PREDICTING SEXUAL ASSAULT KIT (SAK) SUBMISSION AMONG ADOLESCENT RAPE CASES TREATED IN FORENSIC NURSE EXAMINER PROGRAMS

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ABSTRACT

PREDICTING SEXUAL ASSAULT KIT (SAK) SUBMISSION AMONG ADOLESCENT RAPE CASES TREATED IN A FORENSIC NURSE EXAMINER PROGRAM

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Adolescents are at an increased risk for sexual assault. While many adolescent victims do not seek services from the medical and/or criminal justice systems post-assault, those who do are usually advised to have a medical forensic exam and sexual assault forensic exam kit (SAK). The SAK is completed by a medical professional, transported to the crime lab for analysis by law enforcement personnel, and the findings are used in later prosecution of the perpetrator; many kits, however, are never transported to the crime lab by law enforcement and remain unprocessed. The current study examined what extra-legal factors (e.g., victim race, relation to the perpetrator, injuries sustained, etc.) predicted law enforcement officers' submission of SAKs to the crime lab for analysis among 393 adolescent patients from two Sexual Assault Nurse Examiner (SANE) programs in Midwestern communities. Findings reveal that several extra-legal factors, including the age of the victim, the race of the victim, the number of perpetrators in the assault, and the number of assaultive acts, predict SAK submission. Implications for future research and practice are discussed.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Introduction

Adolescence is a time of increased risk for rape and sexual assault. National studies have found that 7 to 11 percent of adolescent females ages 12-17 years old have reported being forced to have sex (Eaton et al., 2006; Finkelhor, Turner, Ormrod, & Hamby, 2009; Kilpatrick, Saunders, & Smith, 2003). Adolescent females are four times more likely to be sexually assaulted as compared to older females (Canterbury, Grossman, & Lloyd, 1993; Hashima & Finkelhor, 1999; Snyder & Sickmund, 2006) and nearly one out of every three adult women who report being sexually assaulted were between the ages of 12 and 17 when they were first raped (Tjaden & Thoennes, 2000). Whereas many adolescent sexual assault survivors choose to remain silent about what has happened to them or tell only close family and friends (Boldero & Fallon, 1995), some do seek formal assistance from the medical and criminal justice systems (Campbell, 2008).

Adolescent victims who have post-assault contact with the medical and/or criminal justice systems are usually advised to have a medical forensic exam and sexual assault forensic exam kit (SAK), which may aid in later prosecution. The SAK guides the medical provider through the process of evidence collection (e.g., specimen collection from points of contact with the perpetrator; collection of reference samples; collection of clothing). After the SAK is completed by a medical professional, law enforcement transports the kit from the medical facility to the crime lab for processing. Pending analysis, the findings of the kit are used to aid in the prosecution of the perpetrator. This complete process is dependent upon a number of players. The adolescent must consent to having a SAK; the law enforcement officer must transport the SAK to the crime lab; and crime lab personnel must complete analysis on the SAK.

So, while adolescents may complete the SAK, there is no guarantee that their willingness to complete the process will actually aid in prosecution. As of 2010, an estimated 27,595 unsolved rape cases across the nation contained forensic evidence that had not been submitted by law enforcement to a crime lab for analysis (Strom & Hickman, 2010). While kits submitted to the crime lab awaiting analysis delay justice, kits that are never submitted to the crime lab deny justice.

The current study examined the SAK submission process in the context of adolescent sexual assault. Specifically, it investigated what predicts law enforcement officers' submission of adolescent SAKs to the crime lab for analysis. Sexual assault case records of 393 adolescent patients from two Sexual Assault Nurse Examiner (SANE) programs in Midwestern communities were analyzed to determine what extra-legal factors (e.g., victim race, victim age, relation to the perpetrator, injuries sustained, etc.) predicted adolescent SAK submission by law enforcement to the crime lab. Before presenting the current study, existing literature and research will be reviewed to (1) gain a better understanding of adolescent sexual assault, including its prevalence, dynamics, characteristics, and impact on victims' lives; (2) understand adolescent victims' post-assault help-seeking behaviors with specific attention to their interactions with the medical and criminal justice systems; (3) appreciate the significance of the SAK during adolescents' interactions with these systems and (4) understand the full SAK submission process, including the factors that may influence whether a SAK is submitted to the crime lab for analysis.

Adolescent Sexual Assault: Prevalence, Dynamics, and Impact

Prevalence of Adolescent Sexual Assault

Although there is variability across state and federal statues as to how sexual assault is legally defined, it is generally described as any unwanted act of oral, vaginal, or anal penetration by body parts or objects using force, threat of force, or while the victim in incapacitated or unable to give consent (National Institute of Justice, 2010). Sexual assault more broadly refers to a range of unwanted sexual activity, including contact and noncontact, up to and including rape (Campbell, 2008). The current study includes cases of adolescent sexual assault involving penetration (i.e., rape) and cases of non-penetration (e.g., 'fondling'), and the subsequent SAK submission. Accordingly, the current literature review will cover rape, specifically, and sexual assault, generally.

The National Institute of Justice (NIJ) National Violence Against Women Survey found that over one in six women (18%) experience a completed or attempted rape in their lifetime (Tjaden & Thoennes, 2000). Of these women, 32% were between 12 and 17 years old when they were first raped. Overall, adolescent females are four times more likely to be assaulted as compared to older females (Canterbury, Grossman, & Lloyd, 1993; Hashima & Finkelhor, 1999; Snyder & Sickmund, 2006). High rates of sexual victimization among adolescents are found across multiple studies. In the NIJ National Survey of Adolescents, 8.1% of 12-17 year olds reported that they had been sexually assaulted (Kilpatrick, Saunders, & Smith, 2003). The Youth Risk Behavior Surveillance System found that 7.5% of students in grades 9-12, nationwide, had been physically forced to have sexual intercourse (Eaton et al., 2006). In females alone, this number rose to 10.8%. Finally, The Office of Juvenile Justice and Delinquency Prevention

(OJJDP) National Survey of Children's Exposure to Violence found that 7.9% of girls ages 14-17 were victims of sexual assault in the past year and 18.7% during their lifetimes (Finkelhor, Turner, Ormrod, & Hamby, 2009).

These rates of adolescent sexual assault do not seem to be improving. A cohort analysis of the National Violence Against Women Survey found that younger women, as compared to older women, were more likely to report having been raped prior to the age of 18, suggesting that the risk for child or adolescence sexual assault is increasing (Tjaden &Thoennes, 2006). Adolescents 12-17 years old are the largest group of sexual assault victims and are anywhere from 2-11 times more likely to be assaulted as adults than are non-victims (Messman-Moore & Long, 2003; Snyder, 2000; Snyder & Sickmond, 2006; Tjaden & Thoennes, 2006).

Dynamics of Adolescent Sexual Assault

Adolescents are more likely to be assaulted by acquaintances and relatives as compared to younger victims and adults (Hanson et al., 2003; Jones, Rossman, Wynn, Dunnuck, & Schwartz, 2003; Muram, Hostetler, Jones, & Speck, 1995; Peipert & Domagalski, 1994; Snyder & Sickmund, 2006; Stein & Nofziger, 2008; Tjaden & Theonnes, 2006). Peipert and Domagalski (1994) found that 68% of their adolescent sample was assaulted by an acquaintance, compared to 50% of the adult sample, and that 9% of the sample was assaulted by a relative, as compared to 6% of the adult sample. Similarly, The National Survey of Adolescents (Kilpatrick et al., 2003) determined that 74% of the reported cases in their nationally representative sample of sexual assault were committed by someone the victim knew. Almost one-third of the sexual assault cases (32.5%) involved perpetrators that were friends with the victim while 21.1% involved perpetrators who were members of the victim's family, including fathers or stepfathers,

brothers or stepbrothers, sisters or stepsisters, grandparents, and other adult and child relatives. The majority of adolescent sexual assaults, regardless of the victim's relationship to the perpetrator, occur in a house or apartment (Kilpatrick et al., 2003; Peipert & Domagalski, 1994). Over 30% of the adolescent sexual assaults reported in the National Adolescent Study (2003) took place in the victim's home. This is to be expected because if the perpetrator is known to the victim, it is likely that the assault will take place in a location known to the victim. Other common locations included the victim's neighborhood, school (Kilpatrick et al., 2003), and vehicles (Peipert & Domagalski, 1994).

Serious physical injury is not common in adolescent sexual assault. While nearly half of adult sexual assault medical case records document injury, only a quarter of adolescent sexual assault medical case records do (Jones et al., 2003; Muram et al., 1995; Peipert & Domagalski, 1994). The National Adolescent Survey (2003) found that just over 1% of adolescents reported serious injury. However, Jones and colleagues (2003) attended to a very specific distinction in that while adolescents sustained fewer non-genital injuries, as compared to adults, they sustained significantly more anogenital injuries. This unique pattern may be the result of other characteristics of the victim and the assault. First, stranger rape is more common in adult sexual assault cases as compared to adolescent sexual assault cases (Peipert & Domagalski, 1994). Non-genital injury may be less likely when there is a preexisting relationship between the victim and the offender while strangers may be more likely to use weapons and force. This seems to be supported as the overall use of weapons and force is more common in cases of adult sexual assault as compared to adolescent sexual assault (Muram et al., 1995; Peipert & Domagalski, 1994). Additionally, Jones et al. found that there were significantly more anogenital injuries

among victims who had not previously had sexual intercourse. It is more likely that adolescents had not previously engaged in sexual intercourse, as compared to adults, further explaining the relative difference in anogenital injury.

Impact of Adolescent Sexual Assault

Sexual assault, regardless of the identity of the perpetrator, where it occurs, how many injuries are sustained, or if weapons are used, is a traumatic event that has a devastating impact on victims' lives, potentially resulting in multiple psychological, physical, and behavioral health problems (Martin, Macy, & Young, 2011). Following the assault and throughout the recovery process, most victims exhibit heightened levels of psychological distress (Breitenbecher, 2006; Ullman, Filipas, Townsend, & Starzynski, 2006) and utilize medical services at higher rates than do women who were not assaulted (Clum, Nishith, & Resick, 2001). Survivors are more likely to experience post-traumatic stress disorder (PTSD), obsessive-compulsive disorder, anxiety, depression, and suicidality (Bonomi, Anderson, Rivara, & Thompson, 2007; Coker et al, 2002; Kilpatrick & Acierno, 2003; Koss, Bailey, Yuan, Herrera, & Lichter, 2003; Martin et al., 2011); various acute injuries from the assault (Tjaden & Thoennes, 2000); gynecologic and reproductive health problems (Campbell, Lichty, Sturza, & Raja, 2006; Skinner et al., 2000); gastrointestinal symptoms, trouble sleeping, and frequent nightmares (Clum et al., 2001); substance use and abuse (Kaukinen & DeMaris, 2005; Kilpatrick & Acierno, 2003; Skinner et al., 2000); and engage in risky sex behavior (Gidycz, Orchowski, King, & Rich, 2008).

