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Sexual Risk Behaviors among Teens at an Urban Emergency Department: Relationship with Violent Behaviors and Substance Use

M.A. Walton^a, S. Resko^a, L. Whiteside^b, S.T. Chermack^a, M. Zimmerman^d, and R.M. Cunningham^b

^a Department of Psychiatry, University of Michigan, Ann Arbor, Michigan

^b Department of Emergency Medicine and Hurley Medical Center, University of Michigan, Ann Arbor, Michigan

^d School of Public Health, University of Michigan, Ann Arbor, Michigan

Abstract

Purpose—Data regarding sexual risk behaviors among adolescent patients presenting to urban Emergency Departments (ED) is lacking. This paper describes rates and correlates of sexual risk behaviors among adolescents screened in an urban ED.

Methods—Over a one-year period, 1576 patients ages 14–18 self-administered a computerized survey (57.6% female, 59.3% African American).

Results—Among sexually active adolescents (60%), 12.0% reported four or more partners, 45.3% reported using a condom *all the time*, and 14.7% reporting using substances before sex. Regression analyses examined correlates of sexual risk behaviors based on demographics, violence, and substance use. Males and younger teens were more likely to report condom use than females and older teens. Participants with poor grades were more likely to have had sex and using substances before sex, and were less likely to report condom use. Participants reporting dating violence were more likely to have had sex and less likely to use condoms, whereas participants reporting peer violence and weapon carriage were more likely to report substance use before sex. Binge drinking and marijuana use were associated with all sex risk behaviors.

Conclusions—The urban ED visit may provide an opportunity to deliver interventions to address sexual risk behaviors among adolescents.

Introduction

Although recent reviews conclude that sexual risk reduction interventions show promise, findings are inconsistent across samples and settings suggesting that intervention need to be tailored to the specific adolescent population.¹ The urban ED provides a unique window of opportunity to access adolescents, many of whom are minorities and/or of lower socioeconomic status, which may be missed in school-based studies because of poor attendance and who are not well represented in general population samples. Before implementing such interventions among adolescents in the urban ED, data regarding the

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extent and correlates of risky sexual behaviors is needed. Currently, information about sexual risk behaviors among adolescents ED samples is lacking. Hypotheses were that demographic (i.e., males, African-Americans, older age, receipt of public assistance, medical complaint, poor grades, living alone, working), and other risk behaviors (i.e., violence, substance use) would be positively related to sexual risk behaviors.

Method

Participants

ED patients presenting during afternoon shifts for medical illness or injury self-administered a 15 minute computerized survey as part of a randomized controlled trial at a Level I trauma center and received a token \$1.00 gift (e.g., pen). Exclusion reasons were: no parent/guardian available to provide consent (< 18), unable to provide informed consent due to impaired cognitive functioning, presenting for sexual assault or acute suicidal ideation, or unstable vital signs. Study procedures were approved and conducted in compliance with Institutional Review Boards (IRB) for Human Subjects guidelines.

Among 2109 potentially eligible patients who presented to the ED during the one year sampling frame, 85.0% (n=1793) were approached and 15.0% (n=316) were missed (e.g., research staff busy). Among approached eligible patients, 87.8% (n=1576) participated and 12.1% (n=217) refused (e.g., tired, pain). Among participants, 57.8% were female, 58.1% were African-American (35.6% Caucasian, 6.3% other), 60.5% presented with a medical complaint (39.5% for an injury), the average age was 16.2 (standard deviation =1.5) and 54.6% reported their family received public assistance.

Measures

Sexual Risk Behaviors—Participants were asked, “Have you ever had sexual intercourse?”.² For sexually active adolescents, questions included: the number of partners in the past year (0 to ≥ 6); frequency of condom use (5-point Likert scale, “none of the time” to “all of the time”, and, whether alcohol or drugs were used before sexual intercourse.³ **Substance Use.** Past year use of alcohol², binge drinking, cigarettes and marijuana⁴ were coded (no/yes). The 6-item CRAFFT was used to screen for alcohol misuse (cut ≥ 2).⁵ **Peer Violence.** Frequency of past year moderate (e.g., pushed) and severe (e.g., punched) peer violence (i.e. aggression with friends, strangers)^{2,6} was coded as none/any. **Dating Violence.** Frequency of moderate and severe dating violence (aggression) with someone you’re dating, “going with” or a boyfriend/girlfriend⁷ was coded none/any.

