Adolescent Sexual Assault Victims and the Legal System: Building Community Relationships to Improve Prosecution Rates

Rebecca Campbell · Megan R. Greeson ·
Deborah Bybee · Giannina Fehler-Cabral

Abstract Adolescents are at high risk for sexual assault, but few of these crimes are reported to the police and prosecuted by the criminal justice system. To address this problem, communities throughout the United States have implemented multidisciplinary interventions to improve post-assault care for victims and increase prosecution rates. The two most commonly implemented interventions are Sexual Assault Nurse Examiner (SANE) Programs and Sexual Assault Response Teams (SARTs). The purpose of this study was to determine whether community-level context (i.e., stakeholder engagement and collaboration) was predictive of adolescent legal case outcomes, after accounting for "standard" factors that affect prosecution success (i.e., victim, assault, and evidence characteristics). Overall, 40% of the adolescent cases from these two SANE–SART programs (over a 10-year period) were successfully prosecuted. Cases were more likely to be prosecuted for younger victims, those with disabilities, those who knew their offenders, and instances in which the rape evidence collection kit was submitted by police for analysis. After accounting for these influences, multi-level modeling results revealed that in one site decreased allocation of community resources to adolescent sexual assault cases had a significant negative effect on prosecution case outcomes. Results are explained in terms of Wolff's (Am J Community Psychol 29:173–191, 2001) concept of "over-coalitioned" communities and Kelly's (1968) ecological principles.

R. Campbell (✉) · M. R. Greeson · D. Bybee ·
G. Fehler-Cabral
Department of Psychology, Michigan State University,
127 Psychology Building, East Lansing, MI 48824-1116, USA
e-mail: rmc@msu.edu

Introduction

Violence against women and children is a pervasive social problem (White et al. 2011). Conservative estimates suggest that at least nine million women and children are physically and/or sexually assaulted every year in the United States (Finkelhor 2011; Post et al. 2011; Perilla et al. 2011), but only a fraction of these crimes are prosecuted by the criminal justice system (Campbell 2008; Goodman and Epstein 2011). To address this problem, victim advocacy has been a core community service in violence against women organizations since the inception of the anti-violence movement (Campbell and Martin 2001; Sullivan and Gillum 2001). Though case-by-case advocacy is effective (Campbell 2006; Sullivan and Bybee 1999), it does not have the systemic reach necessary to change these entrenched patterns of under-prosecution. Yet major legal reforms, such as the 1980s reformulation of sexual assault statutes, did not produce the broad-based effects advocates and policy makers had hoped for (Caringella 2008; Spohn and Horney 1996). In the 1990s, the focus of intervention shifted to the community level. Victims routinely need help from the legal, medical, mental health, and victim advocacy organizations, so efforts to coordinate local care could also be leveraged to build relationships within and between local systems to increase accountability and create system change (Allen 2005; Allen et al. 2010).

In the context of sexual assault specifically, the two most widely implemented community-level interventions are Sexual Assault Nurse Examiner (SANE) Programs and

Sexual Assault Response Teams (SARTs). SANE programs provide crisis intervention and medical forensic exams for child, adolescent, and adult sexual assault/abuse victims (Department of Justice [DOJ] 2004). Many SANE programs are members of SARTs, which bring together police officers, detectives, prosecutors, medical personnel, victim advocates, and crisis intervention counselors to promote coordination among stakeholders and improve the community response to rape (National Sexual Violence Resource Center [NSVRC] 2011). The purpose of this study was to determine whether community-level context (i.e., stakeholder engagement and collaboration) was predictive of legal case outcomes, after accounting for "standard" factors that affect prosecution success (i.e., victim, assault, and evidence characteristics). To set the stage for this study, a brief review of the prevalence of adolescent sexual assault and the work of SANE–SART interventions will be presented.

Adolescent Sexual Assault

National epidemiological data indicate that 8–14% of adolescents have been victims of completed or attempted rape in their lifetimes (Finkelhor et al. 2009; Howard et al. 2007; McCart et al. 2010; McCauley et al. 2009; Raghavan et al. 2004; Young et al. 2009). According to the National Juvenile Justice Center, adolescents 12–17 years old are the largest group of sexual assault victims and they are twice as likely to be sexually victimized as adults (Snyder 2000; Snyder and Sickmund 2006). Despite the pervasiveness of this crime, only 8–13% of adolescent sexual assaults are reported to the criminal justice system (Casey and Nurius 2006; Finkelhor et al. 2001; Kilpatrick et al. 2003). Unfortunately, few studies have examined prosecution case outcomes for adolescent sexual victimizations once they have been reported to the police. Research on child sexual abuse prosecution often includes victims between the ages of 12–17, and a review of this literature suggest that 40–85% of cases brought to the attention of police are referred for prosecution (Cross et al. 2003). However, the rate of successful prosecution for victims aged 13–17 is unknown. In addition, factors predicting successful prosecution of adolescent sexual victimizations have not yet been examined.