Studies on *adolescent* sexual assault specifically illustrate the same trends. Adolescents who have been sexually assaulted are more likely to develop eating disorders (Ackard &

Neumark-Sztainer, 2002; Thompson, Wonderlich, Crosby, & Mitchell, 2001), attempt suicide (Ackard & Neumark-Sztainer,2002), become depressed or exhibit delinquent behavior (Fergusson, Swain-Campbell, & Horwood, 2002; Herrera & McCloskey, 2003; Nolen-Hoeksema & Girgus, 1994), be later victimized, and develop negative perceptions and expectations of others as a result of revictimization (Cloitre, Cohen, & Scarvalone, 2002; Roodman & Clum, 2001; Smith, White, & Holland, 2003).

Post-Assault Help-Seeking Among Adolescents

Adolescents are at an increased risk of experiencing sexual assault, potentially leading to myriad of detrimental effects on their lives. It is important, therefore, to understand the services available to adolescent victims following a sexual assault and their utilization of these services. Following a sexual assault, the victim may choose to access the medical system for health-related services and/or a medical forensic exam, or the criminal justice system to report the sexual assault and pursue criminal prosecution. Each of these systems will be reviewed independently with attention to the potential benefits of accessing each system and adolescents' use of each system following a sexual assault.

Adolescent Sexual Assault Victims in the Medical System

There are very few studies on adolescents' post-assault help-seeking behavior and utilization of medical services. Therefore, the literature on adults' post-assault help-seeking behavior and utilization of medical services will be reviewed here, with adolescent research included as available. Medical professionals can provide several services to victims of sexual assault. Medical care providers can detect and care for injuries; screen and provide preventative treatments (prophylaxis) for sexually transmitted infections (STIs), including HIV;

and test for pregnancy and provide emergency contraception (Campbell, 2008). These services, concentrating on the health concerns and needs of the patient, are one of the primary reasons cited by victims as to why they seek medical services following a sexual assault (Campbell, Bybee, Ford, Patterson, & Ferrell, 2009; Dumont, White, & McGregor, 2009; Resnick et al., 2000). In addition to attending to physical health needs, medical care professionals can address survivors' psychological needs and concerns. Many victims report that they seek out medical services to better understand and validate their experience (Campbell et al., 2009).

Finally, medical care providers can conduct a medical forensic examination. The medical forensic exam serves two purposes (US Department of Justice, 2004). First, it seeks to address the physical and psychological needs of the patient—the reason many victims seek medical services, as discussed above. Second, the medical forensic exam can address the needs of the justice system via evidence collection with a sexual assault forensic exam kit. The medical care provider uses the kit to collect evidence, document exam findings, and obtain a history of the assault. Specifically, this process includes collection of the patient's clothing, a complete head-to-toe physical examination, specimen collection from body surfaces such as skin, hair, and nail clippings, a visual assessment of the genitals for trauma, specimen collection from points of contact with the perpetrator, and blood draw and urine specimens for drug analysis (Campbell, Patterson, & Lichty, 2005; Lang, 1999; Ledray, 1999). Colposcopes provide a magnified view of the cervix, vaginal, and vulvar tissues and are used to examine the anogenital area for microlacerations and additional injuries (Ciancone, Wilson, Collette, & Gerson, 2000). They can also be equipped with cameras to digitally document findings. The evidence collected during the medical forensic examination can aid in the investigation and subsequent prosecution of

the sexual assault case. While women do not frequently seek medical care for the purpose of attaining a forensic exam, many victims do want to pursue criminal justice system prosecution and see this as a necessary step in doing so (Campbell et al., 2009). The medical forensic examination, specifically the sexual assault forensic exam kit, will be revisited in more detail after a review of the criminal justice system.

Receiving post-assault medical care, whether it is services for physical health concerns, psychological health concerns, or completion of a full medical forensic exam, has the potential to tremendously benefit victims of sexual assault. Timely medical care following an assault can reduce the long-term sequelae for the victim and reduce future health care costs related to the assault (Resnick et al., 2000). These services, however, are only beneficial if they are being utilized. Most victims do not seek post-assault medical care. Research utilizing a subgroup from the National Women's Study (2000) found that of the 214 women reporting adult rape, only 56 women, or 26.2%, received post-assault medical care. As of 2000, when the study was done, this translated to 4 million women in the United States who experienced a rape as an adult and who did not receive post-assault medical care. The rate of sexual assault victims seeking post-assault medical care increases 36-42% if the victim was injured in the assault (Resnick et al., 2000; Tjaden & Thoennes, 2000). Additionally, victims were more likely to seek medical care if they were afraid of contracting an STI/HIV, if they were assaulted by strangers, and if they feared death or serious injury (Resnick et al., 2000). Because adolescents are less likely to be injured in the assault (Jones et al., 2003; Muram et al., 1995; Peipert & Domagalski, 1994), less likely to be assaulted by strangers, and more likely to be assaulted by someone they know (Jones, Rossman, Wynn, Dunnuck, & Schwartz, 2003; Hanson et al., 2003; Muram, Hostetler,

Jones, & Speck, 1995; Peipert & Domagalski, 1994; Snyder & Sickmund, 2006; Stein & Nofziger, 2008; Tjaden & Theonnes, 2006), they may be even less likely to seek post-assault medical care.

The limited literature on adolescents' utilization of medical services has determined that they wait longer to seek post-assault medical care than adults (Jones et al., 2003; Muram et al., 1995; Peipert & Domagalski, 1994). Peipert and Domagalski (1994) reviewed 405 charts of women presenting to Women and Infants' Hospital over a three year period. Adolescent victims delayed medical evaluation by an average of 11 hours while adults delayed the medical evaluation by only 7 hours ($p < 0.02$). Similarly, Jones et al. (2003) compared adult and adolescent sexual assault cases at an urban sexual assault clinic over a three year period. In analyzing 776 cases, they too found that adolescents were more likely to delay the exam; the average time between the assault and the exam for adolescents was 17 hours while the average time between the assault and exam for adults was 12 hours ($p < 0.001$). Finally, in reviewing the cases of 539 sexual assault victims who sought services at the Memphis Sexual Assault Resource Center over an 18 month period, Muram et al. (1995) found that *all* adult patients presented for services within 48 hours of their assault, with 89% of the adult patients presented within the first 24 hours. This was in sharp contrast to the trends seen among adolescent patients. Only 89% of the adolescent patients presented for services within 48 hours of their assault, with 71% presenting in the first 24 hours. The remaining 11% did not present until more than 48 hours after the assault, with several victims waiting over 72 hours. This combined literature suggests that adolescent victims are more likely to delay seeking medical care post-assault.

Adolescent victims may be reluctant or hesitant to seek post-assault medical care for a variety of reasons. Barriers for seeking health services following a sexual assault can be conceptualized into four dimensions: affordability, availability, accessibility, and acceptability (Booth & McLaughlin, 2000; Logan, Evans, Stevenson, & Jordan, 2005). While this conceptual framework was developed and applied among adult survivors, it can be readily applied to adolescents. Adolescents may fear negative social reactions (i.e., acceptability); they may not be aware of or have transportation to available services (i.e., accessibility); they may not have services that they perceive as available to them (i.e. availability); or they may not be aware of available resources to pay for the services (i.e., affordability). Finally, adolescents may have concerns around confidentiality or may not want to get an adult or parent involved (Finkelhor & Wolak, 2003; Fisher, Cullen, & Turner, 2000).

Adolescent Sexual Assault Victims in the Criminal Justice System

In addition to seeking post-assault medical care, adolescent victims of sexual assault can solicit services from the criminal justice system. Through prosecution of the offender, the criminal justice system can hold the perpetrator accountable for their actions and prevent the perpetrator from subsequent contact with the victim. Rape prosecution is a long and complex multistage process (See Bouffard, 2000; Campbell, 2008; Frohmann, 1998; Galton 1975-1976; Kerstetter, 1990; Martin, 2005; and Martin & Powell, 1995). Reporting the crime to law enforcement is frequently the first step. Victims will typically have their first contact with a patrol officer who will take the initial report. Then, a detective is typically assigned to investigate the case and decide whether it should be referred on to the prosecutor. Reporting the assault can potentially benefit victims in a number of ways. The victim may become eligible

for crime victim compensation funds that can pay for medical expenses, psychological counseling or treatment, lost wages, and other related services or assistance received (National Center for Victims of Crime, 2008). If the perpetrator is later found responsible for the assault, victims may feel as though they have received justice for what they experienced. If the perpetrator is incarcerated, they may feel safer and as though they are keeping others safe in knowing that this person is no longer free (National Center for Victims of Crime, 2008). Even if the perpetrator is not found responsible for the assault, they may feel as though they did the right thing by filing the report and having their story heard (Johnson, 1985). A feeling of closure, safety, justice, or acceptance may not be dependent on the outcome of the case, but rather that they did all that was in their power in terms of holding the perpetrator accountable.

Even though reporting to the police has the potential to benefit victims in multiple ways, the majority of sexual assault cases go unreported. The National Women's Study (2000) documented that less than 20% of the women who were raped over the age of 18 reported the assault to police. These numbers are even lower in adolescent samples. In the NIJ National Survey of Adolescents (2003), 326 teens experienced 462 separate incidents of sexual assault. The majority of these cases, 86%, went unreported. Only 13% of the cases of sexual assault were reported to the police (the remaining cases were reported to child protective services, school authorities, or other authorities).

Adolescents may not report their sexual assault to the police for a number of reasons. Resnick et al. (2000) found that victims are more likely to report if the assault involved a stranger, the use of force, or resulted in physical injury. Again, these factors are less common among adolescents, making it less likely for them to report. Additionally, few cases make it all

the way through the criminal justice system (Bouffard 2000). For every 100 rape cases reported to law enforcement, 33 are referred to prosecutors, 16 are charged, 12 result in a successful conviction, and 7 end in a prison sentence (Bouffard, 2000; Crandall & Helitzer, 2003; Frazier & Haney, 1996; Spohn, Beichner, & Davis-Frenzel, 2001). While adolescents may not be aware of these low success rates, they may have peers who have attempted to navigate the criminal justice system without success, or may generally feel that the system cannot help them, as is found among adult survivors (Patterson, Greeson, and Campbell, 2009).

