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Research article

Forensic medical results and law enforcement actions following sexual assault: A comparison of child, adolescent and adult cases



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ABSTRACT

Background: In sexual assault cases, little research has examined differences in forensic medical findings and law enforcement response by victim age across the entire age range.

Objective: This study addressed this gap by comparing four victim age groups: adults, adolescents over the age of consent, adolescents under the age of consent, and children under 12.

Participants and setting: Cases were randomly sampled from a statewide database of medical reports on sexual assault examinations conducted in hospital emergency departments, including only cases reported to law enforcement ($N = 563$).

Methods: Data were combined from a medical report database, from coding of medical documentation and crime laboratory reports, and from case data provided by law enforcement.

Results: Rates for both younger and older adolescent victims and adult victims were comparable, with no statistically significant differences on most variables: penetration, perpetrator use of force, non-genital and genital injuries, presence of biological evidence, generating assailant DNA profiles, DNA match to suspect, hits in the FBI's DNA database, and law enforcement unfounding (i.e., determining allegations to be false or baseless). Child victims were significantly less likely to have a non-genital injury, and their cases were significantly more likely to be founded by law enforcement. Arrests were significantly more likely when victims were under the age of consent.

Conclusions: Despite significant differences by victim age, similarity between adolescent and adult cases was substantial. Both younger and older adolescents may be at higher risk of physical violence during sexual assault than previously recognized, and need greater attention in response systems.

In the aftermath of a sexual assault, victims can seek a forensic medical examination, report the assault to police, and participate in a law enforcement investigation. A trained forensic medical examiner can gather medical and biological evidence, address medical issues, and support victims in seeking services and beginning recovery (see, e.g., U.S. Department of Justice, 2013). The subsequent law enforcement investigation is the critical first step in the criminal justice response to the assault.

The outcomes of forensic medical examinations could vary by victim age because of differences in the nature of the assault, the laws regarding what constitutes criminal sexual assault, the involvement of the victim's family, the victim's capacity to make decisions and participate in criminal justice actions, the likelihood that alcohol and drug use is involved, societal perception of victims, and other factors. Age may also affect the decision to pursue a law enforcement investigation and make an arrest because of differences by victim age in the law, availability of evidence, views of victim credibility, parental support of victims in seeking justice, the victim's independent ability to make decisions and participate in criminal justice actions, and perceived likelihood of successful

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prosecution. Knowledge of the differences by age could be valuable for crafting policy and for preparing professionals who respond to sexual assault. Understanding the experience of sexual assault for adolescents is of particular importance, as adolescents are perhaps the most likely sexual assault victims: Finkelhor and colleagues found a lifetime risk of assault of 16.8% for 15-year-old females, rising to 26.6% for 17-year-olds (Finkelhor, Shattuck, Turner, & Hamby, 2014).

Most existing studies that compare the results of forensic medical examinations by victim age have several limitations. Almost all only compare adults to adolescents, adults to all juveniles, or adolescents to children, or they treat victim age as a continuous variable and do not specifically compare age groups (Gallion, Milam, & Littrell, 2016; Palmer, McNulty, D'Este, & Donovan, 2004). We are aware of only two studies that compare the three age groups of child, adolescent, and adult sexual assault victims (Cartwright, 1987; Moreno, 2013). Only one dated study (Cartwright, 1987) compared younger and older adolescents, even though criminal justice actions are likely to differ for victims above and below the age of consent, which is 16 or 17 in most of the United States (Norman-Eady, Reinhart, & Martino, 2003). We are not aware of any studies that compare the law enforcement response to sexual assault by the entire range of victim age groups.

This study addresses many of the limitations of previous studies by comparing results for the following groups: child victims, adolescent victims under the age of consent, adolescent victims over the age of consent, and adult victims. We conducted a secondary data analysis from a statewide sample of sexual assault cases reported to law enforcement in which a forensic medical examination had been conducted (for the original study, see Cross et al., 2014, 2017). This sample is arguably more generalizable than samples in most studies of sexual assault, which are usually drawn from one center or one metropolitan area (see, e.g., Christian et al., 2000; Spohn, White, & Tellis, 2014). The current study examines differences in assault characteristics, biological and DNA evidence, and law enforcement actions.

