Adolescent Sex Offender Registration Policy: Perspectives on General Deterrence Potential From Criminology and Developmental Psychology

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Adolescent Sex Offender Registration Policy:

Perspectives on General Deterrence Potential from Criminology and Developmental Psychology

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Abstract

Sex offender registration policies have expanded rapidly, now extending to adolescent offenders across the nation. Policies mandating registration are based, in part, on arguments that registration is needed to prevent dangerous sex offenders from committing additional offenses and that risk of registration deters would-be offenders from offending in the first place. Research suggests that registration does not serve the former specific deterrent function for adolescents, but less is known regarding the latter goal of general deterrence. The disciplines of criminology and developmental psychology both offer important theoretical perspectives, but these frameworks have yet to be applied to this unique context. Criminological theory on perceptions of sanction risk offers clear predictions about the potential for registration to serve as a deterrent for would-be adolescent sex offenders. Yet, the literature has not meaningfully acknowledged that (a) most adolescents are probably unaware of the parameters of registration (e.g., age restrictions, range of registerable offenses), and (b) even if adolescents are aware of registration risk, they are unlikely to be effectively deterred by it due to a variety of developmental vulnerabilities (e.g., psychosocial immaturity, perceived normativeness of certain nonviolent sexual offenses that can result in registration). We argue that key elements of criminological and developmental psychological theory must be integrated to gain a better understanding of whether sex offender registration policy can have a general deterrent effect for adolescents. We conclude with a call for interdisciplinary research that addresses the general deterrence gap and its role in guiding empirically driven policy reform.

Keywords: sex offending, registration, adolescents, deterrence, public policy
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Although the juvenile justice system was founded on the principle of rehabilitation, a wave of violent crime in the 1980s and 1990s along with media portrayals of young superpredators (DiIulio, 1995) caused the policy focus to shift from rehabilitating adolescent offenders to punishing them (Reppucci, Michel, & Owen-Kostelnik, 2009). In reaction, federal and state policies expanded the mechanisms available for treating adolescent offenders like adult offenders, including policies that require adolescent sex offenders to submit their personal information to police and public registries just as adult sex offenders do. Despite controversy over whether even adults should be required to register as sex offenders (e.g., Sandler, Freeman, & Socia, 2008), in recent decades the federal government and many states have enacted legislation that has been increasingly inclusive; that is, more individuals are required to register, more behaviors are defined as registerable offenses, more information is required to be shared, and that information is made more widely available to the public. As a result, increasingly more adolescent sex offenders are being subjected to punitive and restrictive registration policies that were originally intended for adults.

These policies were motivated, in part, by the desire to promote public safety. The tracking of sex offenders was expected to enable citizens to take preventive measures against sexual victimization and assist law enforcement in identifying and apprehending perpetrators. Indeed, there is evidence that registries enable citizens to take steps to protect themselves and their families. Boyle, Ragusa-Salerno, Marcus, Passannante, and Furrer (2014) found that 68% of community members who had accessed their state’s online sex offender registry subsequently either educated their children about the presence of sex offenders in the community, educated
their children’s babysitter, monitored their children more, improved home security, changed their daily activities, or even planned to move to a new location. However, such results must be evaluated in the context of a growing body of research showing that, even though the majority of citizens are aware that sex offender registries exist, only a minority actually consult them (Anderson & Sample, 2008; Boyle et al., 2014; Kernsmith, Comartin, Craun, & Kernsmith, 2009). Sex offender registries cannot enhance public safety if the public does not use them. Moreover, whereas Boyle et al. (2014) found that 87% of users reported feeling safer after consulting the registry, other research suggests that sense of security may be unfounded. For instance, Kernsmith et al. (2009) found that even though 99.5% of community members they surveyed lived in a zip code with at least one registered sex offender, only 51% of those who accessed the registry believed an offender lived in their community (see also Burchfield, 2012). It is also important to note that 62% of law enforcement officers surveyed by Tewskbury and Mustaine (2013) disagreed with the premise that “sex offender registration and notification is effective in preventing sexual victimisation” (p. 102).

Research has also raised questions regarding the accuracy of the information that appears on registries: Tewksbury (2002) found that 11% of sex offenders in one urban county had no address listed on the state registry, 11% listed an address for a commercial establishment, and 5% listed an address that did not actually exist. To the extent that registries are missing or include invalid details, law enforcement agents will be unable to apprehend registered sex offenders who recidivate. Other work suggests that law enforcement resources might be wasted when registered sex offenders are investigated as the first line of defense in sex offense cases. For example, Craun, Simmons, and Reeves (2011) found that only 4% of children and adults seen at a sexual assault agency were attacked by individuals who were already registered sex
offenders. In summary, there is mounting scientific evidence that, in general, sex offender registration policies are not effectively attaining their public safety goals. Although the studies referenced here did not examine registration of adolescent offenders specifically, given that adolescent registration is an outgrowth of the policies originally implemented for adult sex offenders, it seems likely that the public safety efficacy of adolescent-specific policies is equally in question.

In addition to their public safety basis, these policies are also rooted, explicitly or implicitly, in deterrence theory. The general assumption is that widespread public dissemination of convicted sex offenders’ personal information and criminal offenses will reduce the rate of future sexual offending. As Robinson and Darley (2004, p. 173) noted, “criminal law makers and adjudicators formulate and apply criminal law rules on the assumption that they nearly always influence conduct” (see also Bumby, Carter, Talbot, & Gilligan, 2007). Is this assumption valid, particularly for adolescent offenders? Preliminary research (discussed later) suggests that registration does not appear to be an especially effective specific deterrent for adolescent sexual offending, but less is known about registration as a general deterrent. We argue here that a blanket extension of deterrence-driven policies to adolescent offenders may be short-sighted and ultimately ineffective without proper consideration of well-documented principles of adolescent development that are known to impact youth decision making and behavior. Adolescents differ substantively from adults in many domains, and those differences can have meaningful implications for the intended goals of sex offender registration policies. In short, there is an inherent conflict between deterrence theory and developmental psychological theory in this important policy context.

