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Dating Violence among Male and Female Youth seeking Emergency Department Care

Vijay Singh, MD MPH MS[1], **Maureen A Walton, PhD MPH**[2], **Lauren K Whiteside, MD MS**[3], **Sarah Stoddard, PhD**[4], **Quyen Epstein-Ngo, PhD**[2], **Stephen T Chermack, PhD**[2], and **Rebecca M Cunningham, MD**[1]

[1]University of Michigan Injury Center and Department of Emergency Medicine, Ann Arbor, MI 48105

[2]University of Michigan Addiction Research Center and Department of Psychiatry, Ann Arbor, MI 48109

[3]University of Washington Division of Emergency Medicine, Seattle, WA 98195

[4]University of Michigan Department of Health Behavior and Health Education, Ann Arbor, MI 48105

Abstract

Objective—To determine prevalence and correlates of dating violence, dating victimization, and dating aggression among males and females age 14–20 seeking emergency department (ED) care.

Methods—Systematic sampling of subjects age 14–20 seeking care at a single large academic ED between 9/2010- 3/2013. Participants completed a computerized, self-administered, cross-sectional survey of demographics, dating violence from physical abuse measures of the Conflict in Adolescent Dating Relationships Inventory, associated behaviors, and ED health service use. Separate analyses were conducted for males and females.

Results—4389 youth (86.1% participation rate) were screened, and 4089 (mean age 17.5 years, 58% female) were eligible for analysis. Almost 1 in 5 females (n= 215, 18.4%) and 1 in 8 males (n= 212, 12.5%) reported past year dating violence. Of females, 10.6% reported dating

Corresponding Author and address for reprints: Vijay Singh, MD MPH MS, Department of Emergency Medicine, Department of Family Medicine, University of Michigan Injury Center, 2800 Plymouth Road, Suite B10-G080, Ann Arbor, MI 48109-2800, Phone: 734-998-2472, Fax: 734-764-2020, vijaysin@umich.edu.

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Conflicts of interest: none

Author contributions: MAW and RMC conceived and designed the study, obtained funding, acquired data, supervised study, and provided administrative, technical, and material support. VS, MAW, LKW, and RMC analyzed and interpreted data. VS, LKC, and RMC drafted manuscript. All authors contributed substantially to revising the manuscript and approved the final draft. VS takes responsibility for the paper as a whole.

victimization, and 14.6% dating aggression, while of males, 11.7% reported dating victimization, and 4.9% reported dating aggression. Multivariate analyses showed variables associated with any male dating violence were African American race (AOR 2.26, CI 1.54–3.32), alcohol misuse (AOR 1.03, CI 1.00–1.06), illicit drug misuse (AOR 2.38, CI 1.68–3.38), and depression (AOR 2.13, CI 1.46–3.10); any female dating violence was associated with African-American race (AOR 1.68, CI 1.25–2.25), public assistance (AOR 1.64, CI 1.28–2.09), grades D and below (AOR 1.62, CI 1.07–2.43), alcohol misuse (AOR 1.04, CI 1.02–1.07), illicit drug misuse (AOR 2.85, CI 2.22–3.66), depression (AOR 1.86, CI 1.42–2.44), and any past year ED visit for intentional injury (AOR 2.64, CI 1.30–5.40).

Conclusions—Nearly 1 of 6 male and female adolescents seeking ED care report recent dating violence, and health disparities remain among this population. Dating violence was strongly associated with alcohol, illicit drug misuse, and depression, and correlated with prior ED service utilization among female youth. ED interventions should consider addressing these associated health conditions as well as improving screening protocols to address dating violence among male and female youth.

INTRODUCTION

Background

Adolescent and young adult dating violence, encompassing dating victimization and dating aggression, is a significant public health concern. School-based studies indicate that nearly 1 in 10 high school students report dating victimization (1), and almost 1 in every 5 high school youth report physical violence towards a dating partner, or dating aggression. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) mandates clinicians screen patients for intimate partner violence (IPV) in all health care settings, including the emergency department (ED) (2–3). In addition, the United States Preventive Service Task Force (USPSTF) recently recommended that asymptomatic women age 14–46 are screened for IPV and provided intervention services (4). Despite this, only 30% of adolescents report ever being asked by a healthcare provider about dating violence (5). Clinical guidelines exist for adult IPV identification and response, but more studies are needed before clinical guidelines are created for dating violence among adolescents. Expert opinion recommends only referral to outpatient dating violence services and evaluation for imminent harm and safety (6).

