingly disparate family, peer, and community conditions lead to crime because the lessons communicated by these events are similar and promote social schemas involving a hostile view of people and relationships, a preference for immediate rewards, and a cynical view of conventional norms. Furthermore, we posit that these three schemas are interconnected and combine to form a criminogenic knowledge structure that results in situational interpretations legitimating criminal behavior. Structural equation modeling with a sample of roughly 700 African American teens provided strong support for the model. The findings indicated that persistent exposure to adverse conditions such as community crime, discrimination, harsh parenting, deviant peers, and low neighborhood collective efficacy increased commitment to the three social schemas. The three schemas were highly intercorrelated and combined to form a latent construct that strongly predicted increases in

* This research was supported by the National Institute of Mental Health (MH48165, MH62669) and the Center for Disease Control (029136-02). Additional funding for this project was provided by the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism. We thank Tanja Link, Brea Perry, Travis Pratt, Eric Stewart, several anonymous reviewers, and Denise Gottfredson for valuable comments on earlier drafts of this article. Direct correspondence to Dr. Ronald L. Simons, Department of Sociology, University of Georgia, Athens, GA 30602 (e-mail: rsimons@uga.edu).

© 2011 American Society of Criminology  

CRIMINOLOGY VOLUME 49 NUMBER 2 2011 553
crime. Furthermore, in large measure, the effect of the various adverse conditions on increases in crime was indirect through their impact on this latent construct. We discuss the extent to which the social-schematic model presented in this article might be used to integrate concepts and findings from several major theories of criminal behavior.

The history of science clearly indicates that as the understanding of causal processes develops, what initially appears extremely complex ultimately proves to reduce to a relatively small number of mediating mechanisms. Clearly, this reduction is needed in the field of antisocial behavior ... (Rutter, 2003: 3–24)

Studies indicate that perpetrators tend to view their criminal actions as legitimate and acceptable given the prevailing circumstances (Baumeister, 1997; Giordano, Cernkovich, and Rudolph, 2002; Katz, 1988). Offenders usually do not see their behavior as evil or immoral. Instead, they consider their deeds to have been sensible, necessary, inevitable, or compelled by the exigencies of the situation (Katz, 1988; Shermer, 2004; Steffensmeier and Ulmer, 2005; Sykes and Matza, 1957). In many instances, offenders perceive their actions as a moralistic pursuit of justice calculated to address some injustice or grievance (Black, 1998; Katz, 1988). After arrest, perpetrators almost always find public portrayal of their crimes to be dramatically different than the meaning they attributed to their behavior at the time of the offense (Baumeister, 1997; Black, 1998). This finding suggests that the challenge in explaining crime is identifying the factors that cause some individuals to perceive that illegal actions are warranted, necessary, and justified. We need a theory that specifies the social circumstances and life lessons that foster this deviant view of reality.

Questions about learning naturally suggest a social-learning framework, which in criminology is dominated by Akers’s social learning theory (Akers, 1985, 1998; Akers and Sellers, 2009). According to Akers's model, social learning takes place through imitation and reinforcement. Individuals attain definitions either favorable or unfavorable to the commission of crime as a consequence of imitation and reinforcement in their everyday environment. Consonant with this perspective, this article is concerned with identifying the processes whereby adverse social circumstances influence situational definitions favorable to the commission of crime. We depart from Akers’s social learning theory, however, by shifting the emphasis from operant learning to the messages or principles communicated by persistent and recurring circumstances that comprise an individual’s everyday existence. Rather than focusing on schedules of reinforcement, we accent the lessons or tenets implicit in the repetitive patterns of interaction occurring within
a person's social space. The heuristic value of this altered focus is that it suggests a common set of avenues whereby seemingly disparate social environments foster crime.

Past research has provided strong evidence that exposure to community disorganization (e.g., Sampson, Morenoff, and Gannon-Rowley, 2002), harsh parenting (e.g., Reid, Patterson, and Snyder, 2002), deviant peers (e.g., Warr, 2002), racial discrimination (e.g., Simons et al., 2003), and a wide variety of other adverse circumstances (Agnew, 2006) increases the chances that a person will engage in criminal behavior. In the following pages, we argue that this is the case because the lessons communicated by these events promote social schemas that combine to form a criminogenic knowledge structure that shapes situational interpretations legitimating or compelling criminal and antisocial behavior. We test this social-schematic perspective on crime using longitudinal data from roughly 700 African American adolescents. Finally, we discuss the implications of this new social-learning approach to explaining crime.¹

LESSONS AND SCHEMAS

Numerous theories in social and developmental psychology (Baldwin, 1992; Cassidy and Shaver, 2008; Dodge and Pettit, 2003) as well as in cultural sociology (Bourdieu, 1990, 1998; Meisenhelder, 2006) suggest that social schemas serve as the link between past experiences and future behavior. Social schemas are internalized representations of the patterns inherent in past social interactions that guide the processing of future social cues (Crick and Dodge, 1994). They are abstract principles and dispositions that are tacitly relied on when perceiving situations and forming lines of action (Bourdieu, 1990; Meisenhelder, 2006). All situations involve a vast array of stimuli, and social schemas simplify the task of processing that information as they specify the regularities, patterns, or rules of everyday life (Dodge and Pettit, 2003). These simplifying principles make defining and responding to situations more efficient as they suggest which cues are most important, the meaning of these stimuli, and the likely consequence of various courses of action (Baldwin, 1992; Crick and Dodge, 1994).

¹. We should note that the emphasis in the current article is on explaining street crimes. Although we believe that this schematic perspective can be extended to white-collar and corporate crimes as well, we believe that nontrivial distinctions are present in the social factors that influence these divergent offenses. Thus, the current focus is on street crimes, but extending the model to "suite" crimes is an important next step.
Social schemas are durable as they are the internalization of patterns intrinsic to the repeated and persistent interactions to which the individual has been exposed, and they are transposable in that they are carried into new settings and situations (Bourdieu, 1990, 1998; Sallaz and Zavisca, 2007). Humans who inhabit the same position in the social world develop comparable constellations of schemas (Bourdieu, 1984, 1990; Crick and Dodge, 1994). Similar conditions of existence result in a common set of schemas, with the consequence being similar expectations, choices, and lines of action.

Offenders are more likely than their conventional counterparts to have experienced difficulties and challenges relating to community disadvantage, inept parenting, discrimination, affiliation with deviant peers, and so on. These various hardships and disadvantages are so disparate that one might assume that each of them influences involvement in crime through a separate and unique avenue. Indeed, this is the assumption of many theories of crime. In contrast, we posit that these family, peer, and community conditions increase crime through a common mechanism; they teach a mutual set of lessons that are internalized as social schemas that justify crime. This collection of schemas includes a hostile view of relationships, a concern with immediate gratification, and a cynical view of conduct norms. These schemas, each of which is discussed in later sections, closely correspond to cognitive constructs that extant work has linked to offending. Specifically, they relate to theory and research concerned with hostile attributions (Dodge, 2006; Dodge, Bates, and Pettit, 1990), low self-control (Gottfredson and Hirschi, 1990), and commitment to conventional norms (Akers, 1998; Bandura et al., 1996; Hirschi, 1969), respectively.

We expect that these social schemas are correlated and coexist. Our rationale for this prediction is twofold. First, these schemas represent mental structures that are a function of the same set of social conditions such as poor parenting and bad neighborhoods. Second, as will be argued in the subsequent discussion, we have good reason to believe that these deviant schemas impact one another. A hostile view of relationships, in particular, is likely to foster belief in the other two schemas. We now turn to consideration of each of the three schemas that constitute the criminogenic knowledge structure.

**HOSTILE VIEW OF RELATIONSHIPS**

Numerous studies (Baldwin, 1992; Bowlby, 1982; Dodge and Pettit, 2003; Mikulincer and Shaver, 2001) have documented how relationship schemas influence a person's interaction with others. These studies indicate that
individuals who possess an optimistic, trusting model of relationships engage in warm, cooperative interactions with other people, whereas those who hold a hostile, distrusting model approach others with suspicion and aggression. Given their cynical view of relationships, persons who hold a hostile view of relationships assume that most people are unfair and cannot be trusted to reciprocate. They expect to be cheated and exploited and believe that they must use coercive measures both to obtain what they deserve and to punish wrongdoers (Dodge, 1980, 1986; Dodge, Bates, and Pettit, 1990; Slaby and Guerra, 1988).² They are hypersensitive to disrespect and consider a strong response to such events to be imperative. To let transgressions go unchallenged, even small ones, demonstrates weakness and exposes one to future predation and exploitation. Such an orientation to relationships is a major component of what Anderson (1999) labeled the “code of the street.” Furthermore, persons with a hostile view of relationships regard most people as different from themselves, which blunts empathy as humans tend to show empathy and sympathy toward individuals perceived as trustworthy and similar to themselves (Berreby, 2005; de Waal, 2008).