The present article explores this theoretical conflict in the unique context of adolescent
sex offender registration. We begin by examining recent changes in federal and state registration policies and reviewing the scientific evidence of registration policy efficacy. We next examine the limited available evidence linking policy awareness to deterrence. Consistent with past research, we hypothesize that the possible deterrent effects of registration on adolescents are limited because adolescents are likely to be unaware of the existence or scope of registration policies. We further propose that established constructs from both criminology and developmental psychology moderate relations between policy awareness and deterrence among adolescents who are cognizant of the risk of registration. Specifically, we suggest that the deterrent impact of registration is undermined by the fact that certain nonviolent sexual offenses that warrant registration are perceived as developmentally normative (e.g., consensual sex between similar-aged peers, sexually explicit text messaging or “sexting”) and therefore low risk. We also argue that the potential deterrent effect of registration is likely to be overridden by developmental forces, as decades of developmental behavioral research as well as recent advances in developmental neuroscience converge on the notion that adolescents’ psychosocial immaturity (e.g., reward-seeking tendencies, compromised executive functioning) has a powerful impact on their behavior (e.g., Hoff, Greene, & Davis, 2003; Reyna & Farley, 2006; Steinberg, 2005, 2009; Snyder & Sickmund, 2006). We conclude by arguing that this issue is in critical need of empirical research that must be informed by the existing scholarship from both criminology and developmental psychology.

Recent Developments in Sex Offender Registration Policy

In 1994, the Jacob Wetterling Crimes Against Children and Sexually Violent Offender Registration Act (42 U.S.C. § 14071) required that convicted sex offenders in all 50 states, upon completing their prison sentences, register their personal information with local law enforcement
agencies. The type of information that must be submitted varies across jurisdictions but generally includes the offender’s home address, employer and employer’s address, photograph, fingerprints, and details about the offense(s) committed. Additional information is sometimes required, ranging from social networking names to DNA samples. As part of the Wetterling Act, Megan’s Law further mandated that states establish notification procedures to inform citizens about sex offenders living in their communities. In some cases, police go door-to-door or hand out fliers in neighborhoods to provide residents with information about offenders. More commonly, offenders’ information is posted on public online databases or “registries.” In 2006, the Sex Offender Registration and Notification Act (“SORNA,” 42 U.S.C. § 16911) required all states to participate in a national online registry. SORNA was the first federal legislation to extend registration and notification requirements to adolescent sex offenders, specifically, those who are either (a) at least 14 years old and adjudicated delinquent in juvenile court for sex offenses involving aggravating circumstances (e.g., use of force, threat of serious violence) or (b) convicted in adult criminal court.

It is important to note that SORNA established minimum guidelines for registration; states must adhere to these guidelines but they also may institute policies that are more inclusive in terms of setting younger minimum ages, requiring registration for less severe offenses, requiring more extensive information during registration, and making that information more widely available to the public. For example, children as young as 9 years old can and have been placed on the sex offender registry in Michigan and Delaware—approximately 9% of minors on Delaware’s registry were under the age of 12 in 2011 (Human Rights Watch, 2013). At the time of Salerno, Stevenson, and colleagues’ (2010) review of registration laws across the United States, adolescents were required to register as sex offenders under at least some circumstances...
in 33 states, and adolescent registration was automatic and mandatory in 26 states. Even adolescents adjudicated guilty of nonviolent offenses (e.g., consensual sex or sexting with other adolescents under specified ages) could be required to register in at least 19 states. Salerno, Stevenson, and colleagues (2010) reported that registration persists long after adolescence (i.e., at least 10 years or for life) in 22 states, many of which offer no opportunity for prosecutorial or judicial discretion or offender appeal or petition. Adolescents have been required to register as sex offenders for behaviors that are not violent, including sexting (see, e.g., In re M.W., 2014) and engaging in consensual sexual relationships with similar-aged peers (see, e.g., Higgins, 2010), which qualifies as statutory rape in many states. For example, in Michigan, 17-year-old Matthew Freeman was convicted of fourth-degree criminal sexual conduct for having sex with his 15-year-old girlfriend. Although the sexual relationship was consensual, it came to the attention of the police when the girl’s mother filed a complaint in an effort to end it (Higgins, 2010). It is noteworthy that Freeman’s behavior is protected in some states by “Romeo-and-Juliet” provisions that allow for relationships between adolescents within specified age ranges, but those provisions often do not protect adolescents from registration in cases involving same-sex relationships (see, e.g., Ala. Code § 13A-6-62[a][1] or Tex. Penal Code Ann. § 21.11[b][1]). In fact, adolescents have been registered for sexual behaviors that are so common among this age group that they are viewed as developmentally normative (Temple et al., 2012; Tolman & McClelland, 2011). For example, Eaton et al.’s (2012) large-scale sampling of high school students nationwide indicates that 7% of high school students first had sexual intercourse when they were younger than 13 years old, which is below the age of legal consent in every state. Also, 48% of high school students have had sexual intercourse and 35% have had sex in the past three months. Depending on the age of students’ sexual partners and state laws, this activity
could constitute statutory rape. In addition, empirical evidence suggests that adolescents are not likely to specialize in sex offending (for review, see Caldwell, 2002), and even those who commit serious sexual assaults are more likely to go on to commit nonsexual rather than sexual offenses in the future (Hagan & Gust-Brey, 2000). Thus, many adolescents who may be subjected to sex offender registration do not fit the profile of the violent, predatory sex offender that policymakers typically envision (see Sample & Kadlec, 2008).