Importance

Dating victimization and dating aggression are both associated with adverse health conditions such as alcohol use, substance use, and depressed mood (7–13). Adolescents who experience dating violence are at greater risk for adult IPV (14). In addition to increased risk for IPV, dating violence is associated with less outpatient clinic use. For example, dating violence is associated with not scheduling outpatient clinic appointments (5). Only 11% of female adolescents with dating violence injuries sought outpatient health services (15). Adolescents with dating violence may therefore utilize the ED for their health services. For example, a hospital was the site from which adolescents with dating violence received most of their health care services (16). Understanding ED health service use patterns can enhance

identification of dating violence. However, these adverse health correlates and ED health care services have not been examined among a large ED sample reporting dating violence, and the ED service utilization among these youth has not been examined.

Although prior research has shown that females are more likely than males to report both victimization and aggression (reciprocal violence) (17–18), prior work typically includes only female patients or typically only assesses dating victimization. In a study excluding males, 36% of female adolescents in a pediatric emergency department (ED) reported lifetime dating victimization (19). Among male and female adolescents presenting to the ED, 27% reported past year dating aggression, though dating victimization was not assessed (9). Only 1 prior study of adolescent patients assessed dating victimization and aggression among both sexes (20). In this latter study, of 327 female and male adolescents presenting to a pediatric ED, 50% reported past year dating victimization, and 56% reported past year dating aggression (20). However, this study was limited due to the small sample size and lack of information on illicit drug use, depression, or health service use among those with dating violence.

Examination of dating victimization and aggression among both sexes is important because dating violence is common in both males and females (8), but assessment of both dating victimization and aggression is lacking in prior literature. Dating violence differs from adult IPV in that gender and relationship roles are not yet set, couples are often not cohabitating, and adolescents are changing partners more often than their adult counterparts. Patterns that begin in adolescence can carry over to adulthood, including more serious IPV as well as mental health consequences. Therefore, screening and intervention among youth with dating violence can be a critical window to preventing future adult IPV.

Goals of This Investigation

To improve ED based dating violence screening and develop interventions that prevent dating violence and associated consequences, it is critical to understand the prevalence and type of dating violence experienced by both male and female youth. The purpose of this study is to among female and male patients age 14–20 screened in an ED, (1) characterize dating violence, dating victimization, and dating aggression prevalence, and (2) describe demographic, associated behaviors, and ED health service use correlates of dating violence, dating victimization, and dating aggression. This study expands on prior literature (20) by adding illicit drug use, depression, and ED health service use to an analysis of both dating victimization and aggression among adolescents of both sexes in a large systematically collected ED sample.

METHODS

Study Design and Setting

This paper presents a secondary data analysis of the screening phase of a large randomized control trial (Project U-Connect). This study took place at a large, academic Level 1 Trauma center in Ann Arbor, Michigan. All patients between 14–20 years of age presenting for ED

care were eligible for participation. The pediatric and adult ED sites were located in adjoining parts of the hospital at the time of the study's screening phase.

Selection of Participants

Potential study participants were identified through an electronic medical record, and each was approached and recruited in patient treatment areas. Recruitment was conducted by trained research assistants (RAs) between September 2010 and March 2013. The method of sampling was systematic with consecutive and sequential enrollment during all afternoon and evening shifts, when patients were triaged between 2:00pm–12:00am. Given lower yield of participants, day shifts (patients triaged 8am - 6pm) and midnight shifts (patients triaged 12am – 8am) were sampled on a rotating basis over the course of the study. Patients that were too ill to be screened in the ED were eligible for approach during their inpatient visit if they stabilized within 72 hrs. Excluded from participation were patients seeking care for suicidal ideation, sexual assault, child abuse, and those who had altered mental status precluding consent; and those who were non-English speaking, or aged 17 and under with no parent/guardian available for consent.

All participants gave both oral and written consent/assent (if under 18 years old). If a participant was under 18, a parent/ legal guardian signed all informed consent documentation and the participant signed assent documentation. Parents/legal guardians did need to be present for the consent process if the patient was a minor, but the survey was done in private, where family members/ friends could not see questions or responses to the survey. After written assent/consent and parental consent (for participants <18) was obtained, participants self-administered a ∼20-minute screening survey on a touchscreen tablet computer. The survey was not anonymous, but was confidential. Privacy during the screen was ensured by a RA monitoring the participant. Each participant received a $1.00 gift following completion of the survey. A resource list was provided. Approval of study procedures was obtained from the University of Michigan's Institutional Review Board, and a Certificate of Confidentiality for human participants was obtained through the National Institutes of Health.