SANE–SART Interventions

Even though research on adolescent sexual assault victims' experiences with the legal system is quite sparse, it appears that, as with adult victims, this is an under-reported and under-prosecuted crime. To address this problem, communities throughout the United States have begun implementing SANE–SARTs interventions to coordinate victim

care and improve prosecution rates (DOJ 2004; Ledray 1999). SANE programs are typically staffed by nurses who have completed 40 h of classroom training on evidence collection techniques, use of specialized equipment, chain-of-evidence requirements, expert testimony, injury detection, pregnancy and STI screening, and crisis intervention. An additional 40–96 h of clinical training and continuing education is also required (DOJ 2006). Many SANE programs are members of multidisciplinary SARTs (Logan et al. 2007; Plichta et al. 2006). In practice, SARTs vary in how they are structured and function. Some SARTs follow a formalized model of regularly-scheduled multidisciplinary meetings to promote communication among stakeholders and identify strategies for improving their community's response to sexual assault (NSVRC 2011). By contrast, some SARTs function primarily through informal networking and communication among stakeholders (NSVRC 2011). Whether they function in a more formalized or informal manner, SARTs engage in a variety of activities, including, but not limited to: multidisciplinary cross-trainings to share expertise and perspectives; protocol and policy development to standardize the desired response to sexual assault; case review to coordinate the response to individual sexual assault cases; and community education about sexual assault and resources for survivors (DOJ 2004; NSVRC 2011). SANE–SART interventions have quickly become the model of community services for sexual assault victims and there are at least 500 such programs in existence in the United States (IAFN 2011).

This widespread adoption of SANE–SARTs occurred even though there is minimal research on the effectiveness of these interventions. However, the few existing evaluations have yielded promising results. Crandall and Helitzer (2003) compared prosecution rates in a New Mexico jurisdiction before and after the implementation of a SANE program. Victims treated in the SANE program were significantly more likely to report incidents to police, more charges were filed post-SANE compared to pre-SANE, and conviction rates for SANE cases were also significantly higher, resulting in longer average sentences. In a 12-year analysis of a Midwestern SANE program, Campbell et al. (2011) also found significant increases in prosecution post-SANE compared to pre-SANE rates, and that the underlying mechanisms of the intervention's effectiveness was due to changes in systemic relationships among key stakeholders in the community over time (Campbell et al. 2010). In an effort to distinguish the effects of SANEs from SARTs, Nugent-Borakove et al. (2006) compared prosecution rates across three jurisdictions—one with a SANE only, one with a SANE–SART, and one having no SANE or SART—and SANE–SART cases were most likely to result in arrest and charges being filed.

The current literature on SANE–SART interventions suggests they may be quite promising, but no published studies exist on the reporting and prosecution of *adolescent* sexual assault cases served by these programs. This gap must be addressed because multiple national-scale studies indicate that adolescence is a peak risk period for sexual victimization. Most SANE–SART programs serve adolescent victims (DOJ 2004), and patients aged 13–17 comprise, on average, 40% of SANE programs' caseloads (Campbell et al. 2005), and yet no studies have examined this patient population. It is also vital to understand how variations in the structure and function of these interventions shape their effectiveness. SANE–SART programs are built on the premise that stakeholder engagement and collaboration is needed for systems change, but the nature of these processes appears to vary substantially across local contexts (Patterson et al. 2006). Variation in practice is to be expected (Kelly 1971), but it does beg the question of whether some approaches to stakeholder engagement are more effective than others.
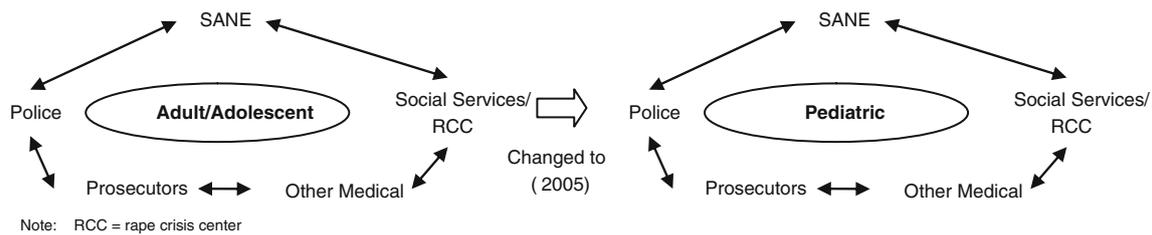
The Current Study

Therefore, the purpose of this study was to explore how variations in stakeholder collaborations might impact the effectiveness of SANE–SART interventions for adolescent sexual assault victims. Although randomized designs are often preferred for studies on the outcomes of community-level initiatives (Roussos and Fawcett 2000), such methods are not feasible in this instance because SANE–SART interventions have developed indigenously in hundreds of communities over the past 15 years. Therefore, we used a quasi-experimental design to identify two communities that were similar in multiple ways, but different with respect to the key variable of focus—the nature of stakeholder collaborations in the SANE–SART intervention. Shadish et al. (2002) noted this quasi-experimental design can effectively address issues of internal validity, provided that the two groups compared are as equivalent as possible. Therefore, we selected two SANE–SART programs from the same state so there would be consistency in relevant laws, state-level policies, and funding streams. Most SANE–SARTs operate at the county-level (because cases are prosecuted by county-level officials), so we also examined both county-level and program-level characteristics when selecting the two research sites.