**Preliminary Evidence that Registration is Ineffective at Deterring Adolescent Sex Offending**

Sex offender registration policies are based on arguments that registration is needed to prevent dangerous sex offenders from committing additional offenses and that risk of registration deters would-be offenders from offending in the first place. Of interest, however, Tewksbury and Mustaine (2013) found that 76% of law enforcement officers disagreed that registration serves a specific deterrent function, and 60% disagreed that it serves a general deterrent function. Indeed, limited research suggests that registration does not serve the former specific deterrent function for adolescents. To begin with, sexual recidivism is already infrequent among adolescent offenders. Although recidivism rates are likely underestimated due to underreporting of sexual violence (e.g., Planty, Langton, Krebs, Berzofsky, & Smiley-McDonald, 2013), Caldwell’s (2010) meta-analysis of 63 datasets revealed that only 7% of 11,219 adolescent sex offenders were arrested for new sexual offenses (see also Ackerman, Sacks, & Greenberg, 2012; Caldwell, Ziemke, & Vitacco, 2008; Huebner et al., 2014; Letourneau & Armstrong, 2008; Letourneau, Levenson, Bandyopadhyay, Armstrong, & Sinha, 2010; Tewksbury & Jennings, 2010; Tewksbury, Jennings, & Zgoba, 2012). Moreover, sex offender registration does not appear to reduce recidivism. Caldwell and Dickinson (2009) followed a sample of 172 incarcerated
adolescent sex offenders for a range of 1.50 to 11.33 years. The state registration policy was adopted and revised during the course of the study, allowing the researchers to conduct a natural test of its effect on recidivism. Adolescents who were registered and those who were not were similar in regards to sexual and nonsexual offending history, age, age at release from custody, and ethnicity. Analysis of original charges that were filed in the state circuit court revealed that, overall, only 12% of adolescents were charged with a new sexual offense while under study. Further, registered youth were no more likely than nonregistered youth to be charged with a new sexual or violent misdemeanor or felony, even though registered youth were followed for a significantly longer period of time. Letourneau, Bandyopadhyay, Sinha, and Armstrong (2009) also examined sexual recidivism among adolescent sex offenders using a sample of all 1,275 boys adjudicated for felony sexual offenses in South Carolina over 15 years, 45% of whom were required to register during the follow-up period, which ranged from .21 to 15.96 years. Registered and nonregistered boys did not differ significantly in terms of the age at which they were first adjudicated for a felony sexual offense, number of prior adjudications, or race. A review of juvenile justice and adult criminal offense data revealed that, overall, 8% of boys were charged with an additional misdemeanor or felony sexual offense, although only 3% were adjudicated. Letourneau et al. (2009) also found that registration did not have a deterrent impact on new sexual or assault offense adjudications in their sample. In fact, registration was associated with a higher rate of sexual and other offense charges, which is consistent with myriad evidence suggesting that registration harms adolescent and adult offenders in ways that might actually increase the likelihood that they will commit future crimes (Ackerman, Sacks, & Osier, 2013; Levenson & Cotter, 2005; Prescott & Rockoff, 2011; Tewksbury & Lees, 2006, 2007; for a review, see Trivits & Reppucci, 2002). Indeed, research has shown that registration
leads adult sex offenders to feel angry, hopeless, and suicidal; have difficulty securing employment; and be subjected to vandalism and assault (Ackerman et al., 2013). Thus, registration may have iatrogenic effects on adolescent sex offenders and their social ties that, ironically, increase sexual recidivism.

With regard to general deterrence, data are sparse and results are mixed. Most existing analyses examine general deterrent effects on adult populations. For instance, Maurelli and Ronan’s (2013) time-series analysis revealed that forcible rape rates decreased in 17 states following the passage of sex offender registration and notification legislation, but were unaffected in 32 other states. Of the 10 states studied by Vasquez, Maddan, and Walker (2008), three had significantly fewer rapes occur following the implementation of registration and notification laws, six had no change, and one state had significantly more rapes. Prescott and Rockoff’s (2011) national data suggested that registration laws do not deter first-time offending, although notification laws were associated with about 1 fewer crimes per 10,000 people per year. (Of note, the researchers found this benefit to be offset by the cost of increased recidivism among convicted sex offenders.) Sandler et al.’s (2008) analysis of New York’s registration legislation revealed no impact on sexual offense rates for either convicted or first-time sexual offenders. In a rare study of adolescents, Letourneau, Bandyopadhyay, Armstrong, and Sinha (2010) reported that, after accounting for concurrent legislative change affecting the age of majority, registration policy had no effect on first-time sex offenses among 14- to 17-year-old boys in South Carolina.

These few studies represent the entirety of the social science literature on the general deterrent effects of sex offender registration laws. Empirical research has not kept pace with the rapid expansion of these policies, particularly as they pertain to adolescent offenders. General
deterrence remains a driving factor behind recent policy shifts toward more expansive registration policies, yet it remains an untested assumption. When considering whether registration laws can serve a general deterrent function for adolescents, it is important to consider whether adolescents are actually aware of those laws. We next review the small but important literature on adolescents’ policy awareness and deterrence.

**General Deterrence and Adolescents’ Policy Awareness**

Deterrence theory presumes that people are rational actors who weigh the relative costs and benefits of committing crime (Nagin, 1998). From this perspective, punishment as a cost deters crime when it outweighs the potential gains that criminal behavior is expected to yield. First, however, potential offenders must know that punishment exists as a potential cost of crime. Very little research has examined whether adolescents are aware of laws (of any variety) that could affect them and whether adolescents’ knowledge of potential sanctions actually impacts their behavior, despite the fact that such research is essential to understand the potential efficacy of deterrence-motivated policies.