Methods and Measurements

Dating Violence—Three distinct dating violence outcomes were calculated. Violence in dating relationships were measured using the physical abuse measures of the Conflict in Adolescent Dating Relationships Inventory (CADRI) (21), which assesses both past year victimization from or aggression towards a dating partner and includes items such as threw something, slapped, pulled hair, pushed, shoved, shook, kicked, hit, or punched. These measures parallel the Conflict Tactics Scale (22). The 4-item subscale for victimization (α=0.89) was used to define any *dating victimization* (yes/no) as yes to any of the 4 items, and the parallel 4-item subscale for aggression (α=0.85) was used to define any *dating aggression* (yes/no) as yes to any of the 4 items. Finally, both subscales were used to define any *dating violence* (yes/no) as yes to any of the 8 items. See appendix for CADRI items.

Demographics—Standard demographic measures were collected including sex, age, race (coded as African-American vs. White/Other for present analyses), and receipt of public

assistance (for parents and/or self) using items from the National Longitudinal Study of Adolescent Health (23).

Associated behaviors—Academic Performance was collapsed into two categories reflecting failing grades reported as D and below vs. C and above (24), and this dichotomization was chosen as failing grades are a marker for adolescent risk behavior. Alcohol misuse was measured with the score for all ten Alcohol Use Disorders Identification Test (AUDIT) items (α=0.89), summed to create a continuous variable (between 0–40) assessing past 3 month alcohol consumption, dependence, and alcohol-related problems (25–26). Binge drinking was defined as 5 or more drinks on one occasion (27). Illicit drug use in the past three months was measured using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), (28–29) which uses a cutoff score ≥4 to define moderate risk for substance use. Participants scoring ≥4 on the ASSIST for marijuana, or any cocaine, methamphetamine, street opiate, inhalant, or hallucinogen use were defined as 'yes' for any illicit drug misuse. Depression over the past two weeks was measured using the Patient Health Questionnaire (PHQ-2), assessing depressed mood and anhedonia, with a cutoff score of 3 or higher indicating depression (30).

ED Health Services Use and ED visit type—RAs retrospectively abstracted the discharge diagnosis for the ED visit from the medical chart and re-coded this as medical illness (e.g., abdominal pain, back pain) or injury (ICD–9–CM E800–E999). Injury visits were further classified as intentional (E950–E969) or unintentional (E800–E869, E880–E929) based on E-codes (31). Past year ED visits were extracted from the medical chart of participants and coded for reason of visit (medical, psychiatric, injury (ICD–9– CM) (32). To ensure reliability of all chart review data, research staff were blind to the outcome measure and abstracted data onto a standardized form. Each past year ED visit was classified as having only one reason for visit. Discrepancies were assessed by 2 reviewers and a final decision was made by an emergency medicine physician (LKW or RMC). Regular audits were performed on chart review data and 20% of randomly selected charts were entered twice to ensure inter-rater reliability of the extraction. Kappa values for all chart review items were calculated ranging from 0.82–1.00 (33).

Outcomes

Any dating violence is the primary dependent variable (including dating victimization or dating aggression). Additional dependent variables of any dating victimization, and any dating aggression, were evaluated. The dating violence measures were dichotomized (yes/no) to any of the individual items to reflect the most clinically relevant question of if an adolescent was (yes/no) involved in dating violence in the past year.

Data Analysis

Data were analyzed using SAS Version 9.2 (SAS Institute, Inc., Cary, NC). Descriptive statistics were calculated separately for males and females, as described earlier. Any dating violence, any dating victimization, and any dating aggression were separately analyzed by sex, given only 31.6% of males and 32.6% of females reported both dating victimization and aggression, and to be consistent with prior literature (20). Demographics, associated

behaviors, ED health service use, and ED visit types were shown descriptively for any dating violence, any dating victimization, and any dating aggression, separately by sex. Adjusted odds ratios (AORs) and CIs were reported for multivariate logistic regression models compared any dating violence, any dating victimization, and any dating aggression, to no dating violence. The multivariate model was constructed based on theory and prior research. Specifically, we included age, race and public assistance as demographics (34), low grades, alcohol misuse, binge drinking, illicit drug misuse, and depression as other variables theoretically associated with dating violence in prior literature (7–13). Alcohol misuse and binge drinking were not both included in the multivariate models due to multicollinearity (see technical appendix). We included ED visit type and number of past year ED visits as they may reflect seeking treatment for dating violence (5, 15–16). Only one ED visit variable could be selected as the categories are not mutually exclusive and are therefore collinear. Any ED visit for intentional injury was chosen for the multivariate analysis given this paper's focus on dating violence. To evaluate for multicollinearity, each multivariate model had variance inflation factors calculated, and these values were in acceptable range. Goodness-of-Fit p-values were calculated and indicated that the data fit the multivariate models well (see technical appendix).