1. Previous research

Review of the literature on sexual assault suggests key differences between child, adolescent and adult victims, although variability of results across studies makes generalization difficult,

1.1. Case characteristics

The adult, adolescent, and child experience of assault differs in ways that are likely to affect both forensic evidence and law enforcement actions. Children are less likely to be assaulted by a stranger, or experience penetration, compared to adolescents or adults (Campbell, Greeson, Fehler-Cabral, & Kennedy, 2015; Moreno, 2013; Wells, Campbell, & Franklin, 2016). Similarly, three studies have found that adolescents are less likely to be assaulted by a stranger than adults (Jones, Rossman, Wynn, Dunnuck, & Schwartz, 2003; Muram, Hostetler, Jones, & Speck, 1995; Peipert & Domagalski, 1994), though Moreno (2013) found no difference. Adults were more likely than adolescents to have a weapon used against them in the assault, and were equally or more likely to be physically coerced, depending on the study (Jones et al., 2003; Muram et al., 1995; Peipert & Domagalski, 1994; Snyder, 2000).

1.2. Injuries

Rates of non-genital injury vary considerably (Kennedy, 2013; Laitinen, Grundmann, & Ernst, 2013). Adult tended to have higher rates of non-genital injury than adolescent and child victims (Cartwright, 1987; Jones et al., 2003; Palmer et al., 2004; Peipert & Domagalski, 1994; Sugar, Fine, & Eckert, 2004; Zilkens et al., 2017), but two studies found no significant difference between adults and adolescents on non-genital injuries (Lindsay, 1998; Maguire, Goodall, & Moore, 2009). Two studies found higher non-genital injury rates for adolescents than for children (Cartwright, 1987; Saint-Martin, Bouyssy, Jacquet, & O'Byrne, 2007), as did Moreno (2013), which looked at injuries generally.

Children are less likely to have anogenital injuries than older victims (Cartwright, 1987; Gallion et al., 2016; Saint-Martin et al., 2007; Smith, Raman, Madigan, Waldman, & Shouldice, 2018), but comparisons of adolescents to adults reveals no clear differences (Cartwright, 1987; Hwa et al., 2010; Jones et al., 2003; Sugar et al., 2004). Three studies that measured injuries generally, and did not distinguish between genital and non-genital, all found higher rates for adults than adolescents (Moreno, 2013; Muram et al., 1995; Wells et al., 2016).

1.3. Biological evidence

Several studies have found that biological evidence is significantly more common for adolescent victims than child victims (Dahlke, Cooke, Cunnane, Chawla, & Lau, 1977; Palusci, Cox, Shatz, & Schultze, 2006; Thackeray, Hornor, Benzinger, & Scribano, 2011; Young, Jones, Worthington, Simpson, & Casey, 2006). However, we are not aware of any studies that compare adult, adolescent and child victims on rates of biological evidence.

1.4. DNA profiles

If biological material of sufficient quality is available, crime laboratories can develop a DNA profile of the assailant. Crime laboratory studies have found a substantially higher rate of DNA profiles in adult and adolescent cases compared to child cases (Gingras et al., 2009; Kerka, Heckman, Albert, Sprague, & Maddox, 2018), in adolescents compared to child cases (Maiquilla et al.,

2011), and among older children compared to younger children (Girardet et al., 2011). Moreno's (2013) clinical study found DNA profiles in 80.8% of adult cases, but only 11.6% of adolescent cases and 7.7% of child cases.