In general, even adults are not very knowledgeable about criminal law or potential sanctions for violations (Anderson, 2002; Darley, Sanderson, & LaMantia, 1996). As reviewed by Apel (2013), substantial minorities of survey respondents are unfamiliar with the maximum penalties associated with a variety of crimes, and those who venture to guess typically underestimate the penalties. Even so, not all people are naïve about the law, and those who are aware of potential sanctions are sometimes deterred by them, as discussed in more detail later. The limited available literature suggests this is true of adolescents as well. Glassner, Ksander, Berg, and Johnson (1983) discussed desistance with adolescents involved in crime and found that approximately two-thirds noted that they planned to stop or had already stopped engaging in
illegal behavior around the age of majority because they were aware they could enter the adult
criminal justice system. More recently, Redding and Fuller (2004) found that 30% of juveniles
who had been transferred automatically to adult criminal court previously knew that juveniles
could be tried as adults. None, however, knew this was a possible penalty for the particular
crimes they had committed. Still, 75% reported that they would not have committed the crime if
they had been aware they could be tried as adults. Lochner’s (2007) analysis of data from the
National Longitudinal Survey of Youth 1997 Cohort and National Youth Survey showed that, on
average, boys estimated a low probability of arrest for stealing something worth $5 or less (33%)
but high probabilities for arrest for stealing something worth more than $50 (58%), stealing a car
(61%), breaking into a building or vehicle (62%), and attacking someone to hurt or kill them
(72%). Further, the higher the perceived probability of arrest, the less likely it was for boys to
report that they had actually committed any of those crimes. Thus, the few studies that have
linked adolescents’ policy awareness to their behavior suggest that threat of punishment might
deter crime in this population.

Virtually no research has explored adolescents’ specific awareness of sex offender
registration policies, however, despite their recent proliferation. Stevenson, Najdowski, and
Wiley (2013) conducted the first known study of registration awareness using a sample of 18- to
23-year-olds. They reported that 58% of young adults were aware that adolescents could be
registered as sex offenders, though many participants were unaware of the breadth of such
policies. For instance, many inaccurately believed that, in general, registration could not result
from having consensual sex with a minor (38%) or sexting (13%). These findings are not
surprising given that these kinds of activities are inconsistent with the image of the sexually
violent predator that these laws presumably target (Sample & Kadlec, 2008). Stevenson and
colleagues (2013) also found that 64% of young adults did not know adolescents under 14 years old can be registered as sex offenders; moreover, 74% inaccurately assumed that adolescent sex offender registration is temporary, 36% of whom thought that adolescents are removed from the registry as adults. In addition, 55% of young adults inaccurately believed that adolescent sex offenders are exempt from having their information shared publicly via the Internet. Given the considerable misinformation among this young adult sample, it follows that adolescents may demonstrate similar or even less awareness about registration policies.

To explore the deterrent efficacy of adolescent sex-offender registration policies, Stevenson et al. (2013) also assessed actual adolescent sexual behavior. As expected, 70% of sexually active young adults reported engaging in behaviors as legal minors that could lead to registration (e.g., consensual sex with a minor). Yet, those who were aware of adolescent registration policies, compared to those who were not, were marginally less likely to have had sex when they were 18 or younger with another minor. This suggests that risk of registration might deter adolescent sex offending. Subsequent work by Strohmaier, Murphy, and DeMatteo (2014) and Strassberg, McKinnon, Sustaita, and Rullo (2013) studied awareness of legal consequences associated with sexting specifically. Only 39% of Strohmaier et al.’s (2014) young-adult sample were aware that sexting could be prosecuted as child pornography. Even so, in line with Stevenson et al.’s results, those who knew of this risk were less likely than others to have sent sexts when they were under the age of 18. Further, 59% of those who were unaware of the legal implications claimed that such awareness would have deterred them sexting as adolescents.

Because both Stevenson et al. (2013) and Strohmaier et al. (2014) relied on convenience samples of young adults who had had more time to learn about sex offender registration, their
studies likely overestimate adolescents’ awareness of such policies. Strassberg and colleagues (2013), in contrast, surveyed high school students. When asked to list any current legal consequences associated with sexting, 15% of students listed serious outcomes including child pornography or sexual offense charges. Unexpectedly, students who reported legal consequences were more likely to have sexted than students who did not report legal consequences; however, 73% of students who did not list any consequences were excluded from the analysis. This exclusion likely biased the results, especially in light of Stevenson et al.’s and Strohmaier et al.’s findings that lacking knowledge about legal consequences is associated with risky sexual behavior.

In summary, recent research suggests that adolescents have incomplete or inaccurate knowledge about the legal consequences of certain sexual behaviors. Very limited research suggests that policy awareness could possibly serve a general deterrent function, particularly related to sexual behavior, but existing studies are few in number and pose significant methodological concerns. Both Stevenson et al. (2013) and Strohmaier et al. (2014) used present knowledge to predict past behavior, which precludes inferences about the causal relationship between policy awareness and behavior. Studies that examine only sexting may or may not generalize to other registerable offenses. Samples that are small and/or homogenous likely capture neither the full spectrum of adolescents’ knowledge nor sexual behaviors. Additional research with larger, more diverse samples that examines a broader range of legal consequences would further clarify the impact of policy awareness on adolescents’ sexual offending. Also, longitudinal research would substantially advance this literature by allowing measurement of not only self-reported offense likelihood but also actual offending behavior that could be validated with juvenile or criminal court records (for further discussion, see Exum & Bouffard, 2010).
However, we argue that even among adolescents who are aware—or are made aware—of registration laws, the potential deterrent effect of that awareness on later sexual offending is likely to be attenuated by compelling criminological and developmental psychological influences. We borrow from both criminological and developmental psychological frameworks to discuss those influences in the following sections.