A hostile view of relationships would be expected to promote situational definitions leading to aggression, intimidation, and exploitation of others. Consistent with this idea, research has shown that this view of relationships is strongly held by aggressive children and adolescents (Burks et al., 1999; Dodge, Bates, and Pettit, 1990; Dodge et al., 2002; Dodge and Newman, 1981; Zelli et al., 1999). Indeed, a meta-analysis of more than 100 studies reported a robust association between a hostile view of others and youth aggression (Orobio de Castro et al., 2002); moreover, antisocial adults also demonstrate this cognitive bias (Bailey and Ostrov, 2007; Epps and Kendall, 1995; Vitale et al., 2005). Furthermore, strong evidence suggests that aggression and violence are often responses to situations in which an individual feels disrespected (Anderson, 1990, 1999; Gilligan, 2001; Jacobs and Wright, 2006; Kubrin and Weitzer, 2003), and possessing a hostile view of relationships increases the likelihood that an individual will interpret an interaction as involving such an affront.

². Originally, we identified four schemas instead of three. What currently is identified as a hostile view of relationships was separated into two schemas, with one involving a cynical, distrusting view of other people and their motives and another consisting of the need to be tough and aggressive to avoid exploitation. Statistically, however, these two components were not clearly distinguishable, and theoretically, these two dimensions capture analogous ideas and come together in Dodge’s (1980) conceptualization. After considerable reflection and a helpful nudge from a reviewer, we concluded that these two schemas should be combined to represent one indicator of the criminogenic knowledge structure labeled a hostile view of relationships.
Several studies have shown that persistent exposure to harsh, emotionally distant parenting fosters a hostile view of relationships (Dodge, Bates, and Pettit, 1990; Mikulincer and Shaver, 2001). We argue that models of relationships are learned and reinforced in a wide variety of settings besides the family. Research shows, for example, that racial discrimination foments a hostile view of relationships (Simons et al., 2003, 2006). This result would be expected as victims of discrimination learn firsthand that people often show prejudice and favoritism in their treatment of others. In addition to harsh parenting and discrimination, we expect that other adverse conditions that have been linked to crime also contribute to a hostile view of others. This includes persistent exposure to a deviant peer group as interacting in such settings often focuses on the need to stand up to the members of other groups who cannot be trusted (Granic and Dishion, 2003). Furthermore, living in a neighborhood where crime and victimization are high is apt to promote a hostile, distrustful view by providing persistent examples of individuals who are deceitful and treacherous (e.g., Anderson, 1999). In contrast, exposure to supportive parenting and residing in an area high in collective efficacy are likely to encourage a more positive view of people and relationships. Supportive parents show kindness and altruism, and the residents of efficacious communities assist one another and make sacrifices for the common good.

IMMEDIATE GRATIFICATION (DISCOUNTING THE FUTURE)

Self-control has been the centerpiece of several theories of crime (Gottfredson and Hirschi, 1990; Wilson and Herrnstein, 1985), and an enormous body of research demonstrates that self-control is an important predictor of crime (e.g., Pratt and Cullen, 2000). Importantly, research also shows that individuals’ self-control is influenced by social experiences and events, such as parenting (e.g., Hay, 2001), peers (Burt, Simons, and Simons, 2006), and community characteristics (Pratt, Turner, and Piquero, 2004). Self-control involves inhibiting impulses and delaying gratification to obtain a later reward (e.g., Gottfredson and Hirschi, 1990). Although most individuals develop at least a modest ability to delay gratification, virtually everyone tends to discount distant compared with more immediate rewards. People differ in their discounting curves, however, with some individuals showing a weak and others a strong tendency to discount future rewards and consequences (Ainslie, 2000; Gottfredson and Hirschi, 1990; Mischel and Shoda, 1995; Wilson and Herrnstein, 1985).
When individuals perceive that a low probability exists that their behavior will result in long-term benefits, they engage in steep discounting. At least seven experiments have reported that socially excluded individuals show a reduction in self-control when they are led to believe that their actions will have no impact on future acceptance (de Waal, 2008). Furthermore, a recent experiment found that exposure to information suggesting the world is unjust enhanced participants' preferences for immediate versus larger, delayed rewards (Callan, Snead, and Olson, 2009), and several studies have reported that fatalism regarding the future increases the acceptability of risky behavior, including crime (Brezina, Tikan, and Topalli, 2010; Caldwell, Wiebe, and Cleveland, 2006; DuRant et al., 1994; Hill, Ross, and Low, 1997; Ross and Hill, 2002; Wilson and Daly, 1997).

These studies indicate that patience and delayed gratification are often not practical (Hauser, 2006; Wilson, 2007). In some environments, reciprocity and fair play are uncommon and delayed rewards rarely materialize. In such contexts, steep discounting of future events and pursuing immediate rewards is a rational response to information indicating an uncertain probability of reaping delayed benefits (Callan, Snead, and Olson, 2009; Wilson, 2007; Wilson and Daly, 1997, 2006). It is adaptive for individuals living in such unpredictable, hostile environments to be opportunistic in their pursuit of rewards. In this way, we argue that delayed gratification (i.e., the exercise of self-control) will be reduced by persistent exposure to community crime, racial discrimination, and deviant peers. Inherent within these experiences is the lesson that life is unfair and unpredictable and that one should take advantage of rewards whenever they become available. However, supportive parenting and collective efficacy are likely to increase the delay of gratification and pursuit of long-term rewards as such experiences indicate that people are trustworthy and can be depended on to keep their word.

In addition, we propose that concern with immediate gratification is likely reinforced by a hostile view of relationships. Such a view of relationships suggests that people cannot be trusted to reciprocate or to keep their promises. Therefore, one should obtain rewards from others whenever they become available. Also, a hostile view of relationships reduces empathy and undermines concern about the impact of one's actions on others, thereby making it easier to pursue immediate rewards without regard for the deleterious consequences for others. Other individuals are more likely to become potential marks if they are untrustworthy, if one does not empathize with them, and if one is unconcerned with treating them fairly (Berreby, 2005; Sykes and Matza, 1957). Thus, a hostile view of relationships consequently would result in reinforcing concern with immediate gratification and an opportunistic scrutiny of situations.
CYNICAL VIEW OF CONVENTIONAL NORMS

The last element in the criminological knowledge structure involves a person's beliefs regarding society's norms of conventional conduct. Some individuals consider social norms prohibiting sexual promiscuity, fighting, substance use, cheating on tests, and so on to be legitimate, morally compelling standards of behavior, whereas others possess a cynical, contemptuous view of these social rules. Several studies have reported that a disparaging view of conventional norms increases the probability of engaging in criminal behavior (e.g., Akers, 1998; Hirschi, 1969).

Both social control (Hirschi, 1969; Sampson and Laub, 1993) and social learning theories (Akers, 1998) argue that supportive parenting increases the chances that a youth will develop a commitment to conventional norms. In addition, social learning theory (Akers, 1998) emphasizes the role of peer affiliations. Consistent with these arguments, numerous studies have reported that involved, supportive parenting increases commitment to conventional norms, whereas affiliation with deviant peers discourages such commitment (see Akers and Sellers, 2009).

We argue that a cynical view of conventional norms is also rooted in other social circumstances. Community collective efficacy, for example, would be expected to enhance a youth's commitment to social norms as it communicates that residents believe that conduct norms are legitimate and worthy of enforcement. When residents fail to respond to deviance, however, adolescents are apt to conclude that conduct norms are inconsequential. Similarly, events such as neighborhood crime and discrimination convey the message that conduct norms are unimportant. These incidents indicate that, instead of playing by society's rules, people simply tend to pursue their selfish interests.

We expect that a cynical view of conduct norms is reinforced by the other two criminogenic schemas. Many persons respect authority and believe that most conventional norms enhance social order, harmony, and organization. Individuals who trust and care about others and who delay immediate gratification to obtain long-term rewards usually perceive the value of honoring these conventions. We have noted, however, that in response to the lessons inherent in their everyday circumstances, some individuals perceive life as unpredictable or believe that society consists of selfish, untrustworthy people and therefore judge that the wisest approach is to enjoy rewards whenever they become available. For these opportunistic persons, honoring social prohibitions regarding sex, drugs, fighting, and so on makes little sense. If other people are not following society's rules, then why should they? Only a sucker would do so. Furthermore, their hostile view of relationships contributes to a lack of trust and respect for the authority figures and social institutions that champion these social rules.
Thus, we expect that persons possessing a hostile view of relationships and seeking immediate gratification will tend to hold a cynical view of society's conduct norms.

THE CRIMINOGENIC KNOWLEDGE STRUCTURE

We have argued that the social schemas comprising an individual's knowledge structure tend to be interrelated and connected as they are rooted in the same set of social conditions and are mutually reinforcing. In addition, we expect that they operate as a dynamic unit. It is not any one schema that predicts an individual's actions in a situation; rather, it is the dynamic interplay of the constellation of relevant schemas that is important (Bourdieu, 1984; Swartz, 2002). A person's collection of schemas operates in a manner analogous to the rules of grammar or to the rules of a game. A person tacitly integrates the rules of grammar when formulating linguistic utterances or follows the rules of the game when designing a strategic move. Likewise, individuals implicitly combine the rules of social life represented by their constellation of schemas when construing situational circumstances and constructing a line of action (Bourdieu, 1984, 1990). Based on this idea, we expect that it is the combination of the three schemas, and not simply belief in any one element, that is most important in explaining individual variation in offending. Past research has investigated the extent to which specific attitudes and beliefs predict criminal behavior, whereas our social-schematic approach suggests that it is the constellation of schemas—the dynamic whole rather than the sum of the parts—that predicts crime and antisocial behavior.