The Medical Forensic Exam

Regardless of whether victims choose to access either the medical system or the criminal justice system following a sexual assault, it is likely that they will ultimately have contact with both as the two systems often operate interdependently in practice. When victims present to the hospital following a sexual assault, they are frequently required or strongly encouraged to report to the police. Alternatively, if they choose to seek criminal justice services first, reporting to the police initiates the protocol to collect forensic evidence with a medical forensic exam conducted by a medical provider (Young, Bracken, Goddard, & Matheson, 1992). While the majority of sexual assault victims seek medical care services for physical and psychological health concerns (Campbell et al., 2009), the medical forensic exam frequently dominates their experience with the medical system, with a particular emphasis on the sexual assault forensic exam kit and the collection of evidence for a potential legal case (Martin, 2005). Research illustrates that the medical forensic examination functions as the point of coordination between the medical and criminal justice systems. Resnick and colleagues (2000)

found that reporting to the police or another authority was associated with nine-fold increased odds of receiving a medical forensic exam.

In addition to serving as the point of coordination between the medical and criminal justice systems, the medical forensic exam has a dramatic impact on the progression of the case through prosecution. Several studies have identified a significant association of trauma documented in medical forensic exams and the filing of charges, conviction, and sentencing (McGregor, Le, Marion, & Wiebe, 1999; Pentilla & Karhumen, 1990; Rambow, Adkinson, Frost, & Peterson, 1992). Specifically, McGregor, Du Mont, and Myhr (2002) illustrated that the extent of injury documented in the medical forensic exam had a significant positive association with the filing of charges and conviction.

However, presenting the findings of the medical forensic exam and sexual assault forensic exam kit in the courtroom requires completion of a multi-stage process: the victim must consent to the sexual assault forensic exam kit; the medical provider must complete the kit; law enforcement must transport the kit from the medical facility to the crime lab; and crime lab personnel must analyze the kit. SAKs that do not complete the final step of the process (i.e., crime lab analysis) are referred to as backlogged. They can be thought of as 'justice delayed' (Strom & Hickman, 2010) because while they have not yet been processed by the crime lab, they are in the crime lab's possession; they still have the potential to be analyzed and for the findings to aid in prosecution. Alternatively, SAKs that do not complete the final *two* steps of the process (i.e., transport to the crime lab and crime lab analysis) are frequently referred to as unsubmitted. They can be thought of as 'justice denied' (Strom & Hickman 2010) as law

enforcement's failure to submit these kits to the crime lab prevents their analysis and denies the opportunity for the kit findings to aid in prosecution.

Unsubmitted kits, those that represent 'justice denied' (Strom & Hickman, 2010) have caught the attention of Human Rights Watch in recent years. In March of 2009, Human Rights Watch reported on the 12,669 unprocessed medical forensic exam kits in police storage facilities in the Los Angeles Police Department, the Los Angeles County Sheriff's Department, and 47 independent police departments in Los Angeles County. Similarly, Human Rights Watch reported on 10,000 unprocessed medical forensic exam kits in Detroit police storage facilities (Tofte, 2009). In 2010, Human Rights Watch released a report with findings that only 1,474 of 7,494 medical forensic exam kits booked into evidence since 1995 in Illinois were confirmed as tested. This means that up to 80% of sexual assault forensic exam kits had never been examined in Illinois. Other communities across the country are showing similar trends. For example, Patterson and Campbell (In Press) found that over 40% of adult SAKs collected in a SANE program were not submitted to the crime lab for analysis while Parnis (1997) found this rate of unsubmitted SAKs to be closer to 50% at a women's health care center.

Strom and Hickman examined the problem of unsubmitted kits on a national scale. As of 2010, an estimated 27,595 unsolved rape cases across the nation contained forensic evidence that had not been submitted by law enforcement to a crime lab for analysis. This means that the victim will have gone through the medical forensic exam only for the evidence to sit on a shelf. This may make it more difficult to prosecute the case and will prevent any DNA evidence from entry into CODIS, a national database of DNA profiles from convicted offenders, unsolved crime evidence, and missing persons (Federal Bureau of Investigation, 2010).

Understanding Law Enforcement Decision Making in Sexual Assault Cases

As is clear from the research on unsubmitted kits across the country, law enforcement personnel do not systematically submit all sexual assault forensic exam kits for crime lab analysis. An attempt to understand what influences law enforcement personnel's decision to submit a kit to the crime lab for analysis has only recently been the subject of research resulting in little information on this topic.

Strom and Hickman (2010) surveyed a nationally representative sample of law enforcement agencies in an effort to determine potential explanations for these unsubmitted kits. Forty-four percent of the agencies indicated that they did not submit evidence to the crime lab for processing if a suspect had not been identified. Agencies also reported that they did not submit evidence to the crime lab for processing if the suspect was adjudicated without forensic testing (24%), the case was dismissed (19%), they did not think the evidence was useful (17%), analysis was not requested by the prosecutor (15%), or the suspect had been identified but not charged (12%).

Patterson and Campbell (In Press) also examined what factors predicted SAK submission to the crime lab for analysis in adult cases and found support for some of these claims. Specifically, they found that cases in which the victim engaged in post-assault actions, such as bathing, were less likely to be submitted to the crime lab. Law enforcement personnel may believe that such actions compromised the evidentiary value of the SAK, consistent with what was reported by law enforcement agencies in the Strom and Hickman study (2010). In addition to this factor that *decreased* the likelihood of SAK submission, Patterson and Campbell found factors that *increased* the likelihood of SAK submission. Specifically, they found that SAKs with

documented physical (non-anogenital) injuries were more likely to be submitted to the crime lab. Additionally, law enforcement agencies that had strong collaborative relationships with the SANE program in their community were more likely to submit SAKs to the crime lab for analysis.

Aside from the studies completed by Strom and Hickman (2010) and Patterson and Campbell (In Press), there is no additional literature on what factors influence law enforcement personnel's decisions to submit a SAK for crime lab analysis. However, law enforcement officers and detectives have considerable discretion in conducting investigations (Bouffard, 2000; Campbell, 2008; Frazier and Haney, 1996; Galton, 1975-76; Kerstetter, 1990; Martin & Powell, 1995), and SAK submission is just one of the many decisions law enforcement makes in responding to sexual assault cases. As such, it may be useful to examine research on law enforcement decision making in sexual assault cases more generally. Prior research in this body of literature has investigated how characteristics of the victim, the assault, and other elements of the case impact law enforcement personnel's decision making[1]. Linking newer studies to the preexisting literature may aid in developing a more complete understanding of the phenomenon of interest.

Victim Characteristics

Law enforcement's decision to question a suspect, arrest a suspect, or refer a case onto the prosecutor is dependent on characteristics of the victim. Both the age of the victim and the race of the victim can affect their perceived credibility and the decisions that law enforcement personnel make regarding the sexual assault case. Rose and Randall (1982) found that

[1] Some of the literature cited here is dated while other studies are very recent, as these issues have not been consistently explored.

teenagers and young women were more likely to be viewed as “suspicious” by investigating detectives as compared to younger and older victims as they were thought to be more likely to fabricate a story of rape to hide consensual sexual activity from their parents, or from a spouse. Investigators tendency to view younger victims as more “legitimate” (Rose & Randall, 1982) was supported in a recent study on adolescent sexual assault cases by Campbell, Greeson, Bybee, and Fehler-Cabral (In Press). While this study did not examine decisions made by law enforcement, specifically, they found that 13-15 year olds were more likely to have their case progress further in the criminal justice system than 16-17 year olds. This may have been because the latter group of victims was perceived by investigators as more likely to lie about a sexual assault in order to hide consensual sexual activity from a parent or other authority. This threat to the perceived credibility of the victim would make the investigator less likely to move forward with the case. Additionally, older victims may be viewed as more responsible for the assault (Ulmann, 2010) and thus not taken as seriously by law enforcement. Additional research is needed to gain a better understanding of the influence of victim age on case progression and more specifically on the decisions made by law enforcement.

In addition to the age of the victim, the race of the victim can affect the decisions made by law enforcement regarding the investigation and progression of the sexual assault case. Anecdotally, literature suggests that law enforcement takes some cases less seriously because they question the veracity of African American victims (Wriggins, 1983). While race has been shown to affect case progression in some studies for both adult and adolescent victims through the entire process, such as issuing a warrant or charging the suspect, (Frohmann, 1997; LaFree, 1981; Rose & Randall, 1982), other studies have found it to be non-significant and it has yet to

show an effect on the decisions that law enforcement personnel make, such as case referral (Kerstetter, 1990; Campbell et al., 2009). This, however, does not suggest that race is not influential in the decisions made by law enforcement, but rather that more research is needed.

Finally, law enforcement's approach to a sexual assault case may be affected by whether the victim has a disability. Persons with disabilities experience rape and sexual assault at twice the rate for persons without disabilities (Rand & Harrell, 2009). While there are no published studies that have examined how the disability status of the victim may affect the perceived credibility of the victim and ultimately decisions made by law enforcement, Campbell et al. (In Press) did find that adolescent sexual assault victims with a developmental disability were more likely to have their case progress further in the criminal justice system, overall. If the disability status of the victim affects overall case progression, it is possible that specific disabilities of varying severity also affect decisions made by law enforcement, including SAK submission.

Assault Characteristics

In addition to characteristics of the victim, characteristics particular to the assault can affect decisions made by law enforcement. Prior research has found mixed results as to whether the victim-perpetrator relationship influences law enforcement personnel decision making. Generally, if the perpetrator is not known to the victim (i.e., stranger sexual assault), the case is more likely to be thoroughly investigated and less likely to be unfounded by law enforcement (Bachman 1998; Kerstetter, 1990; LaFree, 1989; Spohn & Spears, 1996). However, the perpetrator is less likely to be arrested and the case is less likely to be referred to the prosecutor (Campbell et al., 2009). Stranger rapes, because they align with cultural narratives

and rape myths that define “real” rape (Burt, 1998), are more likely to be believed and thoroughly investigated by law enforcement. However, it is likely difficult to identify and arrest the perpetrator. Alternatively, acquaintance rape, when the perpetrator is known to the victim, may not be as readily believed but has an identifiable perpetrator aiding in arrest and case referral.