**Developmental Normativeness and Perceived Risk of Sanction**

Deterrence theory suggests that sanctions are more effective at deterring crime when potential offenders believe they are more certain to be caught (Nagin, 1998). However, it is important to consider sanction certainty in the context of what is known about developmentally normative sexual behavior among adolescents, as there is good reason to expect adolescents to perceive the likelihood of having to register as a sex offender to be low. As previously noted, there is an emerging consensus that adolescent sexual activity is developmentally normative (Tolman & McClelland, 2011), including sexual behaviors that are illegal. For example, estimates of sexting among adolescents range from 15% (Rice et al., 2012) to 28% (Strohmaier et al., 2014; Temple et al., 2012; see also Strassberg et al., 2013; The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008; Wolfe, Marcum, Higgins, & Ricketts, 2014). Sexting is also related to risky sexual behavior, including having unprotected sex (Rice et al., 2012) and using substances before sex (Temple et al., 2012). In fact, approximately 53% of Temple and colleagues’ sample reported having had sexual intercourse and 47% had had more than 1 partner in the previous year. Considering other research showing that most adolescent girls have sexual partners who are also adolescents (Darroch, Landry, & Oslak, 1999; Kaestle, Morisky, & Wiley, 2002), this sexual activity could constitute statutory rape depending on the allowable age differentials specified by state law. Thus, adolescents may be registered as sex
offenders for engaging in sexual activities that are common, consensual, and shared with similarly-aged peers, yet technically illegal.

These statistics are troubling because the more prevalent adolescents perceive sexual activities to be among their peers, the more likely they are to engage in such activities themselves (DiClemente, 1991; Halpern-Felsher, Cornell, Kropp, & Tschann, 2005; Kinsman, Romer, Furstenberg, & Schwarz, 1998). This is also true of sexual behaviors that carry legal risk. For instance, adolescents who know someone who sexts are 17 times more likely to sext themselves (Rice et al., 2012; see also, Baumgartner, Valkenburg, & Peter, 2011; Prinstein, Meade, & Cohen, 2003; for review, see Buhi & Goodson, 2007). Moreover, the extent to which adolescents perceive sexual activity to be prevalent might undermine the deterrent impact of registration by making arrest and conviction, much less registration, seem unlikely to occur (see Apel, 2013, for a review). In general, perceived sanction certainty and offending behavior are negatively associated. For instance, Paternoster and Iovanni (1986) showed that high school students who estimated a lower likelihood of getting caught by the police for delinquent offenses were more likely to engage in those offenses over the next six months (see also Lochner, 2007; Loughran et al., 2011; Matsueda, Kreager, & Huizinga, 2006; Nagin & Pogarsky, 2001).

Experimental research has verified that this effect is causal in nature. Specifically, Nagin and Pogarsky (2003) had young adults complete a trivia quiz with the possibility of earning a bonus payment only by cheating. The perceived risk of being caught cheating was experimentally manipulated by having the proctor either visit only briefly twice during the one-hour session (low certainty) or remain in the room (high certainty). As expected, participants cheated more often when sanction certainty was low rather than high. The developmental normativeness of certain sexual offenses is important to consider because perceiving offending to be common
among one’s peers might lead sanctioning to be perceived as a relatively low probability event and, in turn, increase one’s likelihood of offending. In support, Nygaard, Waiters, Grube, and Keefe (2003) found that, as with sexual behaviors, few adolescents were aware of the specific legal consequences of intoxicated driving. Further, (a) perceiving that others engage in or approve of drinking and driving and (b) believing that enforcement of the laws was unlikely were each associated with increased likelihood of this risky behavior among adolescents. Also, Pogarsky, Kim, and Paternoster’s (2005) analysis of National Youth Survey data indicated that the more adolescents’ peers engaged in stealing and the more they personally avoided punishment for stealing, the less certain they perceived punishment to be for that crime (see also Pogarsky, Piquero, & Paternoster, 2004). These findings have important implications for sex offender registration policies, given that the limited research on adolescent sex offending suggests that few adolescents will know others who have experienced the legal repercussions of sexual offending (e.g., only 5% in Strohmaier et al.’s, 2014, sample of young adults).

In summary, research on the actual or perceived prevalence of adolescent sexual behaviors, combined with adolescents’ and young adults’ judgments about the likelihood of repercussions for antisocial behaviors in general, suggests that perceived sanction risk for registerable sexual offenses might actually be quite low among adolescents. Additional studies are needed to clarify the relations between developmental normativeness of sexual offending and the perceived likelihood that sanctions associated with engaging in illegal behaviors will be enforced. If research supports the notion that adolescents frequently engage, for example, in consensual sex, sexting, or indecent exposure—or, more importantly, if adolescents perceive those behaviors to be commonplace among their peers—then deterrence-driven registration policies are likely to be ill-fated among this population.
The Moderating Effect of Psychosocial Maturity

Potential offenders must be able to weigh the benefits of committing crime against the costs associated with sanctions, but adolescents may yet to have developed the psychosocial skills needed to make rational choices in this domain (e.g., Steinberg, 2009; Albert & Steinberg, 2011). Decades of research have confirmed that developmentally linked psychosocial factors such as peer influence, sensation seeking, future orientation, and self-regulation can influence adolescents to make risky decisions (e.g., Reyna & Farley, 2006; Steinberg, 2005, 2009), including behaviors related to sex (Hoff et al., 2003) and criminal conduct (Snyder & Sickmund, 2006).

To begin with, adolescents are more susceptible to peer influence than adults (Reyna & Farley, 2006; Steinberg, 2004; Steinberg & Monahan, 2007). Peer influence weighs heavily in adolescent decision making even in normative samples. For example, Smith, Chein, and Steinberg (2014) recently showed that 15- to 17-year-olds recruited from the community chose to gamble more often on a task when they believed they were being observed by a peer than when they thought they were alone, even though adolescents in both conditions had been informed about the probability of losing on the task. Thus, when adolescents think their peers are witnessing their behavior, they are more likely to make risky decisions. The heightened effect of peer influence has direct consequences for adolescent sexual behavior: Abeele, Campbell, Eggermont, and Roe (2014) found that the more teens reported being popular and needing to be popular, the more likely they were to have sexted.