1.5. DNA match

A DNA profile is only useful if it matches to a second sample collected from the assailant. We found no studies that compared victim age groups on the proportion of DNA matches to offenders. Crime laboratories can also enter DNA profiles of sufficient quality into the Combined DNA Index System (CODIS) database (Federal Bureau of Investigation, n.d.), which contains DNA profiles collected in other cases and from persons convicted of violent crimes. In studies of testing of backlogged evidence kits, Campbell, Fehler-Cabral et al. (2015) and Wells et al. (2016) found that kits from victims age 16 and older were more likely to result in CODIS hits than kits from younger victims.

1.6. Unfounding

Law enforcement professionals receiving a report of sexual assault may *unfound* a case, thereby ending police action. Unfounded cases can be judged to be either false or baseless (International Association of Chiefs of Police, n.d.). A baseless case “does not meet the elements of a crime or was improperly coded as a sexual assault” (IACP, n.d., p. 2). The International Association of Chiefs of Police (n.d.) counsels strict adherence to the definition of unfounded, but studies suggest that a sexual assault case may be labelled as unfounded if the police think that a crime occurred but the probability of making an arrest and prosecuting the case is very small, or if a victim declines to participate in the investigation (Lisak, Gardiner, Nicksa, & Cote, 2010; Spohn & Tellis, 2012).

In two studies of adult and adolescent cases, victim age was not correlated with unfounding (Bouffard, 2000; Greeson, Campbell, & Fehler-Cabral, 2016; Patterson, 2010; Spohn et al., 2014). We found no study that compares adolescents above and below the age of consent on unfounding, even though different offender behaviors are criminal above and below this age. In the one study we found on unfounding rates for child sexual abuse (Maguire, 2009), the results are dated (1987–1988), and the small response rate to the survey used raises questions about the generalizability of the findings.

1.7. Arrest

Using the National Incident Based Reporting System, a national data set of crime incidents reported to police in the United States, Snyder (2000) and Snyder and Sickmund (2006) found that arrests were significantly more likely with juvenile victims compared to adults, with children compared to adolescents, and with younger adolescents compared to older adolescents. Two other studies have found a similar age difference (Heenan & Murray, 2006; Wells et al., 2016). However, other studies have found no relationship between victim age and likelihood of arrests (Lindsay, 1998; Peterson, Johnson, Herz, Graziano, & Oehler, 2012; Spohn & Tellis, 2018).

Thus, the research literature is limited in comparing age groups on the results of forensic medical examinations and on law enforcement actions. Moreover, few studies compare younger and older adolescents. By including four victim age groups across the entire age range of victims in a statewide sample, the current research addresses many of the limitations of previous research and generates new knowledge about victim age differences.

2. Methods

This research employed a statewide random sample of Massachusetts sexual assault cases in which a forensic medical examination was conducted between 2008 and 2010 and the incident was reported to police. Further information on methodology is available in Cross et al. (2014). For sexual assault patients older than 12, the Massachusetts Sexual Assault Evidence Collection Kit (MSAECK) was used, provided that the assault occurred within 5 days of the patient's presentation to the emergency department. The MSAECK is a boxed, sealed kit containing a copy of the protocol, all medical equipment necessary to collect specimens, and standardized forms to document information. With few exceptions, victims under the age of 12 were examined using the Massachusetts Pediatric Forensic Evidence Kit (Meunier-Sham, Cross, & Zuniga, 2013). The documentation accompanying the pediatric kit includes limited information, in order to decrease questioning the child about the assault and maintain the integrity of a future forensic interview.

2.1. Data sources

Data were obtained from four data sources: the Provider Sexual Crime Report (PSCR) database, data forms included in the MSAECK or pediatric kit, crime laboratory reports, and police records.

2.1.1. The Provider Sexual Crime Report Database

The PSCR is a standard form included within the MSAECK. Massachusetts General Law requires that all medical providers complete the PSCR if they are treating or examining a patient who has been sexually assaulted. The provider faxes or mails the form directly to the state's Executive Office of Public Safety and Security (EOPSS). The PSCR includes data on the characteristics of the assault, descriptive information on the victim and suspect, and data on actions taken following the alleged assault (e.g., report to police, restraining order). EOPSS maintains a database of all PSCR forms it has received from August 15, 1999 on.