RESULTS

Characteristics of study subjects

During the recruitment period 9228 youth ages 14- 20 sought care in the ED during study hours, 2696 (29.2%) were not eligible to approach (Figure 1), 707 (13.9%) refused to participate, and 4389 (86.1%) completed the screening survey. As the focus on this analysis is on dating relationships, 47 (1.1% of those screened) were excluded from this analysis due to being married (35), leaving a final sample of 4089 (Figure 1). Comparing the 1436 missed participants to the 4389 screened participants on both sex and age, males (28.7%) were more likely to be missed than females (21.4%), and 14–17-year-olds (27.6%) were more likely to be missed than 18–20-year-olds (22.3%). Comparing the 4389 screened participants to the 707 who refused revealed males (15.1%) more likely to refuse than females (13.0%), and there were no significant differences by age.

Demographics—With respect to demographic information, participants in this screening sample had a mean age of 17.5 years (SD = 2.0), 58.0% were female, and most were Caucasian (72.9%) (15.0% were African American). The majority (86.9%) were enrolled in school, and over one-quarter (25.8%) received public assistance (data not in tables).

Main results

Over 15% of the sample reported past year dating violence (n=644/4089), with almost one in five females (18.4%, n=429/2370) and one in eight males (12.5%, n=215/1719) reporting past year dating violence (Tables 1 and 2). Any dating victimization was reported more by males (11.7%, n=201) than females (10.6%, n=250), while any dating aggression was reported more by females (14.6%, n=346) than males (4.9%, n=84). Females were most likely to report dating aggression only (n=179, 41.7%), followed by both dating aggression and victimization (n=167, 32.6%), and dating victimization only (n=83, 19.4%). In contrast,

males were most likely to report dating victimization only (n=131, 60.9%), followed by both dating aggression and victimization (n=70, 31.6%), and dating aggression only (n=14, 6.5%).

Characteristics of Sample—Table 2 demonstrates the demographics, associated behaviors, and ED health service use for any dating violence, any dating victimization, and any dating aggression separately for males and females.

Multivariate analyses—Variables positively associated with any male dating violence shown in the multivariate analysis (Table 3) were African-American race (AOR 2.26, CI 1.54–3.32), alcohol misuse (AOR 1.03, CI 1.00–1.06), illicit drug misuse (AOR 2.38, CI 1.68–3.38), and depression (AOR 2.13, CI 1.46–3.10); any female dating violence was positively associated with African-American race (AOR 1.68, CI 1.25–2.25), public assistance (AOR 1.64, CI 1.28–2.09), grades D and below (AOR 1.62, CI 1.07–2.43), alcohol misuse (AOR 1.04, CI 1.02–1.07), illicit drug misuse (AOR 2.85, CI 2.22–3.66), depression (AOR 1.86, CI 1.42–2.44), and any past year ED visit for intentional injury (AOR 2.64, CI 1.30–5.40). In general, the pattern of findings was similar for dating victimization and aggression for both males and females, with the notable exception of any past year ED visit for intentional injury as listed above.

LIMITATIONS

There are several limitations to this study. First, this study assessed physical abuse only, rather than emotional or sexual abuse, and due to the limitations of the larger randomized controlled trial did not include individuals seeking care for acute medical care for suicidal ideation/attempt. As in all cross-sectional studies, the data does not allow for causal conclusions, only associations. This study includes data from participants recruited at a single suburban ED and may not be generalizable to other settings. Health service use was measured through chart review as prior visits to only 1 ED site. This study did not assess the context of dating violence, therefore it is unknown if the aggression reported was in self-defense, or how power and control are exerted in the youth relationships. Finally, this analysis was based on self-reported data, which could be perceived as a potential recall or reporting bias. However, when privacy is assured and when participants utilize self-administered computerized assessments, many previous studies support the reliability and validity of self-report as used in this study (36–38).