According to the 2000 U.S. Census, County A is larger in geographic size and includes more rural areas, while County B is more populated and metropolitan. Despite these differences, these two counties are similar in many respects. First, these counties are reasonably equivalent in demographic and socio-economic characteristics. Second, according to Uniform Crime Report Data, there are proportionally more rape/sexual offense crimes in County B
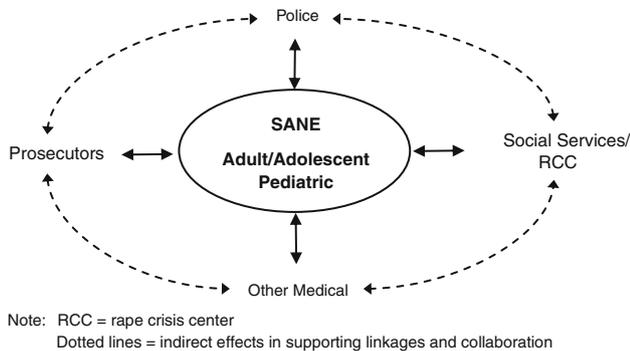
(as would be expected given overall population differences), but the arrests rates are consistent. Third, both counties launched their SANE programs about the same time, so the study examines cases processed during nearly identical time-frames (1998/1999–2007) within the same state. Fourth, both SANE programs are community-based programs affiliated with long-standing, well-respected rape crisis centers. Fifth, the victims/patients served in these SANE programs are demographically similar. Finally, both SANE programs follow training and practice guidelines of the International Association of Forensic Nurses (IAFN), the DOJ (2004) SANE adult-adolescent protocol, as well as appropriate medical organizations (e.g., American College of Emergency Physicians 1999). Both programs maintain similar policies for exam eligibility, exam documentation/record keeping, and medical forensic evidence collection techniques.

What is different between these communities is how their broader SART initiatives are structured and how they have functioned over time. Historically, both counties formed their SANE programs through community-wide task forces that worked over several years to create positive relationships between the legal, medical, mental health, and advocacy systems. As part of the development of their SANE programs, both communities developed county-wide protocols that all sexual assault cases would be referred to SANEs for medical forensic exams. Despite these similar beginnings, the two programs diverged over time with respect to how their SANE programs work as part of a multidisciplinary SART.

Figure 1 depicts the model of SANE–SART operation in Site A. Site A engages in both formal interdisciplinary meetings (represented by solid, bidirectional lines in Fig. 1), as well as informal networking among stakeholders. Since the SANE program opened, community stakeholders (including law enforcement, prosecution, the rape crisis center, and other social service agencies) met for monthly sexual assault coordinating council meetings. These meetings focused primarily on protocol review and team coordination to improve the community response to sexual assault, particularly for adult victims. In 2004, attendance began slipping so the coordinating council began meeting quarterly. Shortly thereafter, in 2005 this county's Child Advocacy Center began quarterly coordinating council meetings focused on child victims (ages 12 and under). These new meetings involved the same agencies, and even many of the same individuals who had been part of the adult/adolescent coordinating council. Both committees continued to exist throughout the remainder of this research project, but multiple key informants noted there was a community shift in emphasis to child victims once the child coordinating council meetings were launched.

Fig. 1 Site A SANE–SART model

Note: RCC = rape crisis center
Dotted lines = indirect effects in supporting linkages and collaboration

Fig. 2 Site B SANE–SART model

Figure 2 shows the model of SANE–SART operations in Site B. In this community, the SART team does not have standing meetings, and instead the SANE program director is responsible for maintaining linkages between multidisciplinary groups (represented by dotted lines in Fig. 2). The SANE director contacts specific members of law enforcement and prosecutors for individual case review. In addition, the SANE program sponsors annual multidisciplinary trainings for all SART members on a variety of topics related to sexual assault prosecution and victims' services.

The literature on the effectiveness of community coalitions (Berkowitz 2001; Butterfoss 2007; Chavis 2001; Roussos and Fawcett 2000; Wolff 2001) suggests that many of the critical ingredients for success—readiness, intentionality, and leadership—are present in both Site A and Site B, though they may manifest differently. Given the dearth of research on community-level interventions on sexual assault, we adopted an exploratory perspective to understand how these variations in practice over time have shaped if and how these interventions changed their local legal systems.[1] Because there also multiple proximal

factors that affect prosecution—such as victim, assault, and evidence characteristics—our goal was to explore whether different features of these communities' SANE–SART operations over time can predict case outcomes after accounting for these case-level factors.

Method

Sample

Adolescent sexual assault cases were sampled from the patient files of the two focal SANE programs from the dates the programs opened through 11/31/2007 (Program A opened in February, 1998 and Program B in September, 1999). Cases were included in the sample if they met the following criteria: (1) sexual contact occurred or was suspected;[2] (2) the patient was 13–17 years old at the time of the exam; (3) the assault occurred in the respective focal county and was reported to law enforcement; and (4) the patient received a full forensic exam, including a patient history and medical forensic evidence collection. These sampling criteria yielded $N = 395$ cases. In three cases it was not possible to determine the final legal outcome of the case, yielding a final sample size of $N = 392$.

Procedures

Two research assistants coded SANE program records for victim characteristics, assault characteristics, and medical

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[1] In this study we operationalized "change" in the legal system as increased prosecution, which is a common approach in this literature (see Spohn and Horney 1992). However, we acknowledge there are other indices of change, most notably whether there have been demonstrable improvement in how victims/survivors are treated by legal system personnel (irrespective of case outcome) (see Campbell 2008). Given that the design of this study was a 10-year longitudinal analysis, it would have been difficult (and potentially quite invasive to

Footnote 1 continued

victims' privacy) to try capture retrospective account of victims' experiences in the criminal justice system. Therefore, in this project, we focused on case outcomes as the measure of legal system change.

[2] Several adolescents denied that any sexual contact occurred, but were seen at the SANE program because an adult suspected that sexual activity occurred and therefore brought them to the SANE program (consistent with the DOJ [2004] Protocol, only adolescents who consented to an exam received one). If there was additional evidence to suggest that sexual contact did occur (e.g., in the form of a witness or anogenital injury), the case was retained in the sample. There were also several cases where a patient had been unconscious and upon regaining consciousness suspected an assault occurred. If there was evidence of an assault (e.g., a witness, injuries, or missing clothing), the case was retained in the sample.

forensic evidence findings. The coding framework was developed based on the prior research adult sexual assault prosecution (Campbell et al. 2009). Thirty percent of cases were coded by both research assistants to assess inter-rater reliability. Coding was monitored throughout in order to maintain reliability of kappa > .80. Final kappa across all variables = .98.