Previous research has also suggested that the type of assault may predict decisions made by law enforcement. Suspects are more likely to be questioned by law enforcement personnel and the case is more likely to be prosecuted if there was full penetration (Frazier & Haney, 1996; Campbell et al., 2009). These characteristics, again, may relate to the idea of “real” rape (Burt, 1980). Law enforcement may more readily investigate and refer cases that they perceive to be more severe.

The use of alcohol or drugs by the victim is another assault characteristic that may influence the decisions made by law enforcement. If the victim had a history of drug or alcohol abuse or if they were perceived to have participated in ‘questionable behavior,’ like going to a bar alone or using drugs or alcohol prior to the assault, law enforcement was less likely to classify the assault as a rape, less likely to arrest the suspect, and less likely to think that the suspect should be charged (LaFree, 1981; Rose & Randall, 1982; Kerstetter, 1990; Schuller & Stewart, 2000). Overall, cases in which the victim consumed alcohol or drugs prior to the assault are less likely to progress to prosecution (Campbell et al., 2009). In adult populations, suspected drug-facilitated sexual assault did not have predictive value on SAK submission (Patterson & Campbell, In Press). However, because adolescents are under the legal drinking age, any use of drugs or alcohol may be considered ‘questionable behavior,’ potentially

resulting in fewer classifications of rape, fewer perpetrator arrests, and a decreased likelihood of SAK submission.

Finally, the tactics employed by the perpetrator is another important element that may affect law enforcement's decisions. Perpetrators can use various tactics, including weapons or force, to control their victims (Cleveland, Koss, & Lyons, 1999). The literature on use of weapons and law enforcement decision making is mixed. Some studies found that the use of a weapon by the perpetrator resulted in law enforcement classifying the encounter as a rape and arresting the suspect (LaFree, 1981; Kerstetter, 1990) while other studies found that the use of a weapon had no effect on case referral and progression (Frazier & Haney, 1996; Campbell et al., 2009). Again, these findings may not be contradictory. It is possible that the use of a weapon by the perpetrator instigates a stronger immediate response by law enforcement prompting an arrest but the investigation falls short of case referral.

Case Characteristics

Beyond victim and assault characteristics, there are characteristics related to the case, including injuries detected during the exam and the time between the assault and the exam, that may influence law enforcement personnel decision making, as suggested by previous research. First, detectives have noted that they expect to see bruises or lacerations on victims' bodies to indicate that there was an assault and that she resisted (Galton, 1976). Corroborating physical evidence, like these injuries, or torn clothing, is many times required for law enforcement to consider the offense "legitimate" or "prosecutorial" (Rose & Randall, 1982). Suspects were more likely to be questioned when there was physical injury (Frazier & Haney, 1996) and cases with recorded anogenital or physical redness were more likely to progress

further in the system, overall (Campbell et al., 2009). Additionally, physical injuries, excluding anogenital injuries, were found to increase the likelihood of SAK submission among adult sexual assault cases (Patterson & Campbell, In Press). The presence of physical corroborating evidence aids in establishing perceived credibility for the witness and supports that the rape was a "real" rape (Burt, 1980). If injuries or other physical corroborating evidence is not present, law enforcement may question if the rape occurred and may be reluctant to move the case forward.

The time lapse between a sexual assault and the completion of a SAK varies among individuals, but tends to be longer in adolescents (Peipert & Domagalski, 1994; Muram et al., 1995; Jones et al., 2003). There are multiple reasons as to why the victim may choose to delay the medical forensic exam, but the same effect on the decisions made by law enforcement are seen across studies. Victims' hesitancy to engage in the criminal justice system hurts their perceived credibility (Rose & Randall, 1982; Kerstetter, 1990). Law enforcement may assume that if a victim was raped, they would seek medical attention immediately. This directly affects how law enforcement responds to the case and the decisions they make. If the victim did not report the assault promptly, law enforcement is less likely to arrest the suspect (Lafree, 1981) and the case is less likely to move further along in the criminal justice system (Campbell et al., 2009).

Contextual elements and characteristics, extending beyond the victim, assault, and the case, likely influence decisions made by law enforcement as they influence other steps in the criminal justice system process (see Campbell et al., 2009; Campbell et al., In Press; Crandal & Helitzer, 2003; Nugent-Borakove et al., 2006; Patterson and Campbell, In Press). However it

was beyond the scope of this study to examine such complexities. The goal of the current study, as further elaborated upon below, was to attempt to isolate victim, assault, and case characteristics that are influential as a first step in building the knowledge base about SAK submission in adolescent cases.

Current Study

Adolescents are at an increased risk for sexual assault and may require the assistance of the medical or criminal justice system following an assault. The medical and criminal justice systems can help attend to physical health needs, psychological health needs, and assist in the prosecutorial process by collecting and documenting forensic evidence from the victim. However, recent research has revealed that many sexual assault forensic exam kits are not submitted to the crime lab for analysis, resulting in justice denied for those victims (Human Rights Watch, 2009; Human Rights Watch, 2010; Patterson & Campbell, In Press; Strom & Hickman, 2010; Tofte, 2009). Which cases are submitted to the crime lab is likely not arbitrary. Prior research on law enforcement decision making in sexual assault cases suggested that kit submission may be influenced by a number of factors, including victim characteristics, assault characteristics, time between the assault and exam, and injuries sustained in the assault. Additional research could help determine if these previously identified influential factors extend across multiple contexts and, more specifically, to adolescent populations.

The purpose of the current study was to determine what factors predict adolescent sexual assault exam kit submission by law enforcement to the crime lab for analysis. There were three research questions in this study. First, do victim characteristics play a role in law enforcement's decision to submit the SAK to the crime lab for analysis? The specific

hypotheses tested were: (1) younger victims (13-15 years old) have a higher probability of kit submission than older victims (16-17 years old) and (2) white victims have a higher probability of kit submission than non-white victims. (3) The influence of disability status was exploratory. Prior literature suggested that persons with disabilities may be at a higher risk for sexual assault, which may result in differential treatment from law enforcement in regards to the decision to submit the SAK. This variable was included in the model to explore this possibility.

Second, do assault characteristics play a role in law enforcement's decision to submit the rape kit to the crime lab? The specific hypotheses tested were: (1) assaults with known perpetrators have a higher probability of kit submission than assaults with unknown perpetrators; (2) assaults executed with weapons have a higher probability of kit submission than assaults executed without the use of weapons; (3) assaults with a greater number of assault acts have a higher probability of kit submission than assaults with a lower number of assault acts; and (4) assaults with drug/alcohol use by the victim have a lower probability of kit submission than assaults without drug/alcohol use.

Three, do case characteristics play a role in law enforcement's decision to submit the rape kit to the crime lab? The specific hypotheses tested were: (1) cases with a greater time delay between the assault and the exam have a lower probability of kit submission than cases with a lesser time delay between the assault and the exam and (2) cases with more documented injuries have a higher probability of kit submission than cases with fewer documented injuries.

Methods

Participants

The current study analyzed previously collected quantitative data from a larger study on adolescent sexual assault victims' experiences with Sexual Assault Nurse Examiners (SANEs), Sexual Assault Response Teams (SARTs), and the criminal justice system (Campbell, Greeson, Bybee, & Kennedy, 2010). Adolescent sexual assault cases were drawn from two focal SANE programs in two Midwestern communities for nearly ten years from the program start dates (Program A started in February, 1998; Program B started in September, 1999) through November 31, 2007. Cases presenting to either SANE program that met the following criteria were included in the study: (1) sexual contact occurred or was suspected, (2) the patient received a full forensic exam, including a patient history and medical forensic evidence collection, (3) the patient was 13 to 17 years old at the time of the exam, and (4) the assault occurred in the respective county and was reported to law enforcement. In addition to the inclusion criteria listed above, there were exclusion criteria unique and specific to each SANE program. Program A routinely asked patients to consent to having information from their files used for research and evaluation purposes. Patients who did not give consent were excluded from the study. Program B worked with one police department that who did not maintain case records during the selected time period. Because there were no cases records to access, all cases handled by this police department were excluded from the study. After checking all cases against the inclusion and exclusion criteria, the sample had 395 cases. This study examined predictors for sexual assault kit submission to the crime lab. Kit submission data could not be

determined for two cases, yielding a final sample size of N=393. The adolescent demographics for all cases included in the study, by site and overall, are presented in Table 1.

Table 1: Adolescent Demographics by Site

		Program Site A	Program Site B	Combined
Gender	Female	97.2%	95.2%	96.5%
	Male	2.8%	4.8%	3.5%
Age	13-15 years old	58.1%	64.6%	60.5%
	16-17 years old	41.9%	35.4%	39.5%
Race	White/Caucasian	87.9%	67.3%	80.3%
	African-American	9.7%	23.8%	14.9%
	Latino/a	0.4%	2.0%	1.0%
	Bi/Multi-racial	1.2%	6.1%	3.0%
	Other	0.8%	0.7%	0.8%
Disability Status	Any Disability	17.9%*	16.3%*	17.3%*
	Serious Mental Illness	9.7%	6.1%	8.4%
	Learning Disability	7.3%	9.5%	8.1%
	Developmental Delay	0.8%	4.1%	2.0%
	Physical Disability	1.6%	1.4%	1.5%

*Some adolescents had more than one disability.

Procedures

SANE program records and crime lab records were accessed for each of the case files included in the study. The SANE program records were coded by two research assistants for victim characteristics, assault characteristics, and medical forensic exam findings. The coding framework was developed based on the PI's previous study on the predictors of adult sexual assault prosecution and through consultation with the SANE program directors to ensure its relevance and applicability to adolescent cases (Campbell et al., 2009). Thirty percent of the cases were coded by both research assistants to ensure inter-rater reliability. Coding was monitored to maintain reliability of kappa > .80 with a final kappa across all variables = .98. To access crime lab records, the list of victim names, complaint numbers, and assault dates from the SANE records were submitted to the state crime lab. For each case, crime lab personnel indicated if a rape kit had been submitted.

Measures

The dependent variable was assessed as a binary variable: 0 = kit not submitted to crime lab, 1 = kit submitted to crime lab. Each case was coded for the specific month in which the exam occurred, the receiving police department (i.e., the police department to which the assault was reported), and the receiving SANE program (i.e., the SANE program that completed the SAK) in order to control for these variables in later analysis. The independent variables included three broad categories: victim characteristics, assault characteristics, and case characteristics. The independent variables, their final coding schemes, and the rationale for these coding schemes in listed in Table 2.