DISCUSSION

Strengths of this paper include studying over 4000 youth systematically sampled in an ED, which is the largest study to date on dating violence among adolescents in a health care setting. Overall, this ED sample demonstrates high rates of dating violence, with 1 in 8 male, and 1 in 5 female adolescents reporting dating violence in the past year. This prevalence is higher than that found in school-based samples (1, 8, 11, 14), where 2–12% of adolescents reported dating victimization or aggression. In the present study, more females reported dating violence than males, which is consistent with prior studies (39–44). Additionally, among those with dating violence, nearly 1 out of 3 males and females reported both dating

victimization and dating aggression. These findings stress the importance of including both male and female youth, and victims as well as aggressors when designing studies and developing intervention programs for dating violence, especially among adolescents.

The sample's racial demographics (15% African-American) closely match that of the patient population for the large, academic Level 1 Trauma center in Ann Arbor, Michigan, as well as census-based reports of race and ethnicity for that city (45). In this suburban ED sample, the majority of patients were Caucasian; however, African-American youth experienced greater odds of dating violence than their peers. These results compare with a national high school-based study where African-Americans also reported higher rates of dating violence than their Caucasian or Hispanic counterparts (34). This finding may reflect unmeasured socioeconomic and neighborhood factors, but also point toward a need to have culturally tailored interventions to address the health disparities that exist among this population. The consistency in findings for victimization and perpetration may reflect the reciprocal nature of dating violence in this age group, and the fluid and not established gender roles in relationships at this early age. Thus, interventions should also consider including aggressors as well as victims of dating violence in future ED-based interventions.

Alcohol misuse, illicit drug use, and depression had significant associations with dating violence in the multivariate analyses for both sexes. It should be noted that the association of alcohol misuse and dating violence was modest, though this may be due to the fact that these youth are underage, or have a preference for other substances. More study is needed to understand why the alcohol effects here are more modest than noted in adult IPV populations. The correlation between dating violence, illicit drug misuse, and depression has not previously been documented among adolescents in a large systematically collected health care sample. Alcohol and illicit drug misuse may be associated with dating violence due to the clustering of risk behaviors (46–47), acute intoxication or chronic effects that increase dating aggression (48), or substance use to cope with after-effects of dating violence. Previous studies in school samples have shown depression to be associated with dating violence (12, 41); however, it is unknown if depression is a consequence or cause of dating violence. The relationship of dating violence to depression and alcohol and illicit drug misuse suggests that future dating violence interventions should not only assess mental health and substance use, but also intervene on these co-occurring problems (49).

This study showed important ED health service use associations with dating violence. Any past year ED visits for intentional injury were associated in multivariate analyses with higher odds of any dating violence, any dating victimization, and any dating aggression among females. This finding is novel in relation to dating violence, and ED visits for intentional injury may serve as a marker of prior dating violence involvement in female youth seeking ED care even if they did not seek care for an injury related to the incidence of dating violence, or if the dating violence was not severe enough to cause injury. Similarly, it is recognized in the adult literature that female victims sustain more severe injuries than do male victims of IPV (43). Despite JCAHO and USPSTF mandates for screening women, many females who present to ED care for an injury are not asked about the underlying reasons for the injury. Simply treating the injury and not assessing for dating violence will miss an opportunity for injury prevention and breaking the cycle of violence. Future

intervention studies are needed to increase screening and provide clear data for evidence based interventions for dating violence. To date, a single ED-based intervention for dating violence and alcohol use among this age range showed a reduction in dating victimization (50).

This study's findings have important clinical implications. Among a sample of female and male youth screened in an ED, the prevalence of past year dating violence was nearly 1 out of every 6 adolescents. Findings from this study highlight the magnitude of dating violence among youth seeking ED services, and suggest an unmet need for feasible methods for dating violence screening in busy clinical settings, as well as evidence-based interventions that can be implemented among youth seeking ED care.

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Appendix

The Conflict in Adolescent Dating Relationships Inventory

In the past 12 months, think about some behaviors that your dating partner (girlfriend/boyfriend, fiancée) did to you during any fights, conflicts, arguments, or physical attacks. These questions refer to what your dating partner did to you.

	Never	Seldom (1–2 times)	Sometimes (3–5 times)	Often (6 or more times)
He/she threw something at me				
He/she kicked, hit, or punched me.				
He/she slapped me or pulled my hair.				
He/she pushed, shoved, or shook me.				