Data Analysis

Data were analyzed using SAS Version 9.2 (SAS Institute, Cary, NC). Bivariate analyses (e.g., chi-square/t-test) and regression analyses compared demographics and other risk behaviors for: (1) the entire sample based on ‘ever having sex’, and (2) among those who reported ever having sex, the number of partners, consistent condom use, and alcohol/drug use before sex. Independent variables included demographics, violence, and substance use. Given high correlations among some substance use variables (e.g., cigarette and marijuana use $r=0.74$; any alcohol use and binge drinking $r=0.66$), binge drinking and marijuana use ($r=0.49$) were included in the regression models: Substance use variables were not included in the model predicting alcohol/drug use prior to sex because these variables are not mutually exclusive. In all models, variable inflation was ≤ 2 , indicating multicollinearity was not likely.

Results

Rates of Sexual Risk Behaviors

Overall, 60.4% reported ever having sex. The number of partners varied: 56.7% 1; 31.2%, 2–3; 12.0% ≥ 4 ; 45.3% reporting using condoms all of the time and 14.7% reported using alcohol drugs before sex.

Correlates of Ever Having Sex

Characteristics that were related in the regression model (Table 1) to increased risk of ever having sex included: older age, African-American race, poor grades, not living with a parent, dating violence, weapon carriage and substance use.

Correlates of Sexual Risk Behaviors

Findings for regression models (Table 2) show that participants reporting a greater number of partners were more likely to be male, African-American, report binge drinking, and use marijuana. Participants using condoms all the time were more likely to be male, younger, present with injury, have good grades, live with a parent, and report dating violence and were less likely to use marijuana. Participants using substances before sex were more likely to report poor grades, peer violence, and weapon carriage.

Discussion

Although rates of ever having sex exceeded national estimates, rates of behaviors that increase the risk for sexually transmitted diseases were consistent with national samples.⁸ Findings are limited by the cross-sectional design, which limit causality, and the inability to assess HIV status and other sexual behaviors such as oral or anal sex.

Nonetheless, results highlight characteristics that should be considered in developing ED-based interventions for urban adolescents. Findings for gender and race differences support the inclusion of condom negotiation skills for female adolescents and recommendations that cultural or normative influences be considered for minority teens.⁹ The decline in condom use with age found in this study is alarming and may reflect increases in oral contraceptives with age. Although causality cannot be determined, data suggest that having good grades and living with a parent may be protective for sexual risk behaviors. The relationship between sexual risk behaviors and dating violence may be explained by peer groups who normalize dating violence as part of sexual relationships. Although acute alcohol use may explain the relationship between sexual risk behaviors and substance use, an alternative explanation is that risk behaviors reflect underlying individual, social, and environmental determinants.

Non-traditional community settings, such as the urban ED, have been underutilized in sexual risk reduction programs and may provide an avenue to reach high-risk teens.¹⁰ No differences were found in chief complaint for several sexual risk behaviors supporting the idea of universal ED screening. Sexual risk reduction interventions for adolescents in the urban ED should address concomitant substance use and violence.

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Table 1

Associations between Ever Having Sex and Demographics, Violent Behaviors, and Substance Use.

Risk Factor	Bi-variate	Regression
	Sex Ever (n= 1576)	Sex Ever (n= 1576)
Demographics	<u>RR (CI)</u>	<u>OR (CI)</u>
16 and older	2.35 (2.08–2.65) **	4.58 (3.49–6.01) ***
Female	1.14 (1.05–1.24) *	1.10 (0.84–1.44)
African-American	1.34 (1.23–1.47) *	2.33 (1.77–3.07) ***
Injury Complaint	0.80 (0.73–0.88) *	0.78 (0.60–1.02)
Public assistance	1.08 (0.99–1.17)	1.13 (0.86–1.47)
Grades ($\leq$ D)	1.44 (1.34–1.55) *	1.40 (1.03–1.90) *
Live with Parent	0.58 (0.55–0.62) ***	0.22 (0.11–0.46) ***
Currently Working	1.27 (1.18–1.38) **	1.28 (0.92–1.78)
Violent Behaviors		
Peer Violence	1.12 (1.07–1.22) *	0.97 (0.72–1.31)
Dating Violence	1.32 (1.22–1.42) ***	1.56 (1.12–2.17) **
Carried Weapon	1.43 (1.33–1.54) ***	1.70 (1.20–2.42) **
Substance Use		
Any alcohol use	1.67 (1.54–1.78) ***	-----not in model
Binge drinking	1.54 (1.44–1.65) ***	1.66 (1.01–2.74) *
Alcohol Misuse	1.54 (1.44–1.65) ***	-----not in model
Cigarette use	1.74 (1.63–1.86) ***	-----not in model
Marijuana use	1.97 (1.83–2.13) ***	5.48 (3.88–7.74) ***

Note: RR = Relative Risk; C.I. = Confidence Interval; OR = Odds Ratio;

*
p<.05,*
p<.01,p<.001 with reference to None group. (Wald $\chi^2(13) = 366.3$, p<.001)

Table 2

Associations between Sexual Risk Behaviors and Demographics, Violent Behaviors, and Substance Use.