Table 2: Independent Variables Predicting SAK Submission to the Crime Lab for Analysis

	Variable Name	Description	Coding	Coding Rationale
Victim Characteristics	Age	Age of the victim at the time of the exam	**Dichotomous**: 13-15 years old= 0 16-17 years old= 1	Allowed for a direct test of stated hypothesis (i.e., younger victims more likely to have SAK submitted than older victims)
	Race	Race of the victim	**Dichotomous**: White= 0 Non-white= 1	Allowed for a direct test of stated hypothesis (i.e., white victims more likely to have SAK submitted than non-white victims)
	Disability Status	Whether or not the victim has a disability (physical, mental, learning, or developmental)	**Dichotomous**: No disability= 0 Disability= 1	Not enough variance when subdivided into disability types (i.e., physical, mental, learning, and developmental)
Assault Characteristics	Relationship	The relationship between the perpetrator and the victim	**Dummy** Multiple Perpetrators= 0 Single Known Perpetrator= 1 Single Unknown Perpetrator= 2	Likelihood of SAK submission did not differ based on type of known relationship (i.e., acquaintance, familial, or intimate partner) AND Allowed for a direct test of stated hypothesis (i.e., assaults with known perpetrators more likely to have SAK submitted than unknown perpetrators)
	Number of Assault Acts	Count variable of total number of assault acts (vaginal penetration, oral contact to the victim's genitals, oral contact to the perpetrator's genitals, and anal penetration with each act coded dichotomously)	**Count** Fondling= 0 1 Assault Act= 1 2 Assault Acts= 2 3 Assault Acts= 3 4 Assault Acts= 4	Allowed for direct test of stated hypothesis (i.e., assaults with a greater number of assault acts more likely to have SAK submitted than assaults with a lower number of assault acts)

Table 2 (continued): Independent Variables Predicting SAK Submission to the Crime Lab for Analysis

	Variable Name	Description	Coding	Coding Rationale
Assault Characteristics	Weapon Use	Whether or not a weapon was used in the assault	**Dichotomous** No weapon used= 0 Weapon used= 1	Allowed for direct test of stated hypothesis (i.e., assaults executed with weapons more likely to have SAK submitted than assaults executed without the use of weapons)
	Victim Alcohol/Drug Use	Whether or not the victim consumed drugs/alcohol prior to/during the assault	**Dichotomous** No drug/alcohol use= 0 Drug/alcohol use= 1	Allowed for direct test of stated hypothesis (i.e., assaults with drug/alcohol use by the victim more likely to have SAK submitted than assaults without drug/alcohol use)
Case Characteristics	Time Exam Assault	The time delay between the exam and the assault	**Count** Same Day as Assault= 1 1 Day After Assault= 1 2 Days After Assault= 2 3 Days After Assault= 3 4 Days After Assault= 4 5 Days or More= 5	Data exploration didn't present a coding scheme with a better explanatory fit AND Allowed for direct test of stated hypothesis (i.e., cases with greater time delay less likely to have SAK submitted than cases with lesser time delay)
	Injuries	The number of injuries identified in the exam	**Count** 0 injuries = 0 1 injury = 1 2 injuries = 2 3 injuries = 3 4 injuries = 4 5 injuries = 5 6 injuries = 6 7-10 injuries = 7 11+ injuries = 8	Data exploration didn't present a coding scheme with a better explanatory fit AND Allowed for direct test of stated hypothesis (i.e., cases with more documented injuries more likely to have SAK submitted than cases with fewer documented injuries)

Analysis

A dependent variable can be affected by independent variables at the individual level and at one or more contextual or group levels (Bickel, 2007). To determine what predicts sexual assault kit submission by law enforcement to the crime lab for analysis, both individual level (i.e., victim characteristics, assault characteristics, and case characteristics) and group level variables (i.e., site, police department, and time) must be taken into consideration. Multi-level analysis can account for variables at the individual and group level (Raudenbush & Bryk, 2002; Bickel, 2007).

The present data set consisted of sexual assault cases nested with police departments and within time. Each sexual assault case was reported to one of twenty-three different police departments. It is likely that sexual assault cases reported within the same police department were handled more similarly than sexual assault cases reported across police departments, as contextual factors differ across police departments (e.g., explicit and implicit practices related to the response to sexual assault, quality of relationship with the SANE program, number of front line officers available to respond to sexual assault, etc.). Similarly, each sexual assault case was reported at a specific point in time over a span of nearly ten years. Sexual assault cases reported closer in time are likely to be handled more similarly than sexual assault cases reported further apart in time, as there are changes in the political and social climate of a community (e.g., elected prosecutor, high profile cases with rippling effects throughout the community, the implementation of a coordinated response or advocacy center). While the current study was interested in what predicted rape kit submission for the entire sample, regardless of each case's specific unit (i.e., police department or point in time), these variables

must be accounted for in the model if they were responsible for variation in the dependent variable associated with their respective unit (Snijders, 2005). Ideally, both of these variables would have been entered into a cross-classified multilevel model as random effects. However, this was not possible as there were relatively few cases for a number of months in some of the smaller police departments. As an alternative, one of these variables was entered into the model as a random effect and the other variable was entered into the model as a fixed effect at level one. The intraclass correlation (ICC) was examined for both of these variables to determine their placement in the model. The ICC across police departments was 0.033 meaning that slightly over 3% of the variance in the dependent variable could be explained by differences among police departments. The ICC across month in time for the assault was 0.028 meaning that slightly less than 3% of the variance in the dependent variable could be explained by month-to-month changes. Because police departments accounted for slightly more variance between units in the sample (i.e., greater within unit clustering), the analysis included the influence of police department as the random effect and the influence of time as a fixed effect at level one.

HLM 7.0 was used for all analyses employing full maximum likelihood for estimation, the appropriate estimation for a nested model comparison (O'Connell & McCoach, 2008). The dataset used in the current study did not have any missing data as all missing observations on predictor variables were already estimated using estimation maximization (EM). In the original dataset, 5.8% of the cells in data matrix were missing. There was nothing in the dataset to suggest that cases with missing data were systematically different than cases that did not have missing data. Missing observations were likely a result of a case record failing to adequately

document one of the variables of interest. EM was utilized based on all of the available data in order to provide the best possible estimates. EM has been shown to introduce less bias than other methods such as listwise deletion of all cases with missing data (Schafer & Graham, 2002).

Police department, time, and SANE program (the control variables), in addition to the independent variables, were entered into a multilevel logistic regression model as the dependent variable is dichotomous (kit submitted to the crime lab versus not submitted to the crime lab) and as multilevel modeling accounts for the influence of both individual level (Level 1; e.g., number of assault acts, age of victim, etc.) and group level (Level 2; i.e., site) characteristics. Predictor variables were examined in a hierarchical fashion across four ordered blocks to control for effects of variables entered into the model in previous blocks and to examine if each block significantly added to the prediction of the dependent variable. Variables that did not have a significant relationship to the dependent variables were trimmed from the model (Hosmer & Lemeshow, 2000).

Time and SANE program site were entered into Block 1 of the model as control variables. Time was centered at the mean of all cases (month 66) to assist in interpreting the findings and was entered into the model as a fixed effect at Level One. SANE program site was entered as a Level 2 control variable because while elements of the SANE program site (e.g., SARTs, SANEs, child advocacy groups, etc.) can influence prosecution outcomes generally, (Campbell et al., 2009; Crandal & Helitzer, 2003; Nugent-Borakove et al., 2006) there is little evidence to suggest that they influence law enforcement's decisions to submit sexual assault kits to the crime lab, specifically. Before moving onto Block 2, visualizations (i.e., graphs) of the

rates of SAK submission over time were viewed for all cases in the study and for each site individually. In visualizing the data, two distinct patterns of SAK submission emerged for each SANE program site; SANE program A started with a relatively low rate of referral, peaked towards the middle of the selected time period, and then decreased (see Figure 1) while SANE program B started with a relatively high rate of referral, came to a low towards the middle of the selected time period, and then increased (see Figure 2). These visualizations suggested there was a SANE program site by time interaction (as the patterns observed over time were different at the two SANE program sites) and that its relationship to the dependent variable was not linear. This prompted the inclusion of site by time and site by quadratic time variables into the control block of the model.

Victim characteristics, including age, race, and disability status of the victim, were entered into Block 2 of the model. These variables were entered after the control variables to allow for an examination of the logistic regression chi square change, assessing if they made a significant improvement to predicting the dependent variable above and beyond the control variables alone. They were entered prior to the assault characteristics as they are generally static and were present prior to the assault.

Assault characteristics, including victim-perpetrator relationship, the number of assault acts, use of a weapon, and alcohol/drug use by the victim, were entered into Block 3 of the model. The number of assault acts was centered at 1 as the majority of the adolescent sexual assault cases in the study included one assault act (60.8%) and to assist in the interpretability of the findings as an assault act count of less than one indicated fondling. Again, entering all assault characteristics into one block following the victim characteristics block allowed for an

assessment of the logistic regression chi square change, indicating if the addition of the assault characteristics significantly improved the prediction of the dependent variable.

Finally, case characteristics, including the time between the assault and the exam and injuries sustained during the assault, were entered into the last block of the model. Entering these two characteristics into the final block of the model examined if characteristics of the case predicted the probability of the sexual assault kit being submitted over and beyond the predictive value of any victim and assault characteristics (i.e., by examining the logistic regression chi square change). This final block of the model provided insight into how the victim's encounter with the medical system (i.e., seeking medical services and having injuries documented by medical personnel) may influence law enforcement's decision to submit a kit to the crime lab.

A site interaction was examined for each variable entered into Block 2, 3, and 4. As previously discussed, the pattern of SAK submission over time differed by site suggesting that the factors influencing SAK submission may also differ by site. Site interactions were examined for each variable in Blocks 2, 3, and 4 of the model to ensure that any significant findings were a function of the variable overall and not a function of the specific site, thus increasing generalizability of the findings.

Results

Of the 393 adolescent sexual assault cases in the study, 59.3% of the cases (233) had their SAKs submitted to the crime lab for analysis. This rate of SAK submission was very consistent across both sites in the study. Nearly 59% (58.9%; 145) of the 246 cases at Site A and just over 59% (59.9%; 88) of the 147 cases at Site B were submitted to the crime lab for

analysis. Across both sites, law enforcement personnel made the decision to not submit the SAK for approximately 40% of the adolescent sexual assault cases. Multilevel logistic regression was used to model what factors predicted if the SAK would be submitted to the crime lab for analysis by law enforcement personnel. The results of this analysis are summarized in Table 3.