In part, peer influence affects decision making by altering risk/benefit perceptions (see Apel, 2013). Recent research has shown that adolescents do not necessarily evaluate risks differently than adults. Rather, adolescents’ heightened sensitivity to the potential for reward,
especially immediate reward, is what distinguishes adolescent from adult decision making (Steinberg, 2009). The most recent developmental neuroscience research has advanced a “dual-systems model,” which casts risky adolescent behavior as an outcome of complex interactions between the earlier-developing limbic brain structures that drive sensation-seeking behavior and the later-developing cortical brain structures that control executive functions (Steinberg, 2008, 2009; Steinberg et al., 2008). This model is bolstered by compelling evidence that the adolescent brain’s socioemotional system experiences a surge in dopaminergic activity between pre- and mid-adolescence and begins to decline thereafter. Reward-seeking behavior, driven by that dopaminergic surge, increases substantially during this developmental period. However, the prefrontal cortex, which governs impulse inhibition, self-regulation, and other aspects of cognitive control, does not structurally develop and mature until later in adolescence (Steinberg et al., 2008). This means that adolescents are neurobiologically inclined toward sensation-seeking behavior before the executive functioning necessary for impulse control fully develops.

Considering the mechanisms of peer influence and adolescent neurobiological development in concert, it stands to reason that either the social risk of peer disapproval associated with abstaining from sexual activity or the sensory gratification gained from engaging in sexual activity might outweigh the legal risks associated with getting caught for adolescents. The disconnection between adolescents’ (especially mid-adolescents’) increased neurobiological reward-seeking motivation and their still-developing self-regulatory capacities has important legal ramifications, and the role of context is essential to consider. Legal scholars, even Supreme Court Justices (see Justice Scalia’s dissent in Roper v. Simmons, 2005) have criticized developmental science for purportedly inconsistently applying scientific research on adolescent decision making to legal issues, but such criticisms have ignored the essential role of context
(Steinberg, Cauffman, Woolard, Graham, & Banich, 2009). Steinberg and colleagues (2009) addressed this issue specifically in their discussion of the American Psychological Association’s alleged “flip flop” in its amicus briefs in support of adolescent abortion rights but against the juvenile death penalty. The developmental scholars highlight the importance of considering these differing developmental systems in different legal and behavioral contexts. The primary application here is that adolescent sensitivity to dopaminergic rewards is a powerful force that is highly relevant to decisions to engage in sexual activities. It perhaps comes as no surprise that the apparent peak of sensation-seeking behavior around age 16 (Steinberg, 2014) coincides with the average age of first coitus for boys (Savin-Williams & Diamond, 2004).

Consistent with this notion, criminological research has found that the more people perceive an offending behavior to be fun or pleasurable, the more likely it is that they will commit crime, even sexual assault (Nagin & Paternoster, 1993, 1994). Loewenstein, Nagin, and Paternoster (1997) showed that young men who were exposed to sexually arousing materials were significantly more likely than other men to think it would be fun to have sex and to anticipate behaving in sexually aggressive ways in a hypothetical dating situation. Moreover, Loewenstein and colleagues observed that the inhibiting effect of perceived costs on sexual aggression was stronger than the disinhibiting effect of perceived benefits among nonaroused men but weaker among aroused men. That is, sexual arousal changed perceptions of the relative costs and benefits in ways that encouraged men to engage in sexual aggression.

Future orientation also influences adolescents’ decisions to engage in risky behaviors. Adolescents are more present-oriented than adults (Steinberg & Scott, 2003); they accord more weight to the short-term consequences of decisions (both risks and rewards, Beckman, 2004; Scott, Reppucci, & Woolard, 1995; Steinberg & Cauffman, 1996) and are more likely to discount
the future (Reyna & Farley, 2006). For example, adolescents in Halpern-Felsher and Cauffman’s (2001) study were less likely than adults to consider options, risks, or long-term consequences associated with decisions related to medical treatment. Such time discounting can contribute to impulsive decision making, impaired self-regulation, and, ultimately, risky behavior. Nagin and Pogarsky (2004) showed that high time discounting and poor impulse control are moderately correlated in adolescents and predict both adolescents’ willingness to engage in problem behaviors and actual offending behavior, including threatening someone with a weapon. In the Nagin and Pogarsky (2003) cheating study reviewed previously, the more present-oriented and impulsive participants were, the more likely they were to cheat. Of importance, Steinberg and colleagues (2009) found that the development of impulse control occurs late in adolescence and during young adulthood: Participants who were 10 to 13 years old were significantly more impulsive than those who were 26 to 30 years old.

These psychosocial factors contribute to poor decision making even among nondelinquent adolescents (Steinberg, 2004), and such effects are likely amplified in the unique context of sex offending. Research demonstrates that adolescents have difficulty imagining future consequences when emotionally aroused (Steinberg, 2014). Adolescents contemplating sexual activity likely find themselves in situations in which short-term benefits (e.g., peer approval, sexual gratification) appear extremely appealing, even if they result in poor decisions (e.g., engaging in illegal sexual behaviors) that disserve adolescents’ long-term legal best interests. Thus, even when adolescents are aware of the risks associated with certain sexual behaviors, those risks are likely to deter sex offending only among adolescents who are psychosocially mature. A few past studies that have examined how psychosocial maturity interacts with deterrence constructs to impact offending behavior are relevant to this argument.
Pogarsky, Piquero, and Paternoster (2004) found that among nondelinquent 10th graders, peer offending was a strong negative predictor of perceived certainty of punishment for shoplifting, vandalism, and marijuana use over time. Gottfredson and Hirschi (1990) theorized that sanctions may be less threatening to individuals who are lower versus higher in self-control, and this has been the case in at least some samples. In Nagin and Paternoster (1994), undergraduates read scenarios describing offenses and then estimated the likelihood that they would commit those offenses. The more present-oriented undergraduates were, the less likely they were to be deterred from committing larceny or sexual assault by the perceived risk of damage to social capital (e.g., lost respect of family). In Nagin and Pogarsky (2001), the deterrent effect of sanction severity on self-reported likelihood of drinking and driving was almost four times smaller among present-oriented young adults than others.