2.1.2. Massachusetts Sexual Assault Evidence Collection Kit forms

In addition to the PSCR, the kit includes other standard forms completed by the medical provider that provide information gained from interviewing and examining the patient. These forms provide additional information about the assault and also document injuries found by the examiner. Police transport the kits to one of two different crime laboratories in the state.

2.1.3. Crime laboratory reports

For many kits sent to the crime laboratory, analysis is performed and crime laboratory personnel report on whether positive evidence is found for blood, semen, saliva and hair. If DNA analysis was also conducted, crime laboratory reports documented whether a) an offender DNA profile was generated, b) the DNA profile matched a suspect, and c) the DNA profile matched an entry in CODIS.

2.1.4. Police data

To obtain data on unfounding and arrest, EOPSS mailed a request letter and data collection sheet to chiefs of each of the law enforcement agencies represented in the sample. Chiefs were asked to complete the sheet (most delegated it to an appropriate staff member) and return it by mail or fax. EOPSS staff reached out by email and/or telephone to agencies that did not initially respond. Out of 144 police agencies contacted, 141 (97.9%) responded.

2.2. Data entry and linkage

Data from the four sources were linked via three unique identifiers: evidence kit numbers, police incident numbers, and originating reporting identifiers (ORI), a number used by the FBI to identify police agencies. Project research assistants working at the two crime laboratories in the state recorded these identifiers and other variables from the kit forms and crime laboratory reports into initial data files. These files were merged with data from the PSCR database and police data to create a final analysis file.

2.3. Sampling procedure

The study sample was randomly drawn from the PSCR Database. A retrospective sampling frame was used that included sexual assault forensic medical examinations from 2008 through 2010; this frame included 3530 cases. A random sample of 711 cases was drawn from this sampling frame. Because of the study's focus on criminal justice actions, only cases in which a report to police was made were sampled. From this sample, sufficient data were available for 563 cases for the current study. [Cross et al. \(2014\)](#) analyzed adult and adolescent cases and child cases separately, but we pooled these cases for the current study.

Table 1
Case Characteristics (N = 583).

	Victim Age Group			
	Under Age 12 (n = 33)	Age 12 to 15 (n = 66)	Age 16 to 17 (n = 48)	Age 18+ (n = 416)
% Female ***	69.7% (8.0)	95.5% (2.6)	95.7% (3.0)	95.7% (1.0)
Race-ethnicity				
White	43.3% (8.6)	55.4% (6.1)	56.3% (7.2)	71.6% (2.2)
Black	6.7% (4.4)	18.5% (4.8)	10.4% (4.4)	8.1% (1.3)
Latino	36.7% (8.4)	26.2% (5.4)	22.9% (6.1)	15.0% (1.8)
Other	13.3% (5.9)	0.0% (0.0)	10.4% (4.4)	5.4% (1.1)
Assailant Identity				
Parent or relative	—	7.6% (3.3)	2.1% (2.1)	1.7% (0.6)
Friend or acquaintance	—	45.8% (6.1)	47.9% (7.2)	37.5% (2.4)
Stranger	—	18.1% (4.7)	25.0% (6.2)	30.7% (2.3)
Intimate Partner/Ex	—	13.6% (4.2)	8.3% (4.0)	13.0% (1.6)
Unknown / Other	—	15.1% (4.4)	16.7% (5.4)	17.1% (1.8)
Penetration	—	81.3% (4.8)	79.0% (5.9)	69.0% (2.3)
Use of force	—	23.5% (5.2)	25.6% (6.3)	37.7% (2.4)
Assailant(s) choked victim*	—	1.9% (1.7)	10.3% (4.4)	14.0% (1.7)
Assailant held down or used body weight to restrain victim*	0.0% (0.0)	23.2% (5.2)	33.3% (6.8)	28.4% (2.2)
Use of weapon	—	9.8% (3.7)	7.7% (3.8)	11.1% (1.5)
Exam conducted within 72 hours of assault	91.2% (4.9)	87.5% (4.1)	90.2% (4.3)	95.2% (1.0)
Toxicology report generated*	0.0% (0.0)	17.0% (4.6)	31.0% (6.7)	26.8% (2.2)