Police and prosecutor records were collected to document case progression through the criminal justice system. Cases were matched from the SANE records to the criminal justice system records by victim name, police complaint number, and date of the assault. A research assistant searched the county prosecutor's database in order to determine whether the case was authorized by the prosecutor's office, and if so, the ultimate disposition of the case: dismissal, plea bargain, acquittal, or conviction at trial. If a case was not authorized by the prosecutor's office, police records were requested under the Freedom of Information Act. These records were necessary to determine whether law enforcement personnel had referred the case for prosecution and the prosecutor's office denied the warrant (i.e., the case was not authorized) or if the police closed the case without referring it on for prosecution.

The list of victim names, complaint numbers, and assault dates were also submitted to the state crime lab. For each case, crime lab staff indicated whether a rape evidence kit had been submitted, and if so, provided the DNA analysis results (i.e., inconclusive, negative, positive for DNA).

Measures

The dependent variable was assessed as a four-level ordinal variable in order to reflect case progression throughout the criminal justice system: 1 = case reported, but not referred to prosecutor's office by police; 2 = referred to prosecutor's office but not warranted; 3 = warranted, but dismissed and/or acquitted at trial; 4 = pled guilty and/or convicted at trial.

The two focal counties varied with respect to how their SANE–SART programs functioned over time. To develop reliable indicators of intervention changes, two research assistants examined all available archival records from both sites regarding SANE program development and SANE–SART functioning. In addition, the SANE program directors and the rape crisis center directors affiliated with these SANE programs provided information about changes in leadership within the SANE programs over time. Also, archival records were used to obtain data on changes in the elected prosecutor over the 1998/1999–2007 time period. For the final analyses, cases were grouped by month in which the assault occurred and each month was coded to reflect the following variables: SANE director (changed in Site B only); elected prosecutor (changed in both sites); frequency of adolescent/adult sexual assault coordinating council meetings (changed from monthly to quarterly meetings); and multidisciplinary Child Advocacy Center coordinating council meetings (initiated in Site A only).

In addition to these site-effect variables, independent variables related to victim characteristics, assault characteristics, and medical forensic evidence findings were also coded by the SANE program records. Victim characteristics included: age (dichotomized at the age of consent, with 60.5% age 13–15 and 39.5% age 16–17); gender (96.5% female); race (80.3% Caucasian vs. 19.7% minority, most of whom were African American); a proxy variable for victim's household income[3] ($M = \$47,625$, SD = \$10,594); whether the victim was identified as having a developmental delay (2.4%) or any type of disability (including both physical and mental;12.2%), and whether the victim had consumed alcohol or drugs prior to the assault (38.5% had done so).

The measures of assault characteristics included: relationship of the perpetrator to the victim (64.8% acquaintance, 12.4% gang assault, 9.6% stranger, 6.8% family member, 5.6% dating partner); whether the assault included vaginal penetration (94.0%), oral contact (33.2%), or anal penetration (14.9%); the number of types of sexually assaultive acts involved in each case (1–5 possible; $M = 1.45$, SD = 0.79); and the tactics used in the assault, including physical force (48.4%) and use of a weapon (3.3%). Also assessed were additional contextual features of the assault, such as whether there were victim assertions that no sexual contact occurred (1.4%), that the contact was consensual (17.1%), or that s(he) was unsure if sexual contact had occurred (10.4%).

The variables reflecting medical forensic evidence findings included: DNA findings (15.7% positive; 43.8% negative; 40.5% kit not submitted); findings of anogenital injury (49.9%), hymen injury (20.0%), and non-anogenital physical injury (48.9%). We also coded the amount of time elapsed between the assault and the medical examination ($M = 0.99$ days, SD = 1.16).

Analyses

The quantitative analysis focused on identifying predictors of the extent to which reported cases of sexual assault against adolescents progressed through the criminal justice system. Cases were investigated by 23 police departments in two sites—8 police departments investigated cases examined by the Program A and 15 police departments

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[3] Data on victim's household income were not available. We used the average income for households in the zip code where the victim lived (through census data) as a proxy for victim income.

investigated cases examined by Program B. Each police department investigated from 1 to 36 cases. Due to common personnel, policies, and procedures, cases investigated by the same police department were likely to be more similar than cases handled by different departments, although the amount of variance shared within police departments was modest. For the ordinal case disposition variable, the intraclass correlation (ICC) across police departments = .029, indicating that slightly less than 3% of the variance could be explained by differences among police departments. However, the ICC for the dichotomous variable reflecting the first decision point in the process—referral for prosecution—was greater, with the ICC across police departments = .080. This indicates that 8% of the variance in the referral for prosecution could be explained by differences among police departments. Because a non-negligible amount of variance in case processing was attributable to differences among police departments, all analyses incorporated the influence of police department as a random effect.

The cases in these analyses occurred over nearly 10 years beginning in April 1998. Cases handled near the same time were assumed to share similarities due to common historical, political, and policy influences. For the ordinal case disposition variable, the ICC across months = .043, indicating that approximately 4% of the variance could be explained by month-to-month fluctuations. To reflect the influence of case timing, cases were grouped by month, which allowed examination of the data for time trends, seasonal effects, and influences of identified historical events and programming shifts. To facilitate interpretation and improve the stability of estimation of interaction terms, the time variable was centered at the mean of all observations (month 66), effectively setting this point as the intercept.