Whereas criminological work (Nagin & Paternoster, 1994; Nagin & Pogarsky, 2001; Pogarsky et al., 2004) has linked elements of psychosocial maturity with elements of deterrence, psychosocial maturity encompasses a range of different constructs, and the causal pathways through which adolescents’ maturity levels impact their offending behaviors, including sexual offending, is far from clear. We propose that psychosocial maturity moderates the association between policy awareness and risky sexual behaviors, such that adolescents who are more psychosocially mature are more likely to be reactive to an awareness of sex offender registration laws, whereas psychosocially immature adolescents—even those who possess knowledge about registration—are less likely to be deterred. Prospective research with adolescent-specific samples would help to illuminate these causal pathways, but a range of psychosocial maturity constructs beyond peer influence, risk/benefit perceptions, and future orientation should be assessed to gain a clearer picture of adolescent judgment and decision making in context.
A Call for Research: The General Deterrence Gap

Research evaluating the effectiveness of policies related to the heavily contested issue of sex offender registration is paramount given the rapid expansion of federal and state sex offender registration laws and their increasing inclusion of adolescents. Although sex offender registration does not appear to reduce adolescent recidivism (Caldwell & Dickinson, 2009) and may even increase adolescents’ likelihood of future sex offending (see Letourneau et al., 2009; for review, see Trivits & Reppucci, 2002), research has not yet examined the fundamental question of registration policies’ general deterrent effectiveness. Is registration an effective crime control policy for adolescents? Does sex offender registration successfully deter adolescents from committing sex crimes in the first place? These questions create opportunities for criminologists and developmental psychologists to join forces to generate rigorous social science research that could contribute to significant policy change. Both disciplines contribute strong theoretical frameworks that, with respect to adolescent sex offending, are inadequate in isolation but compelling in combination.

Deterrence theory suggests that people make rational choices based on the relative costs and benefits of committing crime (Nagin, 1998); it is logical, therefore, to expect that the threat of being registered as a sex offender would deter adolescents from engaging in illegal sexual activities. However, adolescents must (a) be aware that the threat exists, (b) perceive the threat to be a real legal consequence of their behavior, and (c) be sufficiently psychosocially mature to weigh the legal risk against the potential benefits of their behavior. Research is needed to explore the degree to which these conditions are met. Although Strassberg and colleagues (2013) explored high school students’ awareness of legal consequences of sexting, more work is needed to assess adolescents’ knowledge of risks associated with a broader range of sex offenses (e.g.,
consensual sex with similar-aged peers that is considered statutory rape in many states). The small extant literature suggests that, although most adolescents are dispossessed of knowledge of legal threats, those who are aware of such risks might be moderately less likely to engage in offending behavior (e.g., Stevenson et al., 2013). Thus, researchers might design studies to determine whether educational interventions can improve adolescents’ familiarity with current laws and registration policies related to sex offending. Even so, however, we suspect that such interventions would have limited effectiveness, particularly with psychosocially immature adolescents. Past empirical studies have revealed that education-based programs might increase adolescents’ knowledge of risks associated with dangerous activities (e.g., unprotected sex, Trenholm et al., 2008; drug abuse, Ennett, Tobler, Ringwalt & Flewelling, 1994), but they are unlikely to reduce their likelihood of engaging in those activities.

To the extent that knowledge of registration risk does have any deterrent effect on adolescent sexual offending, questions regarding the potential moderating effects of perceptions of sanction risk and psychosocial maturity remain unexplored in this context. We propose that registration will be less effective at deterring sexual offenses that are perceived as more developmentally normative by adolescents. This hypothesis could be tested by examining the type of sexual offense and whether the underlying behavior either in fact occurs commonly in the adolescent population or is perceived by adolescents to occur commonly. We expect that, regardless of actual prevalence, the more prevalent adolescents perceive certain sexual offenses to be, the less they will believe they would be sanctioned for engaging in that behavior themselves. In addition, scores of developmental studies demonstrate that adolescents often lack the type of maturity required for sound decision making (e.g., Hoff et al., 2003). Research is needed to determine whether psychosocial immaturity (e.g., heightened reward sensitivity, poor
self-control) makes it more likely that adolescents will make risky choices about sexual versus nonsexual offending. Work is also needed to test our proposition that any potential deterrent effect of registration is likely to be overridden by developmental processes that make risky decision making in general more likely.

In addition, a growing area of thought related to deterrence is focused on the role of ambiguity or individual variance in risk perceptions (e.g., Pogarsky, 2009; Loughran et al., 2011; Nagin, 1998; Sherman, 1990). Loughran et al.'s (2011) research revealed that, among high-risk juvenile offenders who perceive the risk of being caught for offending to be low, ambiguity strengthens the deterrent effect of that risk for crimes that do not directly involve victims (e.g., stealing, theft, vandalism) but weakens the deterrent effect of risk for crimes that do (e.g., fighting, stabbing, robbery). Thus, it will also be important for future work to consider whether developmental normativeness and psychosocial maturity decrease or increase, respectively, the ambiguity of sex offender registration likelihood for adolescents.