The intercept in the control variables model of Table 3 (Block 1 of Table 3; OR = 2.035) indicates that an adolescent assault reporting to SANE program site A at the intercept month (centered at month 66) was just over two times as likely to have the SAK submitted to the crime lab for analysis than not. While the effects of time alone and site alone were non-significant, there was a significant effect of site by quadratic time (OR = 1.092) indicating a different nonlinear pattern of referral for each site. Both sites had a U-curve (quadratic function), but they opened in opposite directions. SANE program site A started with a relatively lower rate of referral, peaked towards the midpoint of the data collection period, and then declined. SANE program site B started with a relatively higher rate of referral, dipped during the midpoint of the data collection period, and then began to rise again. The patterns of SAK submission for each site over time are shown in Figure1 and Figure 2 (SANE program site A and SANE program site B, respectively).

Block one (control variables model), overall, does not make a significant improvement in predicting the dependent variable, SAK submission, over a null model (i.e., a model with no predictors). The addition of the five variables in the control variables model—site, time, site by time, quadratic time, and site by quadratic time—produced a non-significant logistics regression chi square change (p=0.2530). These variables, however, were all retained in the model. Statistically, there was no reason to remove them as their inclusion did not have an

untoward effect on other terms in the model (e.g., standard errors, the number of iterations required to get to the final model, or other coefficients). Conceptually, there was a reason to retain them because, as control variables, they ensure that any predictors identified later on are a result of that specific predictor and not the SANE program site, time, or their interaction.

Figure 1: Rates of Rape Kit Submission over Time at SANE Program Site A

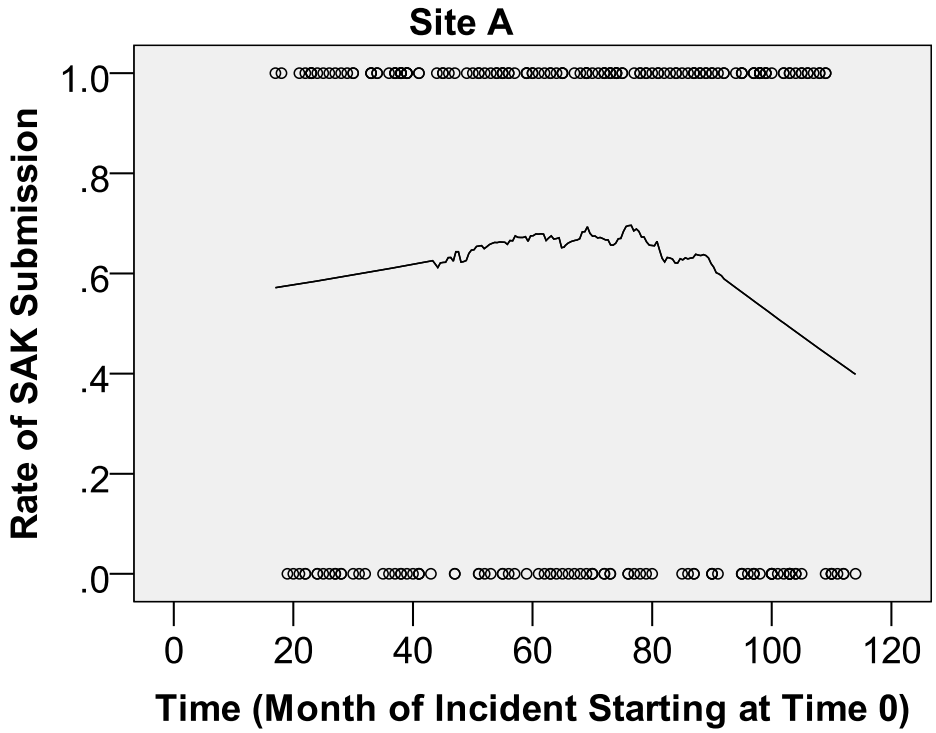
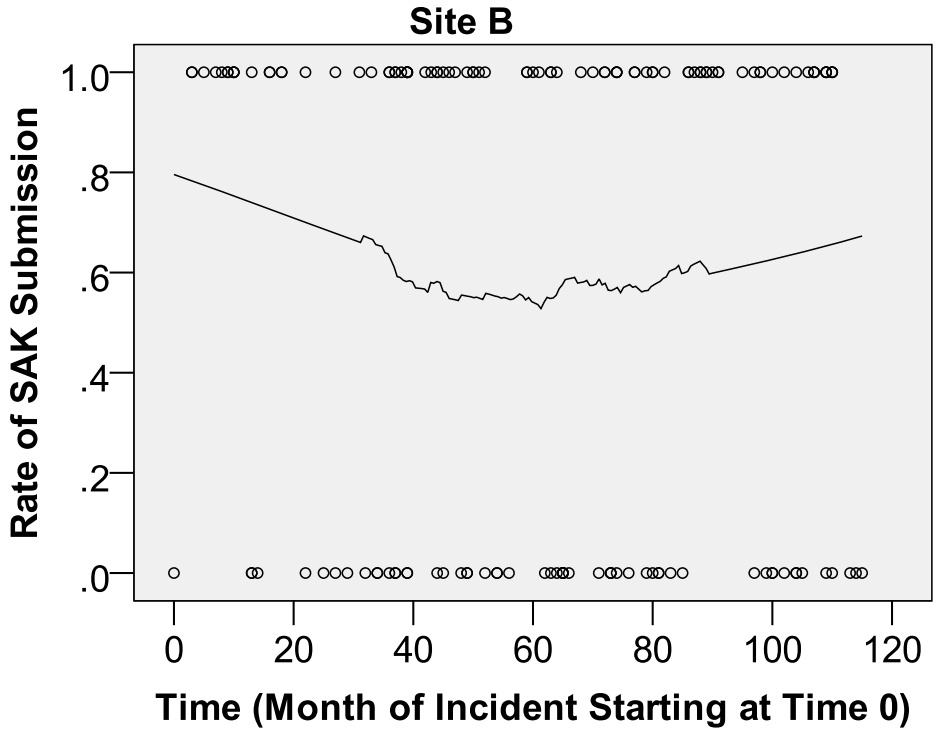


Figure 2: Rates of Rape Kit Submission over Time at SANE Program Site B



Victim characteristic were added in as the second block of the model (Block 2 of Table 3). The significant effect of age group (OR = .555) indicates that cases with older victims (15-17 years old) were half as likely to have their SAK submitted to the crime lab for analysis as compared to younger victims (13-15 years old). Additionally, the significant effect of race indicates that cases with non-white victims (OR = 1.963) were nearly twice as likely to have their SAK submitted to the crime lab for analysis as compared to white victims. Disability status was not significantly related to law enforcement's decision to submit the SAK to the crime lab for analysis. The likelihood of SAK submission linked to victim characteristics did not differ based on site. Finally, the addition of the victim characteristics block (i.e., victim age and victim race) to the model significantly improved the prediction of the dependent variable ($p = 0.0017$)

Assault characteristics were added in as the third block of the model (Block 3 of Table 3). Adolescent sexual assault cases with a single perpetrator, regardless of if they were known (OR = 2.021) or unknown to the victim (OR = 2.797), were significantly more likely to have their SAK submitted to the crime lab for analysis than cases with more than one perpetrator. In addition to the victim-perpetrator relationship, the number of assault acts committed by the perpetrator (centered at 1) significantly predicted SAK submission (OR = 1.569). Assault acts included vaginal penetration, anal penetration, oral contact performed on the victim and oral contact performed on the perpetrator. In the model, each additional assault act (e.g., a case with vaginal penetration as compared to a case with vaginal and anal penetration) resulted in law enforcement being one and half times more likely to submit the SAK to the crime lab for analysis. No other assault characteristics were significantly related to SAK submission, including the use of a weapon by the perpetrator or the use of drugs or alcohol by the victim. Similar to

the victim characteristics, the likelihood of SAK submission linked to assault characteristics did not differ based on site. Finally, the addition of the assault characteristics model (i.e., the relationship between the victim and the perpetrator and the number of assault acts) significantly improved the prediction of the dependent variable ($p = 0.0022$)

Finally, case characteristics were not significantly related to law enforcement's decision to submit the SAK to the crime lab for analysis. This included the time lapse between the assault and the exam and the number of injuries detected during the exam. In examining the number of injuries detected during the exam, multiple coding schemes were employed in an attempt to find the best explanatory fit for the data (e.g., as a count variable, as a continuous variable recoded into 9 groups [0 injuries = 0, 1 injury = 1…6 injuries = 6, 7-10 injuries = 7, 11+ injuries = 8], as a dichotomous variable). Regardless of the coding scheme employed, the number of injuries detected in the exam still proved to be non-significant. As with the victim and assault characteristics, the likelihood of SAK submission for each of these variables did not differ and did not reach significance based on the site. Furthermore, while the case characteristics were not included in the final model due to non-significance, had they been retained, they would not have significantly added to the prediction of the dependent variable ($p = 0.2718$).

Table 3: Logistic Regression Predicting SAK Submission to the Crime Lab for Analysis

	Control Variables Model			Victim Characteristics Model			Assault Characteristics Model		
	Log Odds	Odds Ratio	*p*	Log Odds	Odds Ratio	*p*	Log Odds	Odds Ratio	*p*
Intercept	0.711	2.035	0.004	0.894	2.444	0.002	0.042	1.042	0.922
Block 1: Control Variable effects									
Site (0=Program A; 1=Program B)	-0.403	0.668	0.283	-0.520	0.594	0.213	-0.339	0.713	0.440
Month in which assault occurred	-0.040	0.961	0.485	-0.054	0.948	0.359	-0.056	0.946	0.352
Site X Time (month in which assault occurred)	0.022	1.023	0.803	0.035	1.035	0.705	0.032	1.032	0.735
Quadratic Time	-0.058	0.944	0.048	-0.052	0.949	0.083	-0.054	0.948	0.080
Site X Quadratic Time	0.088	1.092	0.025	0.085	1.088	0.035	0.082	1.085	0.047
Block 2: Victim Characteristics									
Age group (0 = 13-15; 1 = 16-17)				-0.589	0.555	0.007	-0.627	0.534	0.006
Race (0 = White; 1 = Non-White)				0.675	1.963	0.024	0.732	2.079	0.019
Block 3: Assault characteristics									
Relationship to assailant-Unknown							1.028	2.797	0.032
Relationship to assailant-Known							0.704	2.021	0.037
Relationship to assailant-Gang (reference category)									
Number of types of sexual assault							0.450	1.569	0.002
Variance of random intercepts across police departments	0.088			0.168			0.220		
Model deviance	1243.91			1231.24			1216.67		
Number of parameters	7			9			12		
LR chi square (2-tailed) compared with previous model (*control model compared to null model)	0.2530*			0.0017			0.0022		

Discussion

The problem of unsubmitted SAKs has garnered national attention, and despite the fact that adolescents are at particularly high risk for sexual assault, no prior research has examined rates of SAK submission in crimes against adolescent victims. In the current study, just over 40% of all adolescent sexual assault cases did not have their SAK submitted to the crime lab for analysis. This rate is consistent with the rate of SAK submission found by Patterson and Campbell (In Press) among adult sexual assault cases. However, it is not known if this rate of SAK submission is typical of other communities across the county as these data are not routinely recorded or available. Regardless, the number of SAKs that are never analyzed due to law enforcement's decision not to submit them to the crime lab, resulting is 'justice denied' for the victim (Strom & Hickman, 2010), is alarming. This study identified some of the factors influencing that decision.