Notably, the model proposes that learned knowledge structures, rather than situational factors, are the primary mechanisms that account for the causal effects of social factors on crime. The model views objective situational opportunities for crime as ubiquitous, whereas perceived opportunities for crime are largely dependent on individuals' knowledge structures, as individuals with criminogenic knowledge structures often construe the routine situations encountered in everyday life as an occasion for some antisocial act. Although situations occur that virtually compel criminal behavior (e.g., a rival gang invades another's turf or a

3. Notably, this assumption does not imply that opportunities for specific offenses are ubiquitous. We do not assume that all individuals and groups have opportunities for the same offenses but that the opportunity for an act of law violation is ubiquitous. For example, the opportunity for assault is generally available whenever another person is present; likewise, the opportunity for theft is present whenever another's private property is available. We acknowledge, however, the fact that opportunities for specific offenses do vary across individuals, groups, space, and time. For example, some individuals have ready access to illicit drugs, whereas
companion pulls a knife on a shopkeeper), we argue that for the most part individuals with a criminogenic knowledge structure select themselves into such situations. However, it is certainly the case that individuals sometimes encounter, not by design or through any fault of their own, situations that are so provoking that they incite a violent or antisocial response regardless of a person's knowledge structure, such as walking in on your spouse having sex with a family friend. Importantly, we argue that, even in such situations, it is still the case that those more strongly committed to the criminogenic knowledge structure are most likely to respond in a violent or antisocial fashion.

SEX DIFFERENCES

Throughout human history and in every culture, men have displayed higher rates of aggression and antisocial behavior than women (Archer, 2004; Gottfredson and Hirschi, 1990; Steffensmeier et al., 2005). Therefore, any compelling theory of crime must account for this major and persistent sex difference (Wilson and Herrnstein, 1985). Although a comprehensive discussion of the role and effects of sex or gender in the proposed theoretical model is beyond the scope of the present study, given the salience of sex differences, we briefly outline the basics in our approach. We expect that a portion of the association between sex and crime is explained by males being somewhat more likely than females to experience the adverse social conditions that have been linked to crime. Some evidence indicates, for example, that boys are more likely than girls to experience harsh parenting (Sobsey, Randall, and Parrila, 1997), criminal victimization (Stewart, Schreck, and Simons, 2006), and affiliation with deviant peers (Warr, 2002). The observed sex differences, however, are usually small, and others might be unable to procure drugs despite much effort. Some individuals live or work in areas where frequent exposure to unmonitored valuable goods occurs, or where others rarely encounter such easy opportunities for theft.

4. We use the term "sex" rather than the term "gender" because we are discussing differences between males and females, the biological groups, although we do not imply that these differences are simply caused by biological characteristics. Drawing on evolutionary theory, we discuss the origins of differences in risk taking and aggressiveness among males and females. It is certainly the case, however, that as societies have developed these differences based on the survival of progeny, they have taken on a life of their own in the social expectations, rules, regulations, and constraints that are implicated in the social construct of gender, such that now, for example, being a girl means not being aggressive, whereas rough and tumble play among boys is just "boys being boys." An elaborate discussion of sex and gender differences is out of the scope of this article, but we wish to make clear that this model does not suggest that biology explains male and female differences in offending.
we expect that they account for only a modest proportion of the association between sex and crime. Instead, we posit that the greater portion of the association between sex and crime is explained by evolved sex differences that influence the probability that men and women will develop schemas that comprise the criminogenic knowledge structure.

From an evolutionary perspective, sex differences are expected wherever men and women are exposed to differing selection pressures. Throughout human history, the mother’s presence was more critical to the survival of her offspring than was that of the father (Campbell, 1999; Campbell, Muncer, and Bibel, 2001). Studies in preindustrial societies confirm that the death of the mother is the single most important threat to infant survival (Hill and Hurtado, 1996; Voland, 1988). This finding suggests that women who were cautious and avoided risky situations would have been more likely to reproduce successfully (Campbell, Muncer, and Bibel, 2001). In contrast, scholars have argued that risk taking among males increased survival and reproductive success by vanquishing rivals, killing prey, and attracting mates (Daly and Wilson, 2001; Wilson and Daly, 1985). As a consequence of these differing environmental pressures, the available evidence suggests that women have evolved a lower threshold for fear than men (Campbell, Muncer, and Bibel, 2001). Scores of studies have found that girls express fear earlier than boys and that women experience fear and phobias more frequently and intensely (given the same stimulus) than men (see Campbell, 2006). Furthermore, research shows that on average females are more cautious, are more sensitive to potential dangers, and engage in less risk taking than males (Byrnes, Miller, and Schafer, 1999; Hersch, 1997). These findings portend sex differences regarding elements of the criminogenic knowledge structure.

First, women’s concern with safety and security reduces the probability that they will adopt a hostile view of relationships. Although women are no less likely than men to develop the perception that people cannot be trusted, their greater fear and caution is likely to deter them from embracing a tough, coercive response to perceived mistreatment. After all, aggressive encounters could result in injury. Furthermore, physically aggressive acts by females attract more social control than that for males given that aggressive acts are inconsistent with social constructions of femininity (e.g., Messerschmidt, 1993). Rather than criminalized physical aggression, research shows that females are more likely to engage in indirect or relational aggression, which is not regulated by criminal statutes (Björkqvist, Österman, and Lagerspetz, 1994). In addition, we expect that women are generally more likely than men to endorse conventional norms prohibiting fighting, drug use, cheating, driving fast, and so on. Given the danger associated with these behaviors, women are more apt than men to see the wisdom of rules proscribing such activities. Finally, we expect
to find sex differences in self-control. Although we have no reason to believe that men and women differ in the general tendency to pursue immediate rewards in response to environments that fail to reward delayed gratification, women seem to be more cautious than men regarding the instantaneous reinforcement associated with risky or dangerous activities (Burton et al., 1998; Keane, Maxim, and Teevan, 1993; LaGrange and Silverman, 1999; Nakhaie, Silverman, and LaGrange, 2000; Tittle, Ward, and Grasmick, 2003).

**PROPOSED MODEL**

Figure 1 presents a general model summarizing our theoretical arguments. The model suggests that the various social-environmental conditions emphasized in many dominant criminological theories influence risk for crime because they influence the development of the following social schemas: a hostile view of relationships, focus on immediate rewards, and low commitment to conduct norms. These cognitive schemas, in turn, increase the probability that an individual will define situations in a manner that legitimates, justifies, or requires criminal behavior. These definitions might involve, for example, a perceived threat, slight, or injustice that requires a forceful reaction. Or they might entail discerned opportunities for a quick reward or an immediate benefit by engaging in behavior that flouts convention or exploits others.

Turning to specific predictions derived from this model, we have argued that the three criminogenic schemas are rooted in similar social conditions and that they are mutually reinforcing. Thus, our first hypothesis is that the three schemas will be intercorrelated and will load as indicators of a latent construct that we call a criminogenic knowledge structure. The
model suggests that this criminogenic knowledge structure increases the likelihood of crime because it promotes situational definitions favorable to such lines of action. Unfortunately, our data set does not include assessments of situational definitions. Therefore, we only can assess the extent to which this knowledge structure predicts an increase in criminal behavior with the assumption that situational definitions account for this effect.

The left side of our theoretical model includes the following social causes of crime: parenting practices, collective efficacy, neighborhood crime, racial discrimination, and deviant peers. Perhaps the strongest association in criminology is that between affiliation with deviant peers and involvement in criminal behavior (Warr, 2002). Hence, this variable is a component of most criminological theories. Social learning theories, for example, assert that parenting (Akers, 1998; Patterson, Reid, and Dishion, 1992) and social disorganization theories argue that collective efficacy (Sampson, Morenoff, and Gannon-Rowley, 2002) deters association with deviant peers in addition to discouraging direct involvement in crime. Similarly, strain theories argue that exposure to high-crime neighborhoods and racial discrimination (Agnew, 2006; Cloward and Ohlin, 1960) increase affiliation with delinquent peers as well as involvement in crime. In line with these theories and depicted in figure 1, we contend that supportive parenting, collective efficacy, community crime, and racial discrimination affect criminal propensity in part by influencing affiliation with deviant peers. We depart from these theories, however, regarding the nature of the effect of these variables on crime. We contend that the criminogenic knowledge structure is the individual-level mechanism that explains the effects of social factors on individual offending. Thus, we hypothesize that the criminogenic knowledge structure mediates the effect of all of these variables, including affiliation with deviant peers, on criminal behavior.

Finally, we have no reason to believe that sex differences will occur in the structural associations posited among the various constructs, although males might exhibit greater exposure than females to some adverse social environments. We do expect, however, that sex will be related to the criminogenic knowledge structure that, in turn, will mediate much, if not all, of the association between sex and crime.

METHODS

SAMPLE

Our research uses the first four waves of the Family and Community Health Study (FACHS), a multisite (Georgia and Iowa) investigation of
neighborhood and family processes that contribute to the development of African American children in families living in a wide variety of community settings (see Gibbons et al., 2004; Simons et al., 2002). Sample members were recruited from neighborhoods, defined as census tracts, that varied on demographic characteristics, specifically racial composition (i.e., percent Black) and economic level (i.e., percent of families with children living below the poverty line). In Georgia, families were selected from 36 census tracts from metropolitan areas such as South Atlanta, East Atlanta, Southeast Atlanta, and Athens, which varied in terms of economic status and ethnic composition. In Iowa, the 35 census tracts that met the study criteria were located in two metropolitan communities—Waterloo and Des Moines. In both research sites, families were drawn randomly from rosters and contacted to determine their interest in participation.