Risk Factor	Bi-variate # Partners ^a	RR (CI)	Regression # Partners ^a	OR (CI)	Bi-variate Condom Use "all the time" ^a	RR (CI)	Regression Condom Use "all the time" ^a	OR (CI)	Bi-variate Alcohol/Drug before sex ^a	RR (CI)	Regression Alcohol/Drug before sex ^a	OR (CI)
Demographics												
16 and older	2.79 (1.68–4.33)	***	1.07 (0.59–1.92)		0.69 (0.60–0.80)	**	0.65 (0.45–0.94)	*	1.18 (0.78–1.78)		1.25 (0.75–2.08)	
Female	0.35 (0.24–0.52)	***	0.27 (0.17–0.44)	***	0.64 (0.56–0.74)	**	0.52 (0.38–0.72)	*	0.76 (0.55–1.02)		0.70 (0.46–1.05)	
African-American	2.87 (1.83–4.53)	***	3.42 (1.92–6.08)	***	0.94 (0.81–1.09)		0.84 (0.60–1.16)		0.97 (0.71–1.34)		0.80 (0.53–1.22)	
Injury Complaint	0.90 (0.63–1.28)		0.84 (0.53–1.27)		1.54 (1.34–1.76)	**	1.86 (1.36–2.54)	**	1.07 (0.77–1.48)		1.29 (0.85–1.98)	
Public assistance	1.24 (0.86–1.78)		0.95 (0.61–1.49)		0.90 (0.78–1.04)		0.84 (0.62–1.12)		1.15 (0.84–1.58)		1.14 (0.77–1.68)	
Grades (≤ D)	1.94 (1.36–2.75)	***	1.15 (0.73–1.81)		0.63 (0.54–0.74)	*	0.60 (0.44–0.81)	**	1.69 (1.24–2.30)	*	1.75 (1.18–2.60)	*
Live with Parent	0.51 (0.33–0.78)	***	0.91 (0.54–1.76)		2.72 (1.99–3.70)	**	2.87 (1.85–4.46)	**	0.84 (0.58–1.22)		0.93 (0.57–1.54)	
Currently Working	1.31 (0.88–1.95)		1.15 (0.70–1.89)		0.93 (0.79–1.09)		0.98 (0.70–1.36)		1.04 (0.74–1.47)		1.05 (0.69–1.62)	
Violent Behaviors												
Peer Violence	2.07 (1.29–3.32)	***	0.98 (0.54–1.76)		0.93 (0.80–1.08)		0.89 (0.63–1.27)		2.36 (1.50–3.72)	***	2.13 (1.24–3.64)	***
Dating Violence	1.78 (1.25–2.55)	***	1.29 (0.79–2.09)		0.71 (0.60–0.84)	***	0.65 (0.46–0.90)	**	1.45 (1.06–1.97)	**	1.19 (0.79–1.81)	
Carried Weapon	3.14 (2.22–4.45)	***	1.54 (0.98–2.41)		0.87 (0.74–1.02)		0.90 (0.64–1.25)		1.96 (1.45–2.66)	**	1.90 (1.28–2.83)	*
Substance Use												
Any alcohol use	3.25 (2.29–4.63)	***	-----not in model		0.67 (0.57–0.79)	**	-----not in model		3.94 (2.79–5.57)	***	-----not in model	
Binge drinking	3.72 (2.62–5.27)	***	2.50 (1.50–4.18)	**	0.66 (0.53–0.82)	**	0.70 (0.47–1.05)		3.69 (2.75–4.94)	***	-----not in model	
Alcohol Misuse	3.69 (2.59–5.26)	***	-----not in model		0.68 (0.55–0.85)	***	-----not in model		3.07 (2.28–4.12)	***	-----not in model	
Cigarette use	3.46 (2.44–4.91)	***	-----not in model		0.70 (0.60–0.82)	***	-----not in model		4.29 (3.03–6.06)	***	-----not in model	
Marijuana use	5.94 (3.88–9.09)	***	2.50 (1.49–4.20)	**	0.67 (0.58–0.77)	***	0.61 (0.44–0.83)	**	7.34 (4.36–12.36)	***	-----not in model	

Note: RR = Relative Risk; C.I. = Confidence Interval. OR = Odds Ratio.

* p<.05,

* p<.01,

p<.001.

^a n=946.

^aWald χ^2 (13)=71.4, $p<.0001$;
^bWald χ^2 (13) =135.3, $p<.0001$;
^cWald χ^2 (13) =97.5, $p<.01$.