First, there was slight variation in the pattern of SAK submission to the crime lab between the two sites. SANE program site A started relatively low, came to a high towards the middle of the data collection period, then again dropped off while SANE program site B started relatively high, came to a low towards the middle of the data collection period, then again increased. These two different patterns were likely a result of community-specific events that are beyond the scope of this study.

Victim Characteristics

Moving beyond site differences, younger victims, ages 13-15 years old (60.6% of cases), were more likely to have their SAK submitted to the crime lab for analysis than older victims, ages 16-17 years old (39.4% of cases), supporting the stated hypothesis. Previous research has

found that detectives may doubt the stories of teenagers and young women assuming the assault was fabricated to hide consensual activity from a parent or spouse, while younger and older victims are perceived as more "legitimate" (Rose & Randall, 1982). The current finding is consistent with the current literature as detectives may perceive 13-15 year olds as more credible. Detectives may assume that because they are younger, they are not yet engaging in consensual sex and thus would be less likely to fabricate the assault. In contrast, detectives may assume that 16-17 year olds are likely engaging in consensual sexual activity and create a story of rape when their parents or other authority figures find out about it. This is congruent with recent research on adolescent case progression in the criminal justice system. Campbell et al. (In Press) found that cases with victims 13-15 years old were more likely to have their case progress further in the criminal justice system than 16-17 year olds.

Non-white victims (18.8% of cases) were found to be more likely to have their SAK submitted to the crime lab for analysis than white victims (81.2% of cases). This finding does not support the stated hypothesis and is inconsistent with previous research that has found (1) race to be non-significant (Kerstetter, 1990; Campbell et al., 2009), or (2) an effect of race in the opposite direction—white victims were more likely to have their case prosecuted (LaFree, 1981; Rose & Randall, 1982; Frohmann, 1997). It is possible that non-white victims are more likely to have their SAK submitted to the crime lab for analysis while white victims are more likely to have their case prosecuted, as these are two separate processes. A case's SAK can be submitted to the crime lab even though the case may not be prosecuted or a case may be prosecuted without the submission of the SAK to the crime lab. An examination of final case outcomes was

beyond the scope of this study as SAK submission among adolescent sexual assault cases was the phenomenon of interest.

Because the effect of race was in opposition to the current literature, these cases were further examined to determine if the race finding was a function of other characteristics of the victim, assault, or overall case. Two characteristics appeared to differ in relation to the race of the victim. First, a greater percentage of cases with non-white victims involved the use of a weapon (10.8%; 8 cases) than cases with white victims (1.6%; 5 cases). However, only 13 cases across the entire study involved the use of a weapon. Excluding these 13 cases from analysis did not alter the finding that cases with non-white victims were more likely to have their SAK submitted than cases with white victims. The differential rates of weapon use do not explain the race finding. Second, a greater percentage of cases with non-white victims involved multiple perpetrators (21.6%; 16 cases) than cases with white victims (10.0%; 32 cases). As was reported earlier and will be discussed later, adolescent sexual assault cases with more than one perpetrator were *less* likely to be submitted to the crime lab for analysis than assaults with a single perpetrator. The greater percentage of gang assaults observed in cases with non-white victims should actually result in fewer SAK submissions among non-white victims. Furthermore, excluding all of the gang assault cases from analysis did not alter the finding that cases with non-white victims were more likely to have their SAK submitted than cases with white victims. The differential rates of gang assault do not explain the race finding. These additional analyses suggest that the race effect finding is a function of victim race and not another variable from the study conflating the results.

It is possible, however, that there are other variables not collected in the study that can explain the race effect finding. One such variable is the racial identity of the perpetrator. According to the National Survey of Adolescents (Kilpatrick et al., 2003), the majority of adolescent sexual assault victims are assaulted by someone they know (74%), most frequently a friend or relative. This finding was replicated in this study as 78% of the adolescents were assaulted by someone they knew. It is likely, therefore, that the perpetrator and victim are similar in relation to sociodemograghics, including race. A white victim is likely to have been assaulted by a white perpetrator while a non-white victim is likely to have been assaulted by a non-white perpetrator of the same race. In fact, between 80 and 90 percent of violent crimes against women, including sexual assault, are committed by someone of the same racial background as the victim (US Department of Justice, 1994). It is therefore possible that law enforcement's decision making process was not so much influenced by the racial identity of the victim as it was influenced by the racial identity of the perpetrator. Instead of cases with non-white victims being more likely to have their SAK submitted to the crime lab for analysis, it could be that cases with non-white perpetrators were actually more likely to have their SAK submitted to the crime lab for analysis. This potential explanation is supported by previous research that found decisions made my law enforcement in relation to sexual assault cases were more influenced by the race of the perpetrator than the race of the victim (LaFree, 1982) and the disproportionate representation of non-whites in the criminal justice system, possibly resulting from bias in the system (Mauer, 1999). This explanation, however, could not be tested as the data source for this study was SANE program records; these records collect information about the victim, not the perpetrator.

The final victim characteristic, disability status of the victim, was found to be non-significant in predicting the likelihood of SAK submission to the crime lab for analysis. Nearly 20% of the victims in the study (17.3%) were listed as having a disability (i.e., serious mental illness, developmental disability, physical disability, and/or learning disability) and this variable was entered into the model in an exploratory fashion as there is currently no literature on how this might influence decisions made by law enforcement. This null finding does not mean that the disability status of the patient did not impact law enforcement's decision making process. It is possible that specific types of disabilities or the severity of different disabilities may influence decisions made by law enforcement. This dataset was not able to parse these out, however, because of limited variance and information, respectively.

Assault Characteristics

Adolescent sexual assaults with more than one perpetrator (i.e., gang rape; 12% of cases) were less likely to be submitted to the crime lab for analysis than assaults with a single known (78% of cases) or unknown (10% of cases) perpetrator. This finding did not support the stated hypothesis as (1) there was no significant difference in SAK submission for cases with a known perpetrator as compared to an unknown perpetrator and (2) the hypothesis did not make a prediction based on the number of perpetrators (i.e., assaults with single or multiple perpetrators). The rate of gang rape found among adolescents in this study, 12%, is consistent with rates of gang rape found among other populations (2-26%; O'Sullivan, 1991). Law enforcement may have been more likely to submit the SAKs for adolescent sexual assault cases with a single perpetrator as opposed to cases with multiple perpetrators as a result of the perceived credibility of the victim. Ullman (2007) found that adult victims of gang rape were

met with more negative social reactions when disclosing their assault than individual rape victims. While her study did not provide additional information, it is possible that some of these negative social reactions were indicative of disbelief on the part of law enforcement personnel. They may be suspicious as to why the victim would be in a situation that led to the assault (e.g., a female adolescent alone with multiple males) or they may think that story has been fabricated after engaging in consensual sexual activity, decreasing the credibility of the victim and therefore rendering law enforcement less likely to submit the SAK. Previous research has found that such assaults are sometimes referred to by detectives as "party rapes" and taken less seriously (LaFree, 1982).

In addition, it is possible that law enforcement personnel decide not to submit SAKs from gang rapes due to push back they receive from the crime lab. Previous research has documented that between 50% and 60% of SAKs contain biological specimen belonging to someone other than the victim (Ritter, 2010). It is possible that as the number of perpetrators increases, the potential for finding biological specimen in the SAK not belonging to the victim also increases, suggesting the importance of submitting kits with multiple perpetrators. However, the presence of biological specimen from multiple individuals in a single SAK requires specialized techniques (i.e., Y-marker analysis) to "resolve the complex mixture" (Harris, 2001). Crime lab personnel may overtly or covertly send the message to law enforcement that these SAKs are difficult to process and that they should not be as readily submitted. Again, this explanation cannot be tested with the available dataset and is speculative.

Cases with a greater number of assault acts (i.e., vaginal penetration, oral contact to the victim's genitals, oral contact to the perpetrator's genitals, and anal penetration) were more

likely to have their SAK submitted to the crime lab for analysis than cases with fewer assault acts. This finding supported the stated hypothesis. The majority of adolescent sexual assault cases in the study involved a single sexual assault act (61%), followed by two sexual assault acts (24%), three sexual acts (9%), fondling alone (4%), and four sexual assault acts (2%). This finding is consistent with previous research. Law enforcement personnel are more likely to question a suspect and the case is more likely to be prosecuted if the assault involved full penetration (Frazier & Haney, 1996; Campbell et al., 2009). If law enforcement are more likely to readily investigate and refer cases that they perceive to be more severe, it would suggest that they are more likely to submit SAKs for cases that they perceive to be more severe. Cases with additional assault acts may be more consistent with their perception of "real" rape (Burt, 1980).