In the past 12 months, think about some behaviors that you have done to your dating partner (girlfriend/boyfriend, fiancée) did to you during any fights, conflicts, arguments, or physical attacks. These questions refer to what you did to your dating partner.

	Never	Seldom (1–2 times)	Sometimes (3–5 times)	Often (6 or more times)
I threw something at him/her.				

	Never	Seldom (1–2 times)	Sometimes (3–5 times)	Often (6 or more times)
I kicked, hit, or punched him/her.				
I slapped him/her or pulled his/her hair.				
I pushed, shoved, or shook him/her.				

Technical appendix

1. Alcohol misuse and binge drinking were highly correlated among both males (r=. 70) and females (r=0.67), and therefore were not both included in the multivariate regression models.

2. To evaluate for multicollinearity, each multivariate logistic regression model in Table 3 had variance inflation factors (VIF) calculated, and these values were in acceptable range (VIF<1.6) for all variables:

Variance inflation factor for Table 3 multivariate logistic regression models: Any dating violence, Any dating victimization, Any dating aggression		
	Male	**Female**
Demographics		
Age	1.27488	1.12462
Race (African-American vs. White/Other)	1.06663	1.11592
Public Assistance	1.08898	1.14167
Associated behaviors		
Grades (D and Below)	1.05501	1.04966
Alcohol misuse	1.52606	1.37777
Illicit drug misuse	1.39842	1.30897
Depression	1.06170	1.04825
ED Health service use		
Any Visit for Intentional Injury	1.03884	1.01058
Number of Past Visits	1.04908	1.03075

3. Goodness-of-Fit p-values were calculated and indicated that the data fit the multivariate models well. Note that p-values >0.05 show data fit the multivariate model well.

	Hosmer and Lemeshow Goodness-of-Fit Test	
	Chi square (Degrees of Freedom)	**P-value**
Male, any dating violence	8.8174 (8)	0.3579
Male, any dating victimization	13.4145 (8)	0.0984

	Hosmer and Lemeshow Goodness-of-Fit Test	
	Chi square (Degrees of Freedom)	P-value
Male, any dating aggression	11.2099 (8)	0.1901
Female, any dating violence	12.6902 (8)	0.1230
Female, any dating victimization	9.3899 (8)	0.3105
Female, any dating aggression	10.9161 (8)	0.2065

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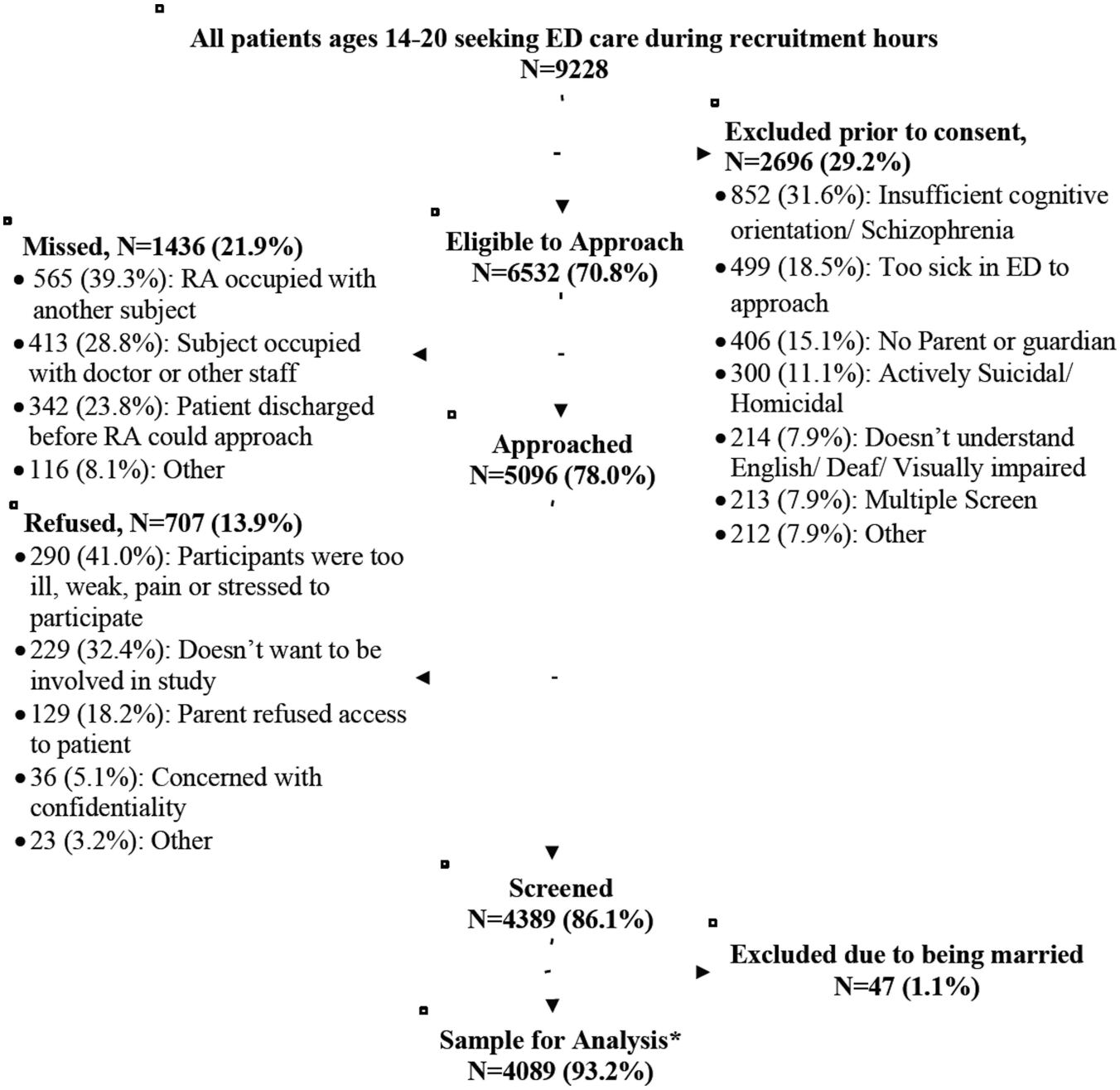