Note. Documentation in the Massachusetts Pediatric Sexual Assault Evidence Collection Kit omits some variables included in the adult kit, in order to be less intrusive. Margin of error listed in parentheses.

* p < .01.

*** p < .001.

Table 2
Injury Evidence, Biological Evidence, and Police Actions.

	Victim Age Group			
	Under Age 12 (n = 33)	Age 12 to 15 (n = 66)	Age 16 to 17 (n = 48)	Age 18+ (n = 416)
Non-genital injury *	26.7% (7.7)	48.4% (6.2)	46.8% (7.2)	54.3% (2.4)
Anogenital injury	16.7% (6.5)	37.5% (5.9)	25.5% (6.3)	36.5% (2.3)
Evidence of sperm/semen **	15.6% (6.3)	60.4% (6.1)	61.5% (7.0)	58.5% (2.4)
Evidence of blood **	12.5% (5.8)	41.5% (6.1)	35.9% (6.9)	23.6% (2.1)
Evidence of saliva	21.9% (7.2)	34.0% (5.8)	41.0% (7.1)	33.0% (2.3)
DNA profile generated	15.2% (6.2)	29.2% (5.6)	19.6% (5.7)	27.7% (2.1)
DNA match to suspect	6.1% (4.1)	7.7% (3.3)	8.7% (4.1)	7.5% (1.3)
DNA match to suspect in another case	0.0% (0.0)	01.5% (1.5)	0.0% (0.0)	2.2% (0.7)
DNA match to convicted offender	0.0% (0.0)	4.6% (2.6)	6.5% (3.6)	4.1% (0.9)
Case unfounded by police ***	00.0% (0.0)	34.4% (5.8)	32.6% (6.8)	36.1% (2.4)
Arrests made – all cases **	51.9% (8.7)	45.0% (6.1)	25.6% (2.3)	24.0% (2.1)
Arrests made – founded cases only ***	51.9% (8.7)	69.2% (5.7)	37.9% (7.0)	37.7% (2.4)

* p < .05.

** p < .01.

*** p < .001. Margin of error listed in parentheses.

3. Results

Table 1 presents sample characteristics by victim age group. The vast majority of adult and adolescent victims were female, but 31% of victims under the age of 12 were male, a statistically significant difference. Although a majority of adult and adolescent victims were White, while a majority of child victims were not White, this difference was not statistically significant. More than half of adult and adolescent victims knew the alleged perpetrator. Most adults and adolescent victims experienced penetration, while smaller percentages experienced use of force, choking, restraint and use of weapon. Young adolescents were significantly less likely than older victims to experience choking, but this was the only violence variable on which either young or older adolescents differed from adult victims (these variables were not available for child victims). The vast majority of examinations were conducted within 72 hours of the assault. No child victim had a toxicology report on the presence of drugs or alcohol in their system, and younger adolescents were less likely than older adolescents and adults to have one.

Table 2 compares injury evidence, biological evidence, and police action across age groups. Results were similar for adults, older, and younger adolescents. Meaningful proportions of cases in these three groups were reported to have non-genital injuries and anogenital injuries and findings of blood, and a majority had evidence of sperm or semen. A DNA profile was generated in about one-fifth or more of cases in each of these groups. Obtaining a DNA match to the suspect, to a suspect in another case, or to a convicted offender was uncommon across age groups. Children were significantly less likely than the older groups to have a non-genital injury, or to have evidence of sperm, semen, or blood.