The first wave of the FACHS data were collected in 1997 from 897 African American fifth-grade children (417 boys and 480 girls; 475 from Iowa and 422 from Georgia), their primary caregiver, and a secondary caregiver when one was present in the home. The mean age of the primary caregiver was 37 years (range, 23–80 years), 93 percent were female, 84 percent were the target's biological mothers, and 44 percent identified themselves as single parents. Their educational backgrounds were diverse, ranging from less than a high-school diploma (19 percent) to a bachelor's or advanced degree (9 percent).

The second, third, and fourth waves of data, which we use for our research, were conducted in 1999–2000, 2001–2002, and 2004–2005 to capture information when the target children were ages 12–13 years, 14–15 years, and 17–18 years, respectively. We focus on the latter three waves of data given that this is a period for escalating rates of delinquency and police contact (Gottfredson and Hirschi, 1990; Moffitt, 1997; Sampson and Laub, 1993). Of the 897 families, 779 remained in the panel at wave II; 767 were interviewed at wave III; and 714 were retained at wave IV (80 percent of the original sample).

Analyses comparing those families that did not participate in waves II or III did not differ significantly from those that participated regarding youths' age, sex, or participation in delinquency as well as regarding primary caregivers' education, household income, or neighborhood characteristics. Respondents who dropped out after the third wave, however, differed in a few ways from those in the first three waves. A larger percentage of those interviewed at wave IV were female and, not surprisingly, engaged in slightly less delinquency (diff = -.51, t = -1.97) on average than those not reinterviewed at wave IV. A greater proportion of the families that did not participate at wave IV had lower household incomes on average than those in the sample. No differences were observed between those remaining
in the panel and those dropping out with regard to community measures, family structure, or parenting practices.

Of the original sample of children and their caregivers, 713 people were interviewed at wave IV. Given the sampling design, these subjects represent a sample of Black youth from the two research sites that come from extremely poor-to-middle-class families and who reside in neighborhoods that exhibit significant variability in economic status, racial composition, and other factors, which are sampling features that are well suited for studying neighborhood effects (Jencks and Mayer, 1990).

MEASURES

Our analyses primarily use measures from waves III and IV, although controls for prior delinquency and social schemas are drawn from waves I and II. We use multiple informants for instances in which youths might have limited or biased information, such as parenting practices and neighborhood social ties (Furman et al., 1989; Simons, Johnson, and Conger, 1994). In these instances, we combine caregiver and youth reports. This multimethod approach was assumed to provide a more comprehensive and valid depiction of parental behavior than measures based only on a single respondent.

We have argued that persistent exposure to various environments influences individuals' offending through the lessons inherent in social experiences that are internalized or saved as cognitive schemas. Obviously, this argument implies that exposure to various environments is causally prior to the development of the schemas, which in turn, influences later crime. For several reasons, we model these processes at waves III and IV rather than measuring one step at each wave. First, we are examining youth across developmental stages (late childhood through early adulthood) in which arguably the greatest changes in life circumstances occur. Both the respondents' experiences in social situations as well as the individuals' themselves are different when they are 10–12 years old compared with when they are 17–20 years old. Most importantly, our analyses are organized by our proposition that it is persistent exposure to social contexts, rather than exposure at one time point, that influences the content of the schema as well as our contention that more recent exposure to antagonistic or supportive environments should have a stronger influence on current schemas than those that occurred many years prior. For these reasons, we use the average wave III and IV measures of the social contexts to predict the social schemas and crime measured at wave IV.\(^5\) Importantly, we examine the

---

\(^5\) When creating the average measures, we standardize the measures prior to averaging. Notably, 39 youths and caregivers, comprising 5 percent of the cases in
veracity of our causal order arguments by testing the effects of changes in the environments from waves II through IV on changes in the schemas.6

**DEPENDENT VARIABLE: Crime**

This construct was measured using youth self-reports on the conduct disorder section of the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV). The DISC-IV corresponds to symptoms listed in the *Diagnostic and Statistical Manual-IV* (DSM-IV; American Psychiatric Association, 1994). The DISC-IV was developed during a 15-year period of research on thousands of youths and parents and has demonstrated reliability and validity (Schaffer et al., 1993). The conduct disorder section contains a series of questions regarding how often during the preceding year the respondent engaged in 26 antisocial acts such as shoplifting, physical assault, setting fires, vandalism, burglary, and robbery. The maximum possible score of 26 corresponds to a subject responding that he or she engaged in all of the different acts. Not surprisingly, no respondent reported engaging in all 26 acts in any wave. The maximum score was 21 at wave IV. The alpha coefficient for the instrument was greater than .90. The control for previous delinquency was measured with the instrument averaged across waves I and II. The maximum scores were 15 and 19 in the first two waves, respectively. The alpha coefficient was greater than .89 in both waves.

**Deviant Schemas**

*Hostile View of Relationships.* A hostile view of relationships consists of the following dimensions: a cynical view of others' intentions and a belief in the need for an aggressive attitude to avoid exploitation. The measure was generated combining two scales that capture each dimension and load on separate factors. The first comprised 16 items that assess respondents' hostile view of the intentions of others and includes, for example, the following items: "When people are friendly, they usually want something from you"; "some people oppose you for no good reason"; and "you have often been lied to." The response format ranged from 1 (strongly disagree) to 4 (strongly agree). The coefficient alpha for the scales were .81 and .88 at

---

6. We also estimate cross-lagged models to test our argument that the plurality of the effect is from the schemas to crime rather than from the reverse (see appendix A).
waves II and IV, respectively. A 5-item scale was used to assess the extent to which respondents believe that a tough, aggressive response to others is necessary and functional, which is analogous to Anderson's depiction of the street code. Respondents indicated how much they agreed or disagreed with the following statements: “People do not respect a person who is afraid to fight for his/her rights”; “people tend to respect a person who is tough and aggressive”; “being viewed as tough and aggressive is important for gaining respect”; “it is important not to back down from a fight or challenge because people will not respect you”; and “it is important to show courage and heart and not be a coward in a fight in order to gain or maintain respect.” Response categories ranged from 1 (strongly disagree) to 4 (strongly agree). The coefficient alpha for the mean scale was .78. Only the first 2 of the 5 items were available in the wave II instrument. Thus, the wave II measure of reputation for toughness was the mean of those 2 items ($\alpha = .57$). The two dimensions were standardized and averaged to create the measure of hostile view used in the analyses. The alpha coefficient was .83 at wave IV and .73 at wave II.

**Immediate Gratification (Discounting the Future).** This construct was assessed with 13 items and captures respondent's propensity to discount the future in choosing courses of action. These items were gleaned from Kendall and Wilcox's (1979) good self-control (1 item: "When you have to wait in line you do it patiently") and poor self-control scales (6 items, e.g.: "You would rather have a small gift today than a large gift tomorrow" and “you have to have everything right away”) as well as Eysenck and Eysenck's (1977) risk-taking scale (6 items, e.g.: “You enjoy taking risks” and “you would do almost anything for a dare”). The resulting mean scale captures the extent to which the youth focuses on immediate rather than on delayed gratification. The alpha coefficient was .75 and .76 for waves II and IV, respectively.

**Low Commitment to Social Conventions.** This measure includes youth responses to questions about how wrong they believe it is for someone their age to engage in various deviant actions. The instrument included acts such as using marijuana, having casual sex, and cheating on a test. The response format for each item was as follows: 1) not at all wrong, 2) a little bit wrong, 3) fairly wrong, and 4) very wrong. The items were reverse coded prior to creating the mean scale such that the maximum score corresponds to a response of “not at all wrong” for all 6 items. Only two respondents scored the maximum. Although 195 individuals (27 percent) indicated that all deviant acts were “very wrong,” considerable variation in scores was observed across the sample ($\alpha = .78$).
This instrument was not incorporated in the wave II interview schedule, but an analogous norms scale was available. In the second wave, the youths completed a 4-item scale that asked how they felt about kids their age having sex, smoking, drinking, or using drugs. The response format for these items was as follows: 1) You think it is very bad, 2) you think it is bad; 3) you think it is neither bad nor good, 4) you think it is good, and 5) you think it is very good. Items were standardized and then averaged to create a mean scale of deviant norms at wave II ($\alpha = .77$).

**Social Environmental Conditions**

*Supportive Parenting.* The instruments used in creating the quality of parenting measure were adapted from instruments developed for the Iowa Youth and Families Project (Conger and Elder, 1994). These measures have demonstrated high reliability and validity. Prior to data collection, focus groups confirmed that the items resonate with African American parents and capture what they consider to be the important dimensions of effective parenting. Both caregivers and youths completed instruments assessing problem solving and inductive reasoning, and youth answered three additional scales concerning parental warmth, hostility, and positive reinforcement. Respondents were asked about parenting “during the past 12 months”; response categories for the items were as follows: 1) never, 2) sometimes, 3) often, and 4) always. Responses were coded such that higher scores correspond to superior parenting. In both waves, a composite supportive parenting measure was created by standardizing and averaging the scales. These two scales ($r = .43$) then were averaged to create the measure of supportive parenting used in the study analyses.