To reflect both the grouping of cases by police department and by month and the ordinal nature of the dependent variable, multilevel ordinal regression was used to analyze the impact of case characteristics and other influences on case progression through the justice system (see Hedeker and Gibbons 1994; Raudenbush and Bryk 2002). Ordinal regression analyzes the cumulative probability that a case will exceed a particular level on the ordinal outcome variable, as a function of the predictor variables included in the analysis. Multilevel ordinal regression is an extension that incorporates the shared influence of predictor variables that affect groups of cases, along with variables that exert independent effects on individual cases. Multilevel analyses produce standard errors that are appropriate for testing the influence of group-level variables, reflecting the lack of independence of their effects on individual cases.

For multilevel analysis, cases were grouped by both police department and month of assault. Individual cases were modeled at Level 1, nested within the 23 police departments at Level 2. A random intercepts model was specified, with average effects estimated across police departments. Month of assault was specified as a fixed effect at Level 1; linear and nonlinear effects of time were tested, as were possible seasonal effects. Site (Site A vs. Site B) was specified as a Level 2 covariate. All other predictors were modeled as fixed effects at Level 1. Predictor variables were examined in six ordered blocks.

The first block contained the effect of case timing, or the month in which the assault occurred, numbered sequentially from the initial month, April, 1998. Graphical methods were used to assess patterns of change in case progression toward prosecution over time, and linear and quadratic terms were tested to assess the trajectory over time. Graphical and statistical methods were used to test for possible recurrent seasonal patterns in case progression. The second block contained victim characteristics that may have affected case outcome; the third block, assault characteristics; the fourth block, medical forensic evidence findings. The fifth block contained site variables as both a main effect explaining differences between the two sites in level of progression toward prosecution, and in interaction with time, explaining site differences in the trajectory of change in the proportion of cases reaching different stages in the prosecution process. In addition, this block contained site interactions with variables examined in previous blocks, testing for site differences in the effect of victim, assault, and medical forensic variables on case progression. The sixth block contained variables reflecting the timing of identified programmatic changes at the two sites, including implementation of community coordinating councils, changes in coordinating council meeting frequency, and changes in SANE directors and prosecutors at each site.

The multilevel ordinal regression was performed in a hierarchical manner, entering each block sequentially in order to control for the effects of variables in earlier blocks when examining the effect of variables in later blocks. To reduce model complexity and optimize interpretability, variables showing no significant relationship to the dependent variable when entered were trimmed from the model (as recommended by Hosmer and Lemeshow 2000). Analyses were conducted with HLM 6.08 software (Raudenbush et al. 2004), using the hierarchical generalized linear model with a logit link function to characterize an ordinal dependent variable. Full maximum likelihood was used for estimation. To reduce the influence of non-normal distributions on the outcome variable, robust standard errors were used to compute confidence intervals; however, results were virtually identical using robust or non-robust estimation. Missing observations on predictor variables (5.8% of the data matrix of individual case-level variables) were estimated using expectation maximization (EM)

based on all available data, an approach shown to introduce less bias than other methods of handling missing data, such as listwise deletion of cases with missing observations (Schafer and Graham 2002).

Results

Table 1 summarizes case outcomes overall and by site. As noted previously, no studies to date have examined prosecution rates specifically for adolescent victimizations. In adult samples, on average 17–29% of reported assaults are successfully prosecuted (i.e., guilty plea or trial conviction); in child samples (which often combine adolescents with youth under 12), on average 40–85% of reported cases are successfully prosecuted. In this study, the overall rate of guilty pleas/trial conviction was 40.3%.

Results of the ordinal regression are summarized in Table 2. The "ordinal effects" block describes the expected cumulative probabilities of case outcomes at the three thresholds of the ordinal dependent variable, with all other variables in the model held constant at zero. In the Time model, these effects were at the intercept of time, which was centered at month 66. At this point in time, the log odds of conviction/guilty plea versus other dispositions (i.e., warranted/acquitted or dropped, referred but not warranted, and not referred) was −0.308. This translates to a cumulative odds ratio (OR) of 0.74, which indicates that an assault reported in month 66 was 26% less likely to attain a conviction/plea as to receive a lesser disposition (i.e., acquittal/dropped, referred but not warranted, or not referred for prosecution). The log odds that a case reported in month 66 would be warranted versus not warranted was 0.35. This translates to a cumulative OR of 1.42, which indicates that a case was 42% more likely to be warranted (and either convicted or acquitted/dropped) than not warranted. Finally, the log odds that an assault reported in month 66 would be referred for prosecution versus not referred was 1.06. This translates to a cumulative OR of 2.89, which indicates that a case was nearly three times as likely to be referred for prosecution as not referred.

Table 1 Descriptive results: case progression outcomes

Outcome	Overall (%)	Site A (%)	Site B (%)
Not referred by police for prosecution	34.4	32.7	35.5
Referred to prosecutor, but not warranted for prosecution	16.8	15.6	17.6
Warranted by prosecutor, but dropped or trial acquit	8.4	15.0	4.5
Guilty plea or trial conviction	40.3	36.7	42.4

Block 1 in Table 2 shows the marginally significant influence of the linear effect of time (OR = .994, $p = .059$). Across the 10 year span, the odds that a case would reach a higher level of disposition declined slightly, at a rate of less than .01 per month. This effect was essentially linear over time; quadratic effects added no explanatory power and were not retained in the model. No seasonal effects were identified.