Police actions differed significantly by age group. None of the child cases was unfounded by police, while approximately one-third of cases were unfounded in the young adolescent, older adolescent, and adult groups. There were arrests in meaningful proportions of founded cases in each group. More than two thirds of founded cases led to arrest when the victim was a young adolescent, substantially more than in the other age groups.

4. Discussion

What is most striking is the similarity between adult and adolescent cases. Like adult victims, the majority of adolescent victims were assaulted by someone they knew outside the family. Both younger and older adolescent victims experienced penetration, perpetrator use of force, bodily restraint, and use of a weapon against them at rates comparable to adult victims.

Previous studies have tended to find more differences between adult and adolescents in rates of violence. All of our cases were reported to the police, which may explain higher rates of violence across the sample, but all of Moreno's (2013) cases were reported to police and 80% were in Jones et al. (2003), and adolescents in these studies were still substantially less likely than adult to experience violent acts. Our study may be more representative of the population of cases as a whole because our sample is derived from a statewide array of hospitals and does not come from a single hospital or specialized center.

We think it is unlikely that the contrast between our results and those of some previous studies is a function of differences in the acuity of cases, as most other studies also tended to include primarily acute victims. Palmer et al. (2004) and Zilkens et al. (2017) found higher rates of non-genital injury for adults than adolescents even though all patients in Palmer et al. were seen within 72 hours, as were 84.6% in Zilkens et al. A number of studies did not report case acuity (e.g., Cartwright, 1987; Jones et al., 2003; Moreno, 2013; Muram et al., 1995; Peipert & Domagalski, 1994; Sugar et al., 2004; Wells et al., 2016). However, it seems likely that the majority of cases in these studies were acute because their samples were drawn from hospital emergency departments, crisis services or repositories of forensic evidence kits (the vast majority of which are collected within 72 hours; see Ledray, 2010).

Both non-genital and anogenital injuries were prevalent in roughly equal rates for both adolescents and adults in our study,

contrary to the findings of most prior studies. The lower rate of non-genital injuries among children is consistent with previous research, as was the lower rate of anogenital injury. However, the difference in rates of anogenital injury by age group was not statistically significant, which is probably related to the relatively small number of child cases in the sample.

Biological products (sperm/semen, blood, and saliva) and DNA were about equally prevalent in adults and younger and older adolescents. The higher rate of sperm/semen and blood for the older groups compared to children under age 12 is consistent with previous research. These differences were likely a function of the differences between child victims and older victims in the likelihood of penetration, use of force and other assault characteristics. Though previous studies suggest a rank ordering of adult > adolescent > child on obtaining DNA profiles, we found no meaningful difference, nor was the rate of DNA matches to the suspect different. It is surprising that the rate of DNA profiles and matches was not substantially less for children than for older groups, given that finding biological products was less likely in child cases.

Consistent with the literature, the unfounding rate was similar for adult and adolescent cases. In contrast, no child case was unfounded. This suggests that there may be something fundamental about child cases presenting at hospital emergency departments that leads law enforcement to found these cases and pursue investigations. The lack of difference on unfounding between the younger and older adolescents suggests that age of consent may not influence the decision to unfound an allegation. One outstanding question is whether law enforcement officers' perception of young adolescents' consent may play a role even when the adolescent is below the age of consent, and, in theory, consent should not be a factor.

The finding that arrest rates were higher for child and young adolescent victims than older victims is consistent with most previous research. It may be easier to determine probable cause, which is necessary for arrest, when consent is not an issue in determining whether a crime has been committed. Law enforcement may also apply a "downstream orientation" (see Holleran, Beichner, & Spohn, 2010) that suggests to them that child and adolescent cases are more likely to be prosecuted successfully and thus merit further investigation.

Results were very similar for younger and older adolescents, with the notable exception of the arrest rate. Case characteristics of younger adolescents differed from older victims' only in a much lower likelihood of being choked and a lower likelihood of having a toxicology report generated. Almost half of younger adolescents were reported to have a non-genital injury and over one third an anogenital injury. These results should heighten concern about the trauma that even young adolescent victims experience.