At each wave target, youths answered 9 items concerning parenting warmth.\(^7\) The alpha coefficient for the 9-item scale was .89 and .91 at waves III and IV, respectively. Parental hostility was measured with 14 items that assess the frequency with which caregivers engage in harsh discipline or otherwise hostile behaviors toward the target youth. These items were recoded such that a high score indicates an absence of caregiver hostility ($\alpha = .83$ and .85). Targets reported on their caregiver’s positive reinforcement; the alpha coefficient for this 2-item scale was approximately .57. Caregiver problem solving was assessed with 3 items. The alpha coefficients were roughly .58 for respondents in both waves. Finally, caregiver’s inductive reasoning—the extent to which caregivers provide explanations for the decisions they make regarding their children—was measured with respondents’ answers to 5 items. The alpha coefficient was .86 for youths and .84 for the primary

---

\(^7\) For brevity’s sake, we refer the reader to appendix B in Burt, Simons, and Simons (2006) for a list of the items included in the parenting measures.
caregivers. The reliability coefficient for the six scales at wave III was .73, and for the three scales at wave IV, it was .66. The correlation between the waves III and IV scales was .43, and the reliability coefficient was .60.

**Discrimination.** At waves III and IV, the target youth completed 13 items from the Schedule of Racist Events (Landrine and Klonoff, 1996). This instrument has strong psychometric properties and has been used extensively in studies of African Americans (e.g., Simons et al., 2006). The items assess the frequency (1 = never, 4 = several times) with which various discriminatory events were experienced during the past year. The scale asks about events that occurred as a consequence of being African American and includes items such as racial slurs, being hassled by the police, disrespectful treatment by sales clerks, false accusations by authority figures, and exclusion from social activities. The alpha coefficient for this scale was .90 and .91 at waves III and IV, respectively. The two scales ($r = .50$) were summed and averaged to create a composite measure of discrimination.

**Community Crime and Victimization.** This composite measure was based equally on the following scales: community crime and victimization in the community. The measure of crime was assessed with a revised version of the community deviance scale developed for the Project on Human Development in Chicago Neighborhoods (PHDCN; Sampson, Raudenbush, and Earls, 1997). The 9-item measure is concerned with how often various criminal acts occur within the community. It includes behaviors such as fighting with weapons, robbery, gang violence, and sexual assault. In wave III, primary caregivers and target children completed these items in reference to their residential neighborhood. At wave IV, because almost half of the youth lived apart from their caregivers at least part of the year, only target reports were used. The alpha coefficient for the target and primary caregiver (PC) reports was greater than .80 at wave III; the correlation between the target and caregiver reports was approximately .35. The alpha coefficient for the target reports at wave IV was .88.

The measure of criminal victimization was based on target youth responses to 2 items. These items assessed the number of times that someone in “the neighborhood surrounding where you lived for most of the past 12 months used violence, such as in a mugging, fight, or sexual assault against you?” and “against one of your friends.” Responses ranged from 0 (94 percent and 91 percent, respectively) to 8 (3 percent) and 12 (2 percent). The alpha coefficient for the 2-item composite scale was approximately .78 in both waves. Finally, the measures from waves III and IV were combined
and averaged to create the measures used in the model. The correlation between the measures at waves III and IV was .23.

Community Collective Efficacy. Following Sampson, Raudenbush, and Earls (1997), the measure of collective efficacy was formed by combining a social-ties scale with a social-control scale. Community social ties were assessed with a 9-item revised version of the Social Cohesion and Trust Scale developed for the PHDCN (Sampson, Raudenbush, and Earls, 1997). The items focus on the extent to which individuals in the area interact, trust, and respect each other and share values. In wave III, youths and caregiver reports were standardized and summed to create the social-ties scale. The alpha coefficient for the scale at wave III was greater than .80 for both respondents, and the correlation between youth and caregiver reports was roughly .35. The youth reports were used for the wave IV measure; alpha reliability was .86.

The social-control scale consists of 6 items (also adapted from the PHDCN; Sampson, Raudenbush, and Earls, 1997) that assess the extent to which individuals in the neighborhood would take action if various types of deviant behavior were evident. For example, items included the following: “If teenagers got loud or disorderly, the adults in the area would tell them to behave” and “the adults in the area would not hesitate to call the authorities if a group of teens were fighting with each other.” Reliability coefficients for the three measures (youths at waves III and IV, caregivers at wave III) were all greater than .85. The waves III and IV scales were averaged to create a measure of persistent exposure. The correlations between the two measures was .25.

Deviant Peers. At waves III and IV, the target youth reported their affiliation with deviant peers using an instrument adapted from the National Youth Survey (Elliot, Huizinga, and Menard, 1989). They were asked how many of their close friends (1 = none, 2 = half, and 3 = all) had engaged in each of the 15 deviant acts at wave IV (19 acts in wave III). The acts ranged from relatively minor offenses, such as using tobacco, to more serious violations, such as stealing something worth more than $50, attacking someone with a weapon with the idea of hurting them, and using crack or cocaine. The alpha coefficient was .83 and .87 for the scales at waves III and IV, respectively. These two scales (r = .42) were standardized, summed, and averaged to create the measure used in the present study.

Control Variables. In all the models we present, the sex of the respondents is controlled. The variable sex is coded 1 for males and 0 for females. In several models in which preliminary analyses support incorporating the variable, the standardized age of the respondents is entered as a control.
Age is measured in months at the time of the wave IV interview. Additional controls were considered, including household income; primary caregiver race, age, and sex; and the presence of a second caregiver in the home. None of these variables significantly influenced the processes under consideration and, thus, were not included in the models.

**Analytic Strategy**

Structural equation modeling (SEM) was used to test our hypotheses and offers several advantages to traditional econometric analyses. This approach permits correction for bias in the estimation of substantive parameters as a result of measurement error. Moreover, it allows for the estimation of substantive parameters simultaneously in the context of a full-information model—a model corresponding to the causal ordering of both the theoretical arguments and the longitudinal FACHS data. Perhaps most important for the present study, SEM provides tests of significance for indirect (or mediation) effects, including specific paths (e.g., Bollen, 1989).

Analyses were conducted using the statistical program MPlus Version 6.0 (Muthén and Muthén, 2007) using maximum likelihood parameter estimates with standard errors and a mean-adjusted, chi-square statistic that are robust to non-normality. Noting that we adjusted for item nonresponse for respondents who were interviewed in at least waves I, II, and IV and employed wave IV measures in lieu of waves III and IV averaged scales for those not interviewed at wave III, we use the default of listwise deletion in estimating the models. With one exception, the study variables were generally symmetric and normally distributed. The lone exception is the dependent variable—crime—which is an overdispersed count variable and is estimated with a negative binomial equation model accommodating the features of count outcome (Long, 1997).8

To assess goodness of fit, Steiger's root mean square error of approximation (RMSEA; Browne and Cudeck, 1993), the comparative fit index (CFI; Bentler, 1990), and the chi square divided by its degrees of freedom (fit ratio) are used. The CFI is truncated to the range of 0–1, and values close to 1 indicate a good fit (Bentler, 1990). A RMSEA smaller than .05 indicates a close fit, whereas a RMSEA between .05 and .08 suggests a reasonable fit (Browne and Cudeck, 1992).

---

8. The calculation of indirect effects and model fit indices are based on a continuous model. The negative binomial estimator requires numerical integration, and indirect effects cannot be calculated with model computations that require numerical integration (Muthén and Muthén, 2007). The continuous model on which the indirect effects and model fit indices, including the R-squared for the crime outcome, were based is presented in appendix B.
RESULTS

DESCRIPTIVE INFORMATION

Table 1 presents the means, standard deviations, and correlation matrix for the study variables. The mean number of criminal acts committed by the study youths is 2.84 and ranges from 0 to 21 acts. Approximately 33 percent (237) of the respondents did not commit any of the acts in wave IV; roughly 43 percent (305 respondents) committed one to four acts; 24 percent (171 youths) committed five or more. Among the respondents who committed at least one act in the crime measure, almost half committed at least four different acts, and more than 20 percent admitted to engaging in at least seven different acts. Clearly, sufficient involvement and individual variation in criminal offending exists in the data.

Turning to the zero-order correlations, the pattern of associations is largely as expected. Each of the social schemas has approximately a .30 correlation with crime ($p < .001$) as well as associations with each other ranging from .30 to .36. As expected, the social-environmental variables are significantly related to the social schemas in the expected direction, with one exception. Collective efficacy is not related to hostile views.

Sex is not significantly associated with most study variables; however, as expected, being male is significantly related to crime, tough reputation, and low commitment to social conventions. Contrary to our expectations, however, no significant association was found between being male and immediate gratification. Additional analysis showed that being male is significantly related ($r$ averages .11) to the risk-taking items in the immediate gratification scale but not to those concerned with patience and delayed gratification. These results are consonant with those of prior studies showing that the relationship between sex and self-control is explained by the greater attraction to risk taking by males than by females (see Campbell, 2006).