Block 2 of Table 2 shows the influence of victim characteristics. Cases involving victims aged 16 or 17 were 73% less likely (or, equivalently 27% as likely) to reach a higher level disposition compared to those involving victims aged 13–15 (OR = .27). Identification of the victim as developmentally delayed had a positive effect on case progression, with these cases eight times as likely to progress further through the system than other cases (OR = 8.03). Other victim characteristics—gender, race, household income, or whether the victim had consumed alcohol or used drugs prior to the assault—made no contribution to the prediction of case progression.

Block 3 of Table 2 adds to the model the influence of assault characteristics on case progression. Higher levels of case progression were associated with assault by a family member (OR = 9.80), an intimate partner (OR = 6.00), or an acquaintance (OR = 4.99), relative to assaults perpetrated by a stranger; cases involving gang assault were no more likely to progress further than those perpetrated by a single stranger. Although disposition was not related to specific types of assaultive acts, it was positively associated with the total number of types of acts perpetrated during the assault (OR = 1.84); each additional act nearly doubled the odds of a case progressing further. Case outcome was not associated with tactics used in the perpetration of the assault (e.g., physical force or weapon) or with the victim's assertions that no sexual contact had occurred or that s(he) had desired the contact or was uncertain about what had happened.[4]

Block 4 of Table 2 adds the contribution of medical forensic evidence findings to the prediction of case progression, controlling for the effects in previous blocks. Time between the assault and the medical forensic examination was not significantly related to case progression but was retained in the model to control for possible timing effects on the viability of forensic evidence. Controlling for time between the assault and the exam, DNA evidence was positively related to case progression. In comparison with cases in which rape kits were not submitted to the crime lab, cases with positive DNA evidence were more than 5 times as likely to progress further in the system

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[4] Cases in which the victim denied any sexual assault occurred were only kept in the study if there was other evidence in the SANE record (typically a witness) that an assault occurred.

Table 2 Ordinal regression predicting case progression throughout the criminal justice system

	Time model			Victim characteristics model			Assault characteristics model			Medical forensic evidence model			Site effects model			Community level changes model		
	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p
Ordinal effects																		
Threshold 1[a]	−0.308	0.735	0.018	0.174	1.190	0.252	−2.273	0.103	0.000	−3.136	0.043	0.000	−3.052	0.047	0.000	−3.147	0.043	0.000
Threshold 2[b]	0.351	1.420	0.000	0.398	1.490	0.000	0.430	1.536	0.000	0.473	1.605	0.000	0.478	1.613	0.000	0.487	1.627	0.000
Threshold 3[c]	1.063	2.894	0.000	1.193	3.295	0.000	1.319	3.741	0.000	1.466	4.333	0.000	1.477	4.378	0.000	1.505	4.503	0.000
Block 1: Time effects																		
Month in which assault occurred	−0.006	0.994	0.059	−0.005	0.995	0.143	−0.006	0.994	0.029	−0.005	0.995	0.112	0.001	1.001	0.740	0.001	1.001	0.718
Block 2: Victim characteristics and time effects																		
Age group (0 = 13–15; 1 = 16–17)				−1.322	0.267	0.000	−1.225	0.294	0.000	−1.116	0.327	0.000	−1.341	0.262	0.000	−1.359	0.257	0.000
Developmental delay				2.083	8.028	0.004	2.130	8.418	0.001	2.056	7.815	0.024	1.909	6.744	0.017	2.049	7.763	0.011
Block 3: Assault characteristics																		
Relationship to assailant-acquaintance							1.606	4.985	0.002	1.770	5.870	0.000	1.803	6.066	0.000	1.768	5.859	0.000
Relationship to assailant-gang							0.416	1.516	0.348	0.594	1.811	0.208	0.697	2.007	0.056	0.607	1.834	0.084
Relationship to assailant-familial							2.282	9.799	0.001	2.416	8.184	0.000	2.473	11.853	0.001	2.426	11.313	0.001
Relationship to assailant-intimate							1.792	6.001	0.033	2.102	8.184	0.001	2.179	8.839	0.009	2.123	8.353	0.008
Relationship to assailant-stranger (reference category)																		
Number of types of sexual assault							0.612	1.844	0.000	0.492	1.635	0.001	0.477	1.611	0.001	0.541	1.717	0.000
Block 4: Forensic evidence																		
Days between assault and exam										−0.116	0.891	0.201	−0.105	0.901	0.159	−0.087	0.917	0.259
DNA-Positive										1.727	5.626	0.000	1.818	6.162	0.000	1.903	6.709	0.000
DNA-Negative										1.143	3.136	0.000	1.186	3.274	0.000	1.257	3.513	0.000

Table 2 continued

	Time model			Victim characteristics model			Assault characteristics model			Medical forensic evidence model			Site effects model			Community level changes model		
	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p	Log odds	Odds ratio	p
DNA-No kit submitted (reference category)																		
Block 5: Site effects																		
Site (0 = Program B; 1 = Program A)													−0.407	0.665	0.140	0.198	1.219	0.558
Site × Time (month in which assault occurred)													−0.014	0.986	0.014	0.005	1.005	0.486
Site × Age group													0.569	1.766	0.088	0.518	1.679	0.084
Block 6: Agency/ Community level changes																		
Child advocacy coordinating council at Program A (0 = before; 1 = after)																−1.585	0.205	0.001
Variance of random intercepts across police departments	0.087			0.127			0.045			0.057			0.045			0.065		

[a] Convicted/plead versus Warranted & Dropped/acquitted, Referred, or Not referred