Figure 1. Project U-Connect flow chart, 9/2010 – 3/2013.

* The first 253 patients in cohort were not included in analysis due to depression questions being added 10/2010.

Table 1

Dating Violence frequencies among Males and Females Ages 14–20 Seeking Emergency Department (ED) Care

Questions from Conflict in Adolescent Dating Relationships Inventory	Male (N=1719)			Female (N=2370)		
	Any Dating Violence	Any Dating Victimization	Any Dating Aggression	Any Dating Violence	Any Dating Victimization	Any Dating Aggression
He/she threw something at me/I threw something at him/her	104(6.1%)	92(5.4%)	39(2.3%)	235(9.9%)	116(4.9%)	186(7.9%)
He/she kicked, hit, or punched me/I kicked, hit, or punched him/her	139(8.1%)	128(7.5%)	35(2.0%)	254(10.7%)	108(4.6%)	213(9.0%)
He/she slapped me or pulled my hair/I slapped him/her or pulled his/her hair	109(6.3%)	96(5.6%)	26(1.5%)	197(8.3%)	101(4.3%)	144(6.1%)
He/she pushed, shoved, or shook me/I pushed, shoved, or shook him/her	121 (7.0%)	107(6.2%)	54(3.1%)	263(11.1%)	190(8.0%)	166(7.0%)

Any Dating Violence is Any Dating Victimization or Any Dating Aggression.

Note that participants can endorse more than one of the above behaviors.

Table 2

Dating Violence, Demographics, Associated behaviors, and ED Health service use among Males and Females Ages 14–20 Seeking ED Care