SEM RESULTS

We argued that persistent childhood and adolescent exposure to adverse social-environmental conditions fosters criminogenic schemas. Thus, we began our analyses by examining the extent to which changes in social schemas from wave II to wave IV (mid-to-late adolescence) were explained by changes in social environments. We expected that increased exposure to coercive environments (i.e., crime and discrimination) augment each

---

9. These results are available upon request.
## Table 1. Correlation Matrix for Study Variables (N = 713)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.84</td>
<td>3.52</td>
</tr>
<tr>
<td>2.</td>
<td>.38**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.01</td>
<td>.88</td>
</tr>
<tr>
<td>3.</td>
<td>.28**</td>
<td>.34**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.00</td>
<td>.59</td>
</tr>
<tr>
<td>4.</td>
<td>.30**</td>
<td>.34**</td>
<td>.30*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.58</td>
<td>.59</td>
</tr>
<tr>
<td>5.</td>
<td>.33**</td>
<td>.43**</td>
<td>.30**</td>
<td>.36**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.07</td>
<td>.59</td>
</tr>
<tr>
<td>6.</td>
<td>.22**</td>
<td>.35**</td>
<td>.13**</td>
<td>.24**</td>
<td>.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.07</td>
<td>.75</td>
</tr>
<tr>
<td>7.</td>
<td>-.15**</td>
<td>-.15**</td>
<td>-.13**</td>
<td>-.06</td>
<td>-.16**</td>
<td>-.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.21</td>
<td>.49</td>
</tr>
<tr>
<td>8.</td>
<td>-.20**</td>
<td>-.39**</td>
<td>-.36**</td>
<td>-.24*</td>
<td>-.34**</td>
<td>-.19**</td>
<td>.18**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.01</td>
<td>.87</td>
</tr>
<tr>
<td>9.</td>
<td>.26**</td>
<td>.34**</td>
<td>.21**</td>
<td>.23**</td>
<td>.20**</td>
<td>.20**</td>
<td>-.05</td>
<td>-.12**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.51</td>
<td>.29</td>
</tr>
<tr>
<td>10.</td>
<td>.27**</td>
<td>.40**</td>
<td>.20*</td>
<td>.19**</td>
<td>.28**</td>
<td>.18**</td>
<td>-.06</td>
<td>-.26**</td>
<td>.25**</td>
<td></td>
<td></td>
<td></td>
<td>2.17</td>
<td>2.40</td>
</tr>
<tr>
<td>11.</td>
<td>.13**</td>
<td>.04</td>
<td>.01</td>
<td>.10*</td>
<td>.19**</td>
<td>.01</td>
<td>.05</td>
<td>.02</td>
<td>.01</td>
<td>.17**</td>
<td></td>
<td></td>
<td>.44</td>
<td>.50</td>
</tr>
<tr>
<td>12.</td>
<td>.04</td>
<td>.08*</td>
<td>.01</td>
<td>-.03</td>
<td>.05</td>
<td>-.03</td>
<td>-.05</td>
<td>-.08*</td>
<td>.16**</td>
<td>.14**</td>
<td>-.01</td>
<td></td>
<td>.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**ABBREVIATION:** SD = standard deviation.

* *p ≤ .05; **p ≤ .001 (two-tailed).
Table 2. Results from SEMs Predicting the Change in Schemas (N = 713)

<table>
<thead>
<tr>
<th>Exogenous Predictors</th>
<th>Immediate Gratification&lt;sub&gt;W4&lt;/sub&gt;</th>
<th>Hostile Views&lt;sub&gt;W4&lt;/sub&gt;</th>
<th>Social Conventions&lt;sub&gt;W4&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
</tr>
<tr>
<td>Outcome variable&lt;sub&gt;W2&lt;/sub&gt;</td>
<td>.40**</td>
<td>.42**</td>
<td>.30**</td>
</tr>
<tr>
<td>Community crime&lt;sub&gt;W4–W2&lt;/sub&gt;</td>
<td>.01</td>
<td>.01</td>
<td>.18**</td>
</tr>
<tr>
<td>Collective efficacy&lt;sub&gt;W4–W2&lt;/sub&gt;</td>
<td>-.06†</td>
<td>-.05</td>
<td>-.02</td>
</tr>
<tr>
<td>Supportive parenting&lt;sub&gt;W4–W2&lt;/sub&gt;</td>
<td>-.16**</td>
<td>-.12**</td>
<td>-.10**</td>
</tr>
<tr>
<td>Discrimination&lt;sub&gt;W4–W2&lt;/sub&gt;</td>
<td>.19**</td>
<td>.15**</td>
<td>.18**</td>
</tr>
<tr>
<td>Sex (1 = male)</td>
<td>.06†</td>
<td>.06†</td>
<td>.19</td>
</tr>
<tr>
<td>Age</td>
<td>-.06†</td>
<td>-.06</td>
<td>.06</td>
</tr>
<tr>
<td>Deviant peers&lt;sub&gt;W4–W2&lt;/sub&gt;</td>
<td>.15**</td>
<td>.04</td>
<td>.15**</td>
</tr>
<tr>
<td>R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>.22</td>
<td>.24</td>
<td>.17</td>
</tr>
<tr>
<td>χ&lt;sup&gt;2&lt;/sup&gt; (d.f.)</td>
<td>9.04(12)</td>
<td>9.11(14)</td>
<td>4.95(9)</td>
</tr>
<tr>
<td>RMSEA/CFI</td>
<td>.00/.00</td>
<td>.00/.00</td>
<td>.00/.00</td>
</tr>
</tbody>
</table>

**NOTE:** Reduced models presented; standard coefficients shown.

**ABBREVIATIONS:** CFI = comparative fit index; d.f. = degrees of freedom; RMSEA = root mean square error of approximation.

†p < .08; *p < .05; **p < .01.

of the criminogenic schemas, whereas supportive environments (i.e., parenting and collective efficacy) diminish belief in the schemas. Six SEMs were estimated—two for each social schema. In the first SEM, change in the schemas from wave II to wave IV was predicted by the change in the social-environmental variables. Change in the schemas was assessed by incorporating the wave II schema as an exogenous predictor. In the second model for each schema, increased affiliation with deviant peers was added as an exogenous predictor to take into account the fact that some of a social environment's effect might be indirect through its impact on peer associations. Table 2 presents the results. In general, the findings show that changes in social environments produce changes in each of the social schemas. The model fit statistics across the table indicate that the models fit the data well. Across the six models, the chi-square statistic is insignificant, indicating that the model fits the data well. The RMSEA statistic for all models is <.01. The CFI statistic is 1.00 in all cases as well.

Turning to the parameter estimates in table 2, immediate gratification shows the most stability across the models (γ = .40) followed by hostile
view ($\gamma = .30$) and social conventions ($\gamma = .20$). Increased exposure to community crime and victimization is associated with significant increases in hostile view and in lower commitment to social conventions, with and without changes in deviant peers in the model. Community collective efficacy is associated with a significant decrease in low commitment to social conventions ($\gamma = -.08$) and a marginally significant decrease in immediate gratification ($\gamma = -.06$). The influence of collective efficacy on these two schemas is only slightly altered by the inclusion of deviant peers, suggesting that its influence is not indirect through deviant peer affiliation. Supportive parenting significantly decreases each of the schemas, with the strongest effects on immediate gratification; path coefficients ranged from $-.12$ to $-.16$ ($p < .001$). Experiences with discrimination produce statistically and substantively significant changes in all schemas, with the strongest effects on immediate gratification and hostile views. As is shown comparing the first and second models for each schema, some effects of changes in the contexts are indirect through changes in deviant peer affiliations, which are significantly related to changes in immediate gratification and social conventions. Sex is not associated with changes in immediate gratification, but being male is significantly associated with increased hostile view of relationships and with increased rejection of social conventions. Finally, being older is associated with lower hostile views and increased rejection of social conventions, but these coefficients are only marginally significant.

Overall, the changes in the social schemas produced by changes in social-environmental conditions are largely consistent with our arguments. Approximately 20 percent of the variance in immediate gratification, hostile views, and commitment to social conventions is explained in the models. Even with the relative stability of both the schemas and the contexts, changes in exposure to deleterious and supportive conditions alter social schemas.

We have argued that the three schemas are interrelated, mutually reinforcing cognitive frameworks that combine to form a knowledge structure that influences crime through definitions of the situation. This argument implies that the schemas should come together as a higher order latent construct. We estimated a confirmatory factor analysis to test this idea. Following convention, we set the metric for the latent construct by fixing the factor loading of immediate gratification to 1. Multiple group analyses indicated that the factor loadings were invariant by sex.\textsuperscript{11} Although

\textsuperscript{11} We tested for measurement invariance (invariance of intercepts and factor loadings) by sex using multiple group analyses and the chi-square difference test in MPlus. The chi-square difference value was marginally significant ($p = .051$) because of different thresholds for hostile view by sex.
**Figure 2. Reduced Structural Equation Model (N = 713): Negative Binomial Model Estimator Predicting Crime**

*NOTE:* Standardized values displayed; age controlled but only related to exogenous constructs and thus not shown for clarity. $R^2$ in parentheses below endogenous constructs. Event rate ratio from NB model in brackets.

it is not a definitive test, the results of the confirmatory factor analysis (CFA) provide support for our argument. The factor loadings are .61 for immediate gratification, .68 for hostile views, and .66 for social conventions, suggesting that these constructs combine to comprise a latent construct.