Just as adolescents receive little independent attention in research on sexual abuse and assault, so do they receive little attention in policy and practice development. Little has been published that specifically explores the needs of adolescents in either the adult service system response to sexual assault or the child service system response. Campbell et al.'s study (Campbell, Greeson, & Fehler-Cabral, 2013; Campbell, Greeson, Bybee, & Fehler-Cabral, 2012; Campbell, Greeson et al., 2015; Greeson et al., 2016) of the response to adolescent sexual assault explored the role of Sexual Assault Nurse Examiners and Sexual Assault Response Teams. This study was an important step forward, but no study has examined adolescent experiences in Children's Advocacy Centers (CACs), although adolescents represent 27% of the total youths seen in CACs in 2017 (National Children's Alliance, 2018). More research is needed on the best models of response to adolescent sexual assault and coordination between adult and child systems in their cases.

4.1. Limitations

Our most significant limitation was a modest sample size for the three youngest age groups, and a lack of data on child victims. Nevertheless, as Tables 1 and 2 reveal, the differences we found were often so large that they easily exceeded the margins of error for even the smallest group in our sample.

All assaults discussed in the study were reported to the police and had a full medical examination performed (almost all within 72 hours of the assault). But most victims, particularly adolescents, do not seek formal help after an assault (Casey & Nurius, 2006; Broman-Fulks et al., 2007), and many victims who obtain forensic medical examination do not report to police (see, e.g., Fisher, Daigle, Cullen, & Turner, 2003; Hanson et al., 2003), especially male victims (Burgess-Proctor, Comartin, & Kubiak, 2017; Depraetere, Vandeviver, Beken, & Keygnaert, 2018). The proportion of males is significantly larger in the child group in our sample than in older groups, and thus age differences are potentially confounded with differences by sex.

We do not know what criteria the many examiners represented in this study used for determining injury, and we lack data on the reliability and validity of forensic examination results, making it difficult to compare our results to those of other studies. We also lack data on the circumstances in which crime laboratories analyzed or did not analyze evidence kits.

Additionally, we lacked data on a number of variables relevant for understanding law enforcement actions and outcomes. We have no information on victim cooperation, perceived credibility, the involvement of victims' parents, or the rationale for police to unfound a case or make an arrest. We do not know to what extent youths lived at home or were emancipated or runaways, though running away is a key risk factor for assault that can also affect victim's ability to pursue justice (Terrell, 1997; Thrane, Yoder, & Chen, 2011).

4.2. Future research

More studies that compare victims by age group and developmental stage are needed. Studies could explore difference in the circumstances related to seeking an examination and reporting to police. They could gather more data on the relationship between the assailant and victim, particularly in adolescent cases. They could assess the role of parents in juvenile cases seen acutely, since parent preferences and advocacy may influence police decisions, and these parent factors may differ by victim age. Studies could assess victim cooperation and perceived credibility and examine how these and other factors relate to unfounding and arrest

decisions. They could measure pubescence and assess its relationship to examination findings, crime laboratory findings, and police actions. They could study protocols and methods for seeking DNA evidence by victim age group. They could explore police decision-making on unfounding and arrest for victims of different age groups.

5. Conclusion

We found significant differences by victim age in the results of forensic medical examination and in law enforcement action, but greater similarity between adolescent and adult cases than might have been anticipated. Both younger and older adolescents may be at higher risk of experiencing physical violence during sexual assault than has been previously recognized. More attention is needed to the effectiveness of the adult or child sexual assault response systems in responding to adolescents. Future research needs to examine the effect of victim age more carefully to identify more effectively the needs of child, adolescent, and adult victims. Perhaps the best response to our research is for communities to undertake their own research by age group (child, young and older adolescent, and adults) in their own hospitals, police departments, and crime laboratories; share the results with both the adult and child response systems; and use their findings to improve their response systems to serve victims of all ages.

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