[b] Convicted/plead or Warranted & Dropped/acquitted versus Not warranted

[c] Convicted/plead or Warranted & Dropped/acquitted or Referred versus Not referred
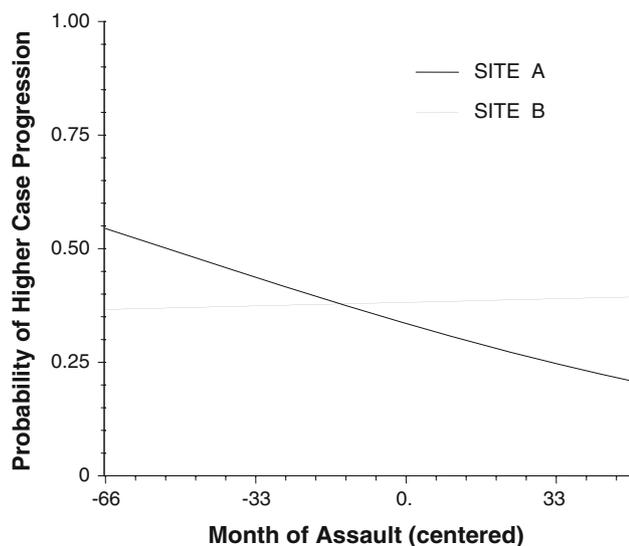
Fig. 3 Change over time in probability of higher case progression, by site

(OR = 5.63); cases with negative DNA evidence were more than 3 times as likely to progress further (OR = 3.14). Other types of medical forensic evidence (e.g., genital, hymen, or other physical injuries) were not associated with case progression.

Block 5 of Table 2 adds site differences to the model. The main effect for site was not significant, indicating that case progression did not differ between the two sites at the intercept of time (month 66), holding the effects of predictors in earlier blocks constant at zero. However, there was a significant site by time interaction (OR = .99), indicating that the trajectory of change in the odds of higher case progression differed between the two sites. This effect is illustrated in Fig. 3. At Site A, the odds that a case would reach a higher level of disposition declined over time at a rate of .01 month, while there was no change at Site B. The site by age group interaction was marginally significant (OR = 1.77, p = .09), suggesting that, although cases with older victims did not progress as far in the system as those with younger victims at both sites, there was less difference at Site A than at Site B, after controlling for the Site by time interaction. No other site interactions approached significance.

Block 6 of Table 2 adds dichotomous variables designating the timing of specific community and/or policy changes at one of the sites, including changes in SANE directors, implementation or change in site community coordinating councils, and prosecutor elections and changes. Only one of these—implementation of the child advocacy coordinating council at Site A—was significantly predictive of case disposition; the OR of .21 indicated that higher levels of case progression were only 21% as likely (or almost 80% less likely) for assaults reported to Site A

after implementation of the child advocacy coordinating council compared with assaults reported before implementation. Furthermore, addition of this variable to the model rendered the site by time interaction in Block 5 non-significant, suggesting that differential changes in case progression over time in the two sites could be explained by implementation of the child advocacy coordinating council at Site A. The effects are shaded in Table 2.

The model was checked for the influence of problematic collinearity, suppression, and overfitting by examining the effects of variables in the final model with other predictors removed. Discrepant findings (e.g., effects reaching significance only when other variables were in the model) might identify suppression or other multi-variable effects that are too complex to be supported by the limited sample size. However, the coefficients for all predictors remained essentially consistent regardless of the presence or absence of other variables, suggesting that model effects are robust and adequately supported by the sample size.

Discussion

As noted previously, no studies to date have examined prosecution rates specifically for adolescent victimizations. In this study, the overall rate of guilty plea/trial convictions was 40.3% for sexual assaults committed against adolescents aged 13–17. These data are regional, not national, and therefore should not be interpreted to reflect the current state of adolescent sexual assault prosecution in the United States. However, our findings suggest a possible developmental trend in the legal system's response to sexual violence crimes that should be examined further in larger-scale studies. For younger victims, who are stereotypically presumed to be less culpable or not at all culpable for the assault, prosecution rates are substantially higher than for adult women, who bear the brunt of societal rape myths regarding their responsibility for the assault (Ullman 2010). Adolescents are developmentally in-between and so too were their prosecution rates: substantially higher than results for adult women, but at the lower end for childhood sexual abuse survivors (Cross et al. 2003).

Additional evidence of this possible developmental effect emerged in the multi-level ordinal logistic regression model predicting case progression through the criminal justices system. In the *victim characteristics block*, age was a significant predictor such that cases involving younger victims (13–15) were significantly more likely to progress further through the system than assaults against older victims. Also consistent with the notion that system response is linked to perceived culpability, sexual assaults committed against adolescents with documented developmental delays were eight times as likely to move further through

the criminal justice system. In the *assault characteristics block*, victim-offender relationship was a significant predictor of case progression. Stein and Nofziger (2008a, b) found that arrest was more common in adolescent sexual assault cases when the offender was a non-parental adult relative, and our results show a similar, but more generalized effect that any non-stranger assaults were more likely to be prosecuted than stranger assaults. These findings are consistent with recent studies of adult sexual assault victims (e.g., Campbell et al. 2011). The specific kinds of forced penetrations did not affect case outcomes, but the cumulative number of the assaultive acts perpetrated against the victim did increase the likelihood that the case would progress further through the criminal justice system. In the *medical forensic evidence block*, after accounting for significant victim and assault characteristics, medical forensic evidence predicted significant variance in case outcomes. Cases with positive DNA evidence were five times as likely to progress further through the system compared to cases in which no rape kit was submitted to the crime lab.