Next, we estimated a structural model to test the central feature of our proposed theoretical model that this latent knowledge structure construct is associated with crime (i.e., it is criminogenic) and that it mediates much of the effects of social environments on crime. First, we estimated a model that included all possible pathways between the constructs. After the initial estimation of the model, nonsignificant paths ($t < 1.5$), which were not part of the hypothesized model, and residual correlations were eliminated to improve model fit. All direct paths between the ecological contexts and crime as well as the direct path from earlier delinquency to the outcome were removed in this step, as all had $t$ values less than 1.5, except for discrimination, which continued to have a direct effect. Figure 2 displays the results of the reduced model for the total sample. Although model fit indices are not available for the count model, the model fit indices for the
The results in figure 2 show that the social-environmental factors influence the latent knowledge structure variable as predicted. Community crime and discrimination have positive effects on the criminogenic schema of .07 and .12, respectively. Supportive parenting and collective efficacy, however, are negatively associated with this knowledge structure ($\gamma = -.18$ and $\gamma = -.09$, respectively). Moreover, these social-environmental variables, with the exception of collective efficacy, which does not seem to influence deviant peer affiliations, are significantly related to deviant peers in the same manner. That is, community crime and discrimination are associated with an increase, whereas quality of parenting is associated with a decrease in affiliation with deviant peers. The deviant peers variable, in turn, shows a strong association with knowledge structure ($\gamma = .49$). This pattern of findings is consistent with our argument that affiliation with deviant peers fosters a criminogenic knowledge structure and that, in addition to their direct effects, the other social-environmental variables influence this knowledge structure indirectly through their impact on affiliation with deviant peers. The first half of table 3 displays the total effects of the social-environmental variables on the knowledge structure as well as the specific indirect paths through deviant peers. Delta-method standard errors for significance testing of the indirect effects were computed in Mplus. Finally, as shown in figure 2, the effect of deviant peers on crime is completely mediated by the knowledge structure.

12. Chi-square and other fit indices are not available in count models in which means, variances, and covariances are not sufficient statistics for model estimation. The model fit indices from the continuous model (see appendix B) suggest a good fit of the model to the data; the RMSEA statistic is .039, the TLI is .97, and the CFI is greater than .97. The CFI is truncated to the range of 0–1, and values close to 1 indicate a good fit (Bentler, 1990). An RMSEA smaller than .05 indicates a close fit, whereas an RMSEA between .05 and .08 suggests a reasonable fit (Browne and Cudeck, 1993).

13. Notably, we included age as a predictor in the model, but given that age's only significant influences were correlations with the other exogenous constructs, we omitted it from the displayed figure for clarity.

14. MPlus has the following options for calculating the standard errors for indirect effects: the delta and bootstrapping methods. We estimated standard errors using both methods, and the results were analogous. The presented significance levels are based on the results from the default delta method.

15. Recall that these estimates are based on the reduced continuous model presented in appendix B.

16. The chi-square difference between the models with and without (path constrained to zero) deviant peers is .058 ($p = .8213$).
Table 3. Indirect Effects ($N = 713$)

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Criminogenic Knowledge Structure</th>
<th>Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Peers to CKS$^a$</td>
</tr>
<tr>
<td>Delinquency$^{w1+W2}$</td>
<td>.248***</td>
<td>.128***</td>
</tr>
<tr>
<td>Community crime$^{w3+w4}$</td>
<td>.193***</td>
<td>.106***</td>
</tr>
<tr>
<td>Collective efficacy$^{w3+w4}$</td>
<td>-.130***</td>
<td>-.026</td>
</tr>
<tr>
<td>Supportive parenting$^{w3+w4}$</td>
<td>-.288***</td>
<td>-.080***</td>
</tr>
<tr>
<td>Discrimination$^{w3+w4}$</td>
<td>.276***</td>
<td>.099***</td>
</tr>
<tr>
<td>Deviant peers$^{w3+w4}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (1 = male)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES: These indirect effects were calculated from a continuous SEM using delta method standard errors.

ABBREVIATION: CKS = crime knowledge structure.

$^a$This column displays the effects of each predictor to peers to the CKS.

$^b$This column displays the effects of each predictor to CKS to crime.

$^c$This column displays the effects of each predictor from the path through deviant peers to CKS to crime.

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

Among the controls for sex and prior delinquency, both being male and prior delinquency are positively related to the criminogenic knowledge structure directly (.15 and .07, $p < .001$, respectively) and to deviant peers. Importantly, both of these variables are fully mediated by knowledge structure. In other words, sex/gender influences on crime are explained by the criminogenic knowledge structure; likewise with previous delinquency.\footnote{17}

Finally, the path between knowledge structure and delinquency is significant and large ($\beta = .95, p < .001$). A 1 standard deviation increase in the knowledge structure increases the expected count of crime by 159 percent (calculated as follows: $[100 \times (e^{.95} - 1)]$). Moreover, the latent knowledge structure construct fully mediates all other predictors in the model with the exception of racial discrimination. Discrimination has a significant direct effect on crime ($\gamma = .13$) in addition to its larger indirect effect through knowledge structure. Forty-seven percent of the variance in knowledge structure is explained by the ecological context, sex, previous delinquency, and deviant peer affiliation, and the continuous model explains 31 percent of the variance in crime.

\footnote{17. The chi-square difference between the model including the path from sex to crime and the model in which the path is constrained to be zero is .004 ($p = .945$). The chi-square difference between the models with and without (path constrained to zero) the direct path from delinquency to crime was .426 ($p = .514$).}
The right side of table 3 displays the indirect effects of the social-environmental factors on crime along with their significance. All social-environmental variables have significant ($p < .01$) indirect effects on crime. The standardized indirect effects range from an absolute value high of .252 for deviant peers and $-1.157$ for quality of parenting to $-0.071$ for collective efficacy. Turning to specific paths, the two ways that social-environmental factors can influence crime is through criminogenic knowledge structure to crime or through deviant peers to criminogenic knowledge structure to crime. All indirect effects through these two pathways are significant, except for collective efficacy through peers.

Although not part of our hypotheses, it is worth noting that prior delinquency does not have a direct influence on later crime; its effect is indirect through deviant peers and criminogenic knowledge structure. As shown in table 3, both of these indirect effects are significant. This finding indicates that the stability of antisocial behavior over time is explained by the fact that early involvement enhances commitment to a criminogenic knowledge structure both directly and indirectly by increasing affiliation with deviant peers. The effect of sex on crime is also fully mediated by the knowledge structure. The indirect effects, shown at the bottom of table 3, are significant and positive, suggesting that sex differences in crime are accounted for by the criminogenic knowledge structure.

**DISCUSSION**

Criminal offenders, like conforming individuals, tend to view their actions as legitimate and acceptable given prevailing circumstances (Baumeister, 1997; Giordano, Cernkovich, and Rudolph, 2002; Katz, 1988). The motives for criminal acts usually involve elements of revenge, teaching someone a lesson, impressing peers or bystanders, or the opportunistic pursuit of material rewards (Black, 1998; Katz, 1988). Usually little empathy or concern is involved for the fair treatment of those negatively affected by these acts. We posited that these perceptions and behaviors are fostered by the combination of the following schemas: a hostile view of relationships, a focus on immediate rewards, and low commitment to conventional conduct norms.

We argued that this cognitive framework, which shapes situational definitions and resulting actions, develops in response to adverse social-environmental conditions that past research has linked to crime. Social environments that have been shown to encourage crime (e.g., neighborhood crime and discrimination) tend to be unpredictable and exploitive.
as well as low on trust, reciprocity, and support, whereas those that have been shown to discourage crime (e.g., authoritative parenting and collective efficacy) tend to be predictable and supportive, as well as high on trust and reciprocity. The two types of milieus teach different lessons regarding the nature of relationships, the value of delayed gratification, and the authority of social conventions. Consequently, persistent exposure to such antagonistic social circumstances and lack of exposure to these positive conditions increases the chances of developing social schemas involving a hostile view of relationships, a focus on immediate rewards, and cynicism regarding conventional conduct norms.

We posited that these three elements represent an interconnected set of learned, mutually reinforcing principles that combine to form a knowledge structure conducive to crime. We hypothesized that this cognitive structure fosters situational definitions that lead to actions that are aggressive, opportunistic, and sometimes criminal. Finally, we argued that females, given their greater fear and caution, would be less likely than males to develop criminogenic knowledge structures, and that this difference largely accounts for sex differences in criminal behavior.

Our findings provided preliminary support for this perspective. First, social-environmental factors emphasized by other criminological theories predicted changes in the three schemas. Specifically, community crime, deviant peers, and discrimination increased, whereas collective efficacy and supportive parenting decreased belief in the schemas. Second, as predicted, the schemas were intercorrelated and combined to form a latent construct. Consistent with the contention that this construct represented a criminogenic knowledge structure, it was a strong predictor of change in crime. Furthermore, our findings indicated that in large measure the effect of the various social-environmental conditions on offending is indirect through the criminogenic knowledge structure. With one exception—to be discussed subsequently—the effect of these adverse conditions on change in crime was mediated completely by the latent variable criminogenic knowledge structure. Finally, we found that controlling for a criminogenic knowledge structure eliminated the association between sex/gender and crime. Our results indicated that this effect is largely a consequence of males being more committed to a hostile view of relationships and less committed to social conventions than females.