	Male			Female		
	Any Dating Violence n (%), (N=215)	**Any Dating Victimization n (%), (N=201)**	**Any Dating Aggression n (%), (N=84)**	**Any Dating Violence n (%), (N=429)**	**Any Dating Victimization n (%), (N=250)**	**Any Dating Aggression n (%), (N=346)**
Demographics						
Age	17.9(5.6)	18.0 (5.7)	17.5 (1.9)	17.9 (4.4)	17.9 (1.9)	18.0 (4.5)
Race (African-American)	51(23.7%)	49 (24.4%)	28 (33.3%)	105(24.5%)	51 (20.4%)	91 (26.3%)
Public Assistance	65(30.2%)	64 (31.8%)	29 (34.5%)	185(43.1%)	112 (44.8%)	153(44.2%)
Associated behaviors						
Grades (D and Below)	28(13.0%)	27 (13.4%)	12 (14.3%)	48 (11.2%)	31 (12.5%)	41 (11.9%)
Alcohol misuse	5.6(7.3)	5.7 (7.2)	5.8 (7.7)	4.4 (6.4)	4.5 (6.3)	4.5 (6.5)
Binge drinking	117(54.4%)	111 (55.2%)	46 (54.8%)	198(46.2%)	114 (45.6%)	161(46.5%)
Illicit drug misuse	140(65.1%)	131 (65.2%)	58 (69.1%)	255(59.4%)	155 (62.0%)	214(61.9%)
Depression	56(26.1%)	51 (25.4%)	25 (29.8%)	122(28.4%)	71 (28.4%)	97 (28.0%)
ED Health service use						
Any Past Visit	56(26.1%)	50 (24.9%)	23 (27.4%)	108(25.2%)	63 (25.2%)	89 (25.7%)
Number Past Year Visits (mean, S.D.)	0.54 (1.44)	0.55 (1.48)	0.52 (1.38)	0.44 (1.02)	0.44 (0.97)	0.45 (1.02)
Any Visit for Intentional Injury	18(8.4%)	17(8.5%)	8(9.5%)	18(4.2%)	15(6.0%)	14(4.1%)
Any Visit for Medical Reason	127(59.1%)	118(58.7%)	50(59.5%)	353(82.1%)	203(81.2%)	291(84.1%)
Any Visit for Psychiatric Reason	15(7.0%)	13(6.5%)	8(9.5%)	17(4.0%)	11(4.4%)	13(3.8%)

Any Dating Violence is Any Dating Victimization or Any Dating Aggression

Table 3

Multivariate Regression of Demographics, Associated behaviors, ED Health service use, and Dating Violence among Males and Females Age 14- 20 Seeking ED Care

	Male (N=1719)			Female (N=2370)		
	Any Dating Violence AOR (95% CI)	**Any Dating Victimization AOR (95% CI)**	**Any Dating Aggression AOR (95% CI)**	**Any Dating Violence AOR (95% CI)**	**Any Dating Victimization AOR (95% CI)**	**Any Dating Aggression AOR (95% CI)**
Demographics						
Age	1.06(0.98–1.16)	**1.11(1.01–1.21)**	0.89(0.79–1.02)	1.05(0.99–1.12)	1.02(0.95–1.10)	**1.08(1.00–1.15)**
Race (African-American vs. White/Other)	**2.26(1.54–3.32)**	**2.29(1.55–3.40)**	**3.55(2.11–5.99)**	**1.68(1.25–2.25)**	1.07(0.74–1.54)	**1.83(1.35–2.49)**
Public Assistance	1.40(0.98–1.99)	**1.53(1.07–2.19)**	1.50(0.90–2.49)	**1.64(1.28–2.09)**	**1.82(1.35–2.45)**	**1.60(1.23–2.09)**
Associated behaviors						
Grades (D and Below)	1.50(0.91–2.47)	1.62(0.98–2.68)	1.35(0.67–2.74)	**1.62(1.07–2.43)**	**1.62(1.02–2.57)**	**1.71(1.12–2.62)**
Alcohol misuse	**1.03(1.00–1.06)**	**1.03(1.00–1.06)**	**1.05(1.01–1.09)**	**1.04(1.02–1.07)**	**1.03(1.00–1.06)**	**1.04(1.01–1.06)**
Illicit drug misuse	**2.38(1.68–3.38)**	**2.27(1.58–3.25)**	**2.97(1.71–5.17)**	**2.85(2.22–3.66)**	**2.89(2.12–3.93)**	**3.05(2.33–4.00)**
Depression	**2.13(1.46–3.10)**	**1.97(1.33–2.91)**	**2.25(1.32–3.85)**	**1.86(1.42–2.44)**	**1.60(1.16–2.22)**	**1.68(1.25–2.25)**
ED Health service use						
Any Visit for Intentional Injury^	1.67(0.89–3.12)	1.66(0.88–3.14)	1.58(0.67–3.72)	**2.64(1.30–5.40)**	**3.88(1.88–8.04)**	**2.09(1.00–4.35)**
Number of Past Visits	1.11(0.97–1.26)	1.10(0.97–1.26)	1.05(0.87–1.28)	1.00(0.89–1.12)	0.98(0.85–1.12)	1.00(0.88–1.14)

Note: No Dating Violence is reference group. Any Dating Violence is Any Dating Victimization or Any Dating Aggression. AOR is Adjusted Odds Ratio.

^Reference group = Past year or Current ED visit for Unintentional Injury, or Medical or