In the *site effects model*, we found that sites differed in the trajectory of case progression over time. In the *community-level changes model* we added variables to reflect the timing of specific changes with respect to how these SANE–SART interventions operated in their communities. Site A had undergone far more sweeping changes in their community than Site B with respect to the operation of its Child Advocacy Center. National standards for CACs require multi-stakeholder coordinating meetings (National Children's Alliance, n.d.), which meant that the same organizations—and indeed often the very same individuals—in Site A were now called upon to participate in two sets of meetings. Perhaps not surprisingly, the community momentum became stronger for the newer (child-focused) coordinating council, and key informants in the community indicated that interest in adult/adolescent cases began to wane. Indeed, our quantitative results show that very effect. The interaction of victim age group and the implementation of a child coordinating council in Site A was significantly predictive of case disposition; the addition of this variable to the model rendered the site by time by age group interaction in site effects model nonsignificant, suggesting that age-related differential changes in case referral over time at Site A could be explained by the timing of implementation of the child advocacy coordinating council at that site. In essence, it appears that Site A could not sustain two community-level initiatives of a similar focus without diminished effectiveness in one due to diminished resources.

These results are consistent with Wolff's (2001) cautions about "over-coalitioned" communities, which are becoming increasingly common and increasingly problematic because:

[V]arious federal and state agencies have mandated the development of coalitions as a condition for receiving funds. In these communities, there can be [multiple coalitions]—all of which have overlapping visions, target populations, missions, and memberships. Creating communication and coordination among these various coalitions becomes a significant community challenge (p. 175).

The reasons why over-coalitioned communities may be less effective can be explained by Kelly's ecological principles (Kelly 1968; Trickett et al. 1985). First, the Principle of Interdependence states that components within a social system are interdependent and changes in one component of a system will produce changes in another—and that these changes can be positive or negative, intended or unintended. Because both child and adolescent victims need the assistance of the legal, medical, mental health, and advocacy systems, the introduction of the child-focused coordinating meetings would necessarily have effects on other populations served by those systems. Consistent with the Principle of Cycling of Resources, it appears that it had the unintended negative effect of re-allocating resources that had previously been attuned to adolescent victims. The same social systems—and often the same people—were required to participate in new meetings for child victims, and there was a marked, significant drop-off in prosecution rates for adolescent victims thereafter. It does not appear as though Site A had sufficient resources to allocate to multiple community coalitions that had such similar foci. The results of this study were shared with key stakeholders in Site A, who confirmed that there had been a noticeable community shift to child victims, but many were surprised adolescent sexual assault prosecutions had suffered. Currently, they are considering several options to remedy this issue, including bringing adolescent cases into the child coordinating meetings and/or finding ways to introduce new resources to strengthen the existing adult/adolescent coalition meetings.

Although these findings have been able to inform local practice and may be useful to other communities with SANE–SART interventions, it is important to note several limitations of this study that temper the strength of the conclusions that can be drawn from this work. First, the variables designating the timing of community-level changes such as council implementation are crude measures of complex phenomena; it is unlikely that the date on which a change was initiated reflects the date that the change actually exerted a measurable impact on prosecution of cases involving adolescent victims. Second, community-level changes were not independent and likely had combined effects that cannot be accurately reflected in a limited statistical model. For example, the date the child

advocacy coordinating council was first implemented at Site A occurred 21 months after a decision was made to reduce the meeting frequency for another coordinating council in the same community. It is likely that these two events are related and that both may have affected case progression, but it is not possible to definitively untangle the influences of the two events due to their proximity and the low number of cases handled in the interim. The child advocacy coordinating council implementation was more strongly related to case disposition, although the reduction in meeting frequency of the other coordinating council was marginally related and may have contributed to the effect. Third, the relatively small number of cases handled within a particular time interval, especially those involving older victims (age 16–17) at one site. For example, only 17 cases involving older victims were investigated by the police at Site A following the implementation of the child advocacy coordinating council (compared with 28 in this age group investigated prior to this policy shift at this site). In light of these sample size issues, results involving community-level policy changes should be interpreted with caution.

In addition to these statistically-focused limitations, there are several drawbacks to relying on official police and prosecutor records as a measure of victims' experiences in the criminal justice system. Such data cannot tell us how victims felt about their interactions with system personnel and whether they were satisfied with their case outcomes (see Campbell et al. 2010). Furthermore, family and friends are a particularly important resource to adolescents victims (Finkelhor and Wolak 2003; Stein and Nofziger 2008a, b) and it is probable that these individuals also had contact with legal system personnel. These encounters may have influenced not only how the victims' perceived these systems but possibly the case outcomes as well. These dynamic relationships are impossible to capture in static archival records. Finally, from within the criminal justice system itself, the judicial perspective is not reflected in police and prosecutor records. It is not known whether the judges overseeing these cases had specialized training or experience in sexual assault, and how their expertise may have affected case outcomes. Though it would be impossible to discern such information from archival record reviews, it is important to acknowledge how "official" records provide only one perspective into a complex process.

In conclusion, this study suggests that whether a community follows formalized or informal models of SANE–SART integration may not be nearly as important as how a community's resources and attentions can be focused—or divided—among the many victims who want justice for the crimes they have suffered. Adolescent sexual assault prosecution began to drop-off in Site A when key stakeholders' time and attention was redirected to new child

advocacy coordinating council meetings. It is to be expected that the same organizations and often the same people will be tapped for multiple community-wide initiatives, and our results suggest that SART teams must pay particular attention to how they will prevent possible over commitment, burnout, or exhaustion from divided attentions.

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