In contrast to the effects of the other social factors, whose effects on crime were fully explained by the criminogenic knowledge structure, racial discrimination had a direct effect in addition to its indirect effect. Although this result was not expected, it is not inexplicable. First, unlike the other examined social factors, racial discrimination is experienced exclusively by racial minorities. Thus, it might be the case that racial discrimination affects social behaviors such as crime through racially specific factors. Scholars
have argued that the unique position of African Americans shapes the development of a distinctive worldview (e.g., Unnever and Gabbidon, 2011). Thus, it is possible that unique racial schemas or factors are needed to explicate the link fully between race and racism and offending. It also might be the case that ethnic-racial factors condition the influence of racial discrimination on cognitions and behavior. For example, recent research has highlighted the importance of ethnic-racial socialization—a class of protective practices used to promote minority children's pride and esteem in their racial group and to provide children with competencies to deal with racial stratification—in explaining variations in responses to racial discrimination (Neblett et al., 2008). Research indicates that ethnic-racial socialization influences adolescents' criminal responses to discrimination (Burt, 2009). Thus, although most effects of racial discrimination are indirect through individuals' knowledge structures, the remaining effect on offending might be accounted for by various race- or ethnic-specific processes or by mechanisms that affect situational definitions and thus in situ behavior.

Alternatively, it also might be the case that a general factor accounts for the remaining direct effect of discrimination. As we noted, using the example of someone walking in on his or her spouse in coitus with a family friend, some situational factors might compel criminal behavior net of individuals' criminogenic knowledge structures. In some circumstances, racial discrimination might be so frustrating, anger-provoking, or even maddening that it could foster an antisocial reaction regardless of the victim's knowledge structure. A particularly severe experience with discrimination could be the precipitating factor, or it could be a triggering event that is no more injurious than those that have come before but served as the last straw. Although additional research is needed to explicate the direct effect of racial discrimination, the aforementioned explanations are not inconsistent with the proposed model.

Although our findings largely confirmed the study hypotheses and provided preliminary support for our theoretical arguments, our study is not without limitations. Perhaps most importantly, because of the absence of measures, we could not test the idea that situational definitions mediate the relationship between criminogenic knowledge structure and perpetration of criminal behavior. Additionally, the relative length of intervals between waves, given the ages of the youth in the sample, precluded our ability to provide a rigid test of the causal order of our proposed model. Additional tests are needed that subject the theorized causal sequencing to more scrutiny.

Another limitation is the homogeneity of our sample; all respondents in our sample were African American. Use of an all African American sample had the benefit of allowing us to incorporate racial discrimination into the
model—a factor that recent research indicates is an important predictor of crime among African Americans (e.g., Simons et al., 2006; Unnever et al., 2009). Although we cannot think of any reason why our results would be specific to African Americans, our findings clearly need to be replicated with more diverse samples.

Although important elements remain to be tested, the proffered framework has the potential to integrate a wide array of extant criminological findings and constructs into a coherent theoretical perspective. It specifies a temporal linkage between social-environmental factors identified by various control, strain, and cultural deviance perspectives and the development of a set of social schemas posited to foster situational definitions conducive to crime. These schemas build on Dodge's (1986; Dodge, Bates, and Pettit, 1990) concept of hostile attribution bias, Anderson's (1999) research on street code, and Gottfredson and Hirschi's (1990) work on self-control, as well as on Akers's (1998) and Hirschi's (1969) emphasis on moral beliefs and conduct norms. We argue that what unites these seemingly disparate community, family, and peer variables is the common set of lessons regarding the nature of relationships, the value of delayed gratification, and the authority of conduct norms inherent in these social interactions. These cognitive constructs were reconceptualized as interlinked schemas that operate in concert to foster situational definitions favorable to crime. The result is a broader, more comprehensive model than that achieved in most prior attempts at theoretical integration.

An advantage of this social-schematic theory is that it can be expanded easily to accommodate additional social environments and experiences that have been shown to increase the probability of criminal behavior. Watching violent television (Bushman and Huesmann, 2000; Huesmann et al., 2003), playing violent video games (Anderson and Bushman, 2001; Anderson et al., 2010), incarceration (Laub and Sampson, 2003), and other negative social relations (Agnew, 2006), for example, have been linked to increases in offending. Our social-schematic perspective would predict that in large measure these variables have their effect because they teach lessons about relationships and about how the world works, thereby promoting a hostile view of relationships, a focus on immediate rewards, and low commitment to conventional conduct norms.

Research also has identified social factors that reduce involvement in criminal and deviant behavior. Marriage, employment, and military service, for example, have been linked to a reduction in antisocial behavior (Laub and Sampson, 2003; Sampson and Laub, 1993). We expect that these factors reduce offending because they foster a benign, predictable view of social life, thereby diminishing belief in the criminogenic knowledge structure. Support for this idea comes from studies showing that individuals with a
distrustful view of relationships tend to develop a more positive relationship schema after marrying a caring and supportive individual (Hazan and Hutt, 1990). Similarly, affiliation with conventional peers increases self-control (Burt, Simons, and Simons, 2006), whereas improved parenting has been linked both to increased self-control (Burt, Simons, and Simons, 2006; Hay and Forrest, 2006) and to decreased commitment to a hostile view of relationships (Simons et al., 2006). Such findings highlight the malleability of social schemas and point to various prosocial interventions to reduce offending by changing cognitive structures. Indeed, already evidence has been found that supports the efficacy of this approach. Several studies, for example, have shown that it is possible to enhance sensitivity to others and delayed gratification (e.g., Reid, Trout, and Schartz, 2005; Strayhorn, 2002). In addition, at least five intervention experiments have shown that a hostile view of relationships can be altered and that this change decreases deviant, aggressive behavior (see Dodge, 2006).

Although our findings indicate that the three schemas included in the present study are important elements of the criminogenic knowledge structure, subsequent studies might demonstrate that other factors need to be incorporated. We do not claim that this model is fully exhaustive. Human beings are extraordinarily complex creatures, and their perceptions and actions in any situation are influenced by a wide array of assumptions and dispositions. That said, we do believe that these three social schemas represent the basic components of the criminogenic knowledge structure. And, in our view, the criteria for adding another element consists of demonstrating that the new factor is interconnected with the three schemas currently in the model, is rooted in the same existential conditions as these schemas, and significantly enhances the prediction of crime when the criminogenic knowledge structure is expanded to include it.

In conclusion, we believe that the social-schematic framework we have presented will provide a fresh way of thinking about theoretical integration. During the past 30 years, numerous exciting theoretical developments have been made in the field of criminology (see Laub, 2004). Unfortunately, although each of the dominant theories has abundant empirical support, none explains more than a small amount of the variance in criminal behavior. What is required, in our view, is an approach that facilitates combining the important constructs from these various theories into a more comprehensive perspective. Our findings suggest that such integration might be accomplished by focusing on the lessons communicated by recurrent social circumstances and the social schemas that result from those lessons. This approach provides a framework for combining concepts central to strain, cultural, control, and social-learning explanations of crime.
REFERENCES


Ronald L. Simons is Distinguished Research Professor in the Department of Sociology and research fellow in the Institute for Behavioral Research at the University of Georgia. Much of his research has focused on the manner in which family processes, peer influences, and community factors combine to influence deviant behavior across the life course. He also has completed work on domestic violence and the effect of racial discrimination on child development. His recent work has appeared in *Criminology*, the *Journal of Health and Social Behavior*, and *Developmental Psychology*.

Callie Harbin Burt is an assistant professor in the School of Criminology and Criminal Justice at Arizona State University. Her current research
investigates the social-psychological mechanisms through which social factors, such as racial discrimination, community crime, and harsh parenting, influence criminal offending. In other research, she examines the protective effects of ethnic–racial socialization on the link between racial discrimination and offending. Her work has recently appeared in *American Journal of Sociology, Criminology, and the Journal of Health and Social Behavior*. 
Appendix A. Examining Causal Order Issues: Cross-Lagged Models of Knowledge Structure Components and Crime

Cross-Lagged Associations Between Crime and Alternating Knowledge Structure Variables in Waves 3 and 4

<table>
<thead>
<tr>
<th>Paths</th>
<th>Immediate Gratification</th>
<th>Hostile View</th>
<th>Rejected Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime&lt;sub&gt;W3&lt;/sub&gt; → Crime&lt;sub&gt;W4&lt;/sub&gt;</td>
<td>.25**</td>
<td>.31**</td>
<td>.32**</td>
</tr>
<tr>
<td>Alternating KS Var&lt;sub&gt;W3&lt;/sub&gt; → Alternating KS Var&lt;sub&gt;W4&lt;/sub&gt;</td>
<td>.29**</td>
<td>.28**</td>
<td>.27**</td>
</tr>
<tr>
<td>Crime&lt;sub&gt;W3&lt;/sub&gt; → Alternating KS Var&lt;sub&gt;W4&lt;/sub&gt;</td>
<td>.09</td>
<td>.14*</td>
<td>.12*</td>
</tr>
<tr>
<td>Alternating Var&lt;sub&gt;W3&lt;/sub&gt; → Crime&lt;sub&gt;W4&lt;/sub&gt;</td>
<td>.17*</td>
<td>.16*</td>
<td>.26*</td>
</tr>
</tbody>
</table>

**NOTES:** Standardized coefficients displayed. Zero degrees of freedom available for calculation of model fit indices.

* Immediate gratification was not included in the wave 3 survey; thus, waves 2 and 4 were used in this model.

**p < .05; ***p < .01** (two-tailed tests).

Appendix B. Reduced Continuous SEM (N = 713)

**NOTES:** Standardized values displayed; age controlled but only related to exogenous constructs and thus not shown for clarity. R² in parentheses below endogenous constructs. Model fit indices: χ²(63) = 63.36, p = .003; CFI = .97; TLI = .97; RMSEA = .03.