Even if research detects circumstances under which registration does effectively deter adolescent sex offending, it will be important for scholars and practitioners to acknowledge that registration has long-term negative impacts on adolescents and their families (Trivits & Reppucci, 2002). Indeed, sex offender registration and notification laws increase the likelihood that sex offenders experience job loss, transience and housing disruption, property damage, harassment, stress, loss of hope, and impaired quality of relationships (Levenson, D’Amora, & Hern, 2007; Levenson & Tewksbury, 2009; Tewksbury & Levenson, 2009). Of importance, such outcomes are associated with dynamic conditions including socioeconomic instability, anxiety, depression, and family discord, which are among the best predictors of sex offenders’ criminal recidivism (e.g., Gendreau, Little, Goggin, 1996; Hanson & Bussiere, 1998).
Considering that privacy has historically been a paramount concern of the juvenile justice system (e.g., proceedings are typically closed to the public, juvenile records can be sealed or expunged), more attention must be given to understanding how public registration impacts adolescents’ lives, especially in terms of the negative effects registration might have on family and social relationships, educational opportunities, and transition into adulthood. Moreover, is the stigma associated with being a registered sex offender internalized by vulnerable and impressionable adolescents in ways that lead to future sex offending? The potential for the sex offender label to have a self-fulfilling consequence is concerning and deserves future empirical attention.

To the extent that results of future work confirm our hypothesis that registration does not fulfill its general deterrent function for adolescents, however, this would indicate a pressing need for policy reform. Such reform would be especially important considering not only the iatrogenic harms associated with registration but also that adolescents may be registered for sexual behaviors that are developmentally normative and nonviolent yet illegal (e.g., sexting, statutory rape), behaviors for which the majority of the public does not think registration is appropriate (Salerno, Najdowski, et al., 2010). It is also important to recognize that the implementation of registration policies has been found to undermine justice in cases involving adolescents charged with serious sex offenses by increasing the probability that they will plea bargain to charges that are nonsexual and less severe (Letourneau, Armstrong, Bandyopadhyay, & Sinha, 2013). A final point of concern involves the fact that adult sex offenders report perceiving registration as unfair and excessively punitive (Ackerman et al., 2013). Indeed, the retributive nature and constitutional validity of registration policies have been called into question (see Yung, 2009). Public support for sex offender laws is driven consistently by stereotypes, moral outrage, and retributive motivations (Pickett, Mancini, & Mears, 2013; Salerno, Murphy, & Bottoms, 2014;
Salerno, Najdowski, et al., 2010; Stevenson et al., 2015; see also Carlsmith, Darley, & Robinson, 2002). Koon-Magnin (2015) found that community members were no less likely to support sex offender policies even after being told that “there is no scientific evidence showing that sex offender registries or notification laws reduce sexual abuse” (p. 83), suggesting that the value of these policies lies not in their instrumental effectiveness but rather in the symbolic message they send about public disgust with sex offenders. If research reveals that sex offender registration does not serve a general deterrent function for adolescents, this will undergird efforts to challenge the basis of the policies and support their reform. Although we agree that sexual violence is a problem in our society and progressive policies are needed to address it, we (and others, e.g., Tolan, Walker, & Reppucci, 2012; Trivits & Reppucci, 2002) argue that registration is not a developmentally appropriate consequence for certain sexual behaviors that are normative among adolescents, yet illegal. We recommend that policies be revamped to ensure that adolescents who commit nonviolent, nonpredatory sexual offenses are not required to register as sex offenders.

**Conclusion**

General deterrence theory and developmental science propose opposing hypotheses about the impact of registration policies on adolescent sexual offending. Interdisciplinary research that incorporates relevant elements of both disciplines holds the potential to more accurately and thoroughly address the general deterrence question in the unique context of sex offending than either discipline alone. Such research will also add to the limited scholarship examining policy awareness in general and explore the role of developmental normativeness in influencing perceptions of sanction risk and deterrence in psychosocially immature populations. In this review, we have developed a number of theoretically informed hypotheses with the purpose of
laying the foundation for future studies. It is critical that criminologists and developmental psychologists heed this call to action for two reasons. First, many state legislatures are forging ahead with adolescent sex offender registration policy expansion. In fact, they are federally mandated to comply with SORNA or risk losing 10% of their federal funding for law enforcement activities (42 U.S.C. §16911). Even so, only 16 states had satisfactorily implemented its guidelines as of 2013 (SORNA Substantial Implementation Update, 2013). Some states have even reacted to SORNA by instituting legislation to *limit* punishment for adolescents who commit relatively less severe sex offenses. For example, in many states, minors who request, send, or receive sexts can be charged with felony child pornography, but at least 18 states have decriminalized sexting or reduced penalties associated with it (see Strohmaier et al., 2014). It is imperative that researchers support states’ efforts to institute developmentally informed policies by providing policymakers with evidence of the efficacy of general deterrence-driven policies with adolescents. Until social scientists rise to this challenge, legislators will be left with little information on which to formulate evidence-based policy.

Second, there is good reason to believe that interdisciplinary research on general deterrence in adolescents could inform judicial decision making as well. Evidence that adolescents and adults are developmentally different is being used to justify changes in the legal response to adolescent offenders. For example, evidence of age-graded capacities related to legal culpability and competence (see Scott & Steinberg, 2008) have led the U.S. Supreme Court to decide that adolescents should be exempt from the death penalty (*Roper v. Simmons*, 2005) and life without parole sentences (*Graham v. Florida*, 2010; *Miller v. Alabama*, 2012; *Jackson v. Hobbs*, 2012). Although substantial progress has been made in applying developmental theory to justice contexts for other kinds of adolescent capacities and behaviors, an explicitly
interdisciplinary approach to adolescent sex offending has been lacking, despite the widespread policy attention to this issue. Such work is needed to protect developmentally vulnerable adolescent offenders, effectively deter crime, and facilitate justice.
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