Weapon use and drug or alcohol use by the victim did not significantly affect the likelihood of law enforcement deciding to submit the SAK to the crime lab for analysis. These findings did not support the stated hypotheses. The null finding of weapon use was likely due to limited variance as only 13 cases, 3.3%, involved the use of a weapon. The influence of weapon use in an adolescent assault on the likelihood of SAK submission to the crime lab for analysis cannot be dismissed based on this study alone as so few cases involved the use of a weapon. The use of drugs or alcohol by the victim, however, was far more common with 151 cases (38.4%) reporting victim consumption of drugs or alcohol. The non-significant effect of alcohol or drug use by the victim on the likelihood of SAK submission to the crime lab for analysis supports what was found by Patterson and Campbell (In Press) among adult populations. These findings, however, are not consistent with earlier research on other decisions made by law enforcement. Multiple studies found that alcohol or drug use and other 'questionable behavior'

resulted in a decreased likelihood for law enforcement to classify the assault as rape, for law enforcement to arrest a suspect, for the suspect to be charged, and for the case to progress further through the criminal justice system (LaFree, 1981; Rose & Randall, 1982; Kerstetter, 1990; Schuller & Stewart, 2000; Campbell et al., 2009). All of these studies, however, were conducted with adult populations. It is possible that law enforcement did not perceive the victims' use of alcohol or drugs as a threat to their credibility, but rather an indicator of their inability to consent. They may have also perceived it as an indicator of the perpetrators' strategy for seeking out vulnerability as alcohol or drug use by the victim was present in more than one third of the adolescent sexual assault cases in the study, a rate similar to what is found among other populations of sexual assault victims (30-79%; Abbey, Zawacki, Buck, Clinton, & McAuslan, 2001). This study alone, however, cannot dismiss the potential influence of victim drug and alcohol use among adolescent sexual assault cases, or sexual assault cases more generally, on the decision to submit (or not submit) a SAK to the crime lab for analysis as it has been shown to influence other decisions made by law enforcement.

Case Characteristics

The number of injuries detected during the exam and the number of days elapsed between the assault and the exam did not have a significant effect on the likelihood of SAK submission to the crime lab for analysis. These findings did not support the stated hypotheses that cases with more injuries would be more likely to be submitted to the crime lab for analysis. Previous research has found that cases with physical injury or corroborating evidence influenced law enforcement in a number of ways. These cases were more likely to be considered a "real" or "legitimate" rape (Burt, 1980; Rose & Randall, 1982; Galton, 1976), more

likely to have suspects questioned (Frazier & Haney, 1996), and more likely to have a SAK submitted among adult populations (Patterson & Campbell, In Press). Across these studies, the injuries found to influence decisions made by law enforcement were non-anogenital, a less frequent occurrence among adolescents as compared to adults (Jones et al., 2003; Muram et al., 1995; Peipert & Domagalski, 1994), and likely observable upon an initial interaction between law enforcement and the victim (e.g., while taking the report of the assault). Previous research has found cases documenting anogenital injury, while more likely to progress further in the criminal justice system overall (Campbell et al., 2009; including decisions made by the prosecutor and others in the process), are no more likely to have a SAK submitted to the crime lab (Patterson & Campbell, In Press). The measure used in this study was the number of injuries detected *during the exam*. This means that the documented injuries may not have been observable to the law enforcement officer (e.g., anogenital redness or lacerations) when they were directly interacting with the victim (e.g., while taking the report). The injuries may have been documented by the medical provider, but their utility as immediately observable, corroborating physical evidence, shown to influence law enforcement behavior in previous research, was limited if not null.

Previous research suggests that a delay in seeking services on the part of the victim hurt the perceived credibility of the victim (Rose & Randall, 1982; Kerstetter, 1990). In fact, law enforcement was less likely to arrest a suspect if the victim did not report the assault immediately (LaFree, 1981) and the case overall did not move as far along in the criminal justice system (Campbell et al., 2009). This finding was not replicated in the current study. The non-significant effect of the number of days elapsed between the assault and the exam on the

likelihood of SAK submission to the crime lab for analysis may be because the majority of cases presented within the first two days of the assault (89.1%). Additionally, all cases in the study presented to a forensic nurse examiner, specially trained in the collection of forensic evidence following a sexual assault. Law enforcement may have deferred to the nurse examiner's discretion. That is, if the forensic nurse examiner deemed it necessary and worthwhile to conduct a forensic exam with evidence collection days after the assault, law enforcement may have believed it was for a good reason and ultimately not doubted the credibility of the victim.

Limitations and Directions for Future Research

The current study examined what factors influenced law enforcement personnel's decision to submit a SAK to the crime lab for analysis among adolescent sexual assault cases presenting to two Midwestern communities with strong SANE programs. It is important to consider how the context of these communities may have affected the findings. The presence of well-established SANE programs in each community implies a commitment to a patient-centered response to sexual assault victims and the availability of resources to sustain such a response. Communities that are able to support a well-established SANE program may be very different than communities that are not able to support a SANE program (e.g., a strong relationship with law enforcement, financial support from medical institutions, community commitment to providing a standard of care, etc.) suggesting that the factors that influenced SAK submission may also differ across communities. These findings, therefore, may not be generalizable to such communities and future research should make a concerted effort to expand the study population to other communities not served by a SANE program.

Another limitation of this study is that all victim, assault, and case characteristics data were obtained from the SANE program files. These files are remarkably comprehensive, but nevertheless still lacked desired detail on a number of predictor variables. The variable documenting the disability status of the victim indicated whether or not the victim had a physical disability, mental disability, learning disability, or developmental disability, yet did not provide additional information on the severity of the disability. This was problematic in that the disability status of an individual can range on a scale from minimal or mild to severe (National Dissemination Center for Children with Disabilities, n.d.). The severity of the disability can not only impact the individual's need for support from those around them, but how they are perceived by those around them—including law enforcement. To gain a better understanding of how disability can influence decisions made by law enforcement, additional detail is needed on the level of severity for all victims with disabilities. Future research could ask medical providers to regularly record this additional information or additional supplemental documents could be used (e.g., additional medical documents).

The injury count provided for each case was the number of injuries detected during the exam, as this count was collected from SANE medical records. This variable included injuries that were readily observable by law enforcement during their initial interaction with the victim and injuries that were not first discovered and documented until later during the exam process. Law enforcement personnel's decision to submit the SAK to the crime lab for analysis may be differentially impacted by the severity of the injury (e.g., a stab wound or anogenital redness) and when they become aware of the injury (e.g., upon initial questioning of the victim or after reading the medical forensic exam report), as suggested by previous research (Campbell et al.,

2009; Burt, 1980; Frazier & Haney, 1996; Galton, 1976; Patterson & Campbell, In Press; Rose & Randall, 1982). To better understand the influence of documented injuries on SAK submission, there would need to be a method employed to draw a explicit distinction between injuries observed by law enforcement upon their first interaction and injuries discovered later on in the process—this distinction may or may not be consistent with other non-anogenital and anogenital injuries, respectively, and requires deliberate attention. Future research could include interviews with law enforcement to gather this information.

Additionally, the current dataset does not provide any information on the perpetrator, as would be expected considering the source of the data. Decisions made by law enforcement may be as influenced, if not more influenced, by the perpetrator than the victim, as was found in previous research related to race (LaFree, 1981). Future research, therefore, should work with additional data sources to obtain information on the perpetrators (e.g., perpetrator race; perpetrator age; perpetrator use of drugs/alcohol).

Future studies, overall, should attempt to take a more holistic approach to understanding the SAK submission process. Quantitative data, like what was included in the current study, should be paired with qualitative data from interactions with law enforcement personnel, the crime lab, and medical providers. A mixed methods approach may be able to attend to some of the limitations in the current study and support an iterative process in explaining the process of SAK submission by law enforcement to the crime lab for analysis.

Implications for Practice

The current study suggests that a substantial proportion of adolescent SAKs are not submitted to the crime lab for analysis. As such, it is important to examine how these rates of submission can be improved. All stakeholders who are a part of the response to sexual assault victims should be active in the development of community-wide protocols or policies that detail the SAK submission process. This may include law enforcement personnel, victim advocates, medical professionals, representatives from the prosecutor's office, and crime lab personnel, among others. Each of these stakeholder groups provide a unique, necessary perspective. The protocol should formalize sexual assault case investigative procedures (Human Rights Watch, 2010), one component of which is the SAK submission process. Communities will need to determine collectively their SAK submission policy—all kits submitted and tested, all kits submitted with specific kits tested, specific kits submitted with all submitted kits tested, etc. Communities should decide upon a SAK submission policy that can be supported and sustained. Some communities may not have the necessary resources to process every SAK. They will either need to create a policy that does not require every SAK to be processed, or will need to secure additional resources to support a policy that does require complete SAK processing. These policies and protocols must be realistic and specific to individual communities so that they can be enforced. SAK submission protocols should also attend to how victims will be informed of the status of their kit and how kits will be stored prior to processing (Human Rights Watch 2009), if cases will be regularly reviewed, and who will be responsible for sexual assault cases—all first responders or a specialized unit (Human Rights Watch, 2009; Human Rights Watch, 2010). The protocol should have a standardized mechanism to ensure stakeholder

accountability. This could be completed with regular tracking of the number of kits submitted and processed in a certain amount of time (Human Rights Watch, 2009) or with regular case review meetings. The protocol should include a process for providing victims with information on the SAK submission process and their rights in obtaining details on their SAK's status. An educational pamphlet or brochure with this information could be developed and provided to all victims who have completed a SAK (Human Rights Watch, 2009).

In addition to developing a community-wide protocol or policy detailing the process of SAK submission, law enforcement should be trained on their pivotal role in this process. Law enforcement personnel play a unique role in that they decide if a victim will have the opportunity for justice in their kit being processed, or if their kit will remain unsubmitted and they will have 'justice denied' (Strom & Hickman, 2010). The number one reason cited by law enforcement personnel for choosing a career in policing is the opportunity to help people (Foley, Guarneri, & Kelly, 2007). Law enforcement personnel's failure to submit SAKs is likely not a result of wanting to deny justice to some victims, but because they don't have the necessary information and skills to know how to help them. Internal, multi-disciplinary, and cross-disciplinary sexual assault-specific training that explicitly attends to the SAK submission process should be provided to all law enforcement personnel on an ongoing basis. Such training could help equip law enforcement with the information and skills that will aid them in making the appropriate decision that is in line with their community's current policy or protocol, simultaneously granting them the opportunity to help people.

Finally, communities should consider developing and employing systems that electronically track the status of all SAKs. Crime labs, law enforcement agencies, prosecutor's

offices, and medical facilities should all be linked into this electronic system so that they can simultaneously receive updates on the current status of a SAK and on the overall case (Human Rights Watch 2009, Human Rights Watch, 2010). Victims could also log into this system to check on the status of their SAK. SAK bar codes could be used to track all kits (Human Rights Watch, 2009). Kits could be scanned at each point of coordination (e.g., between the medical facility and law enforcement; between law enforcement and the crime lab) confirming chain of custody and providing real-time status reports. The implementation of such a system may be beyond the capabilities of a single community and could instead be executed on a state-wide or national level. A commitment to increase SAK testing across communities indicates a commitment to justice for victims of sexual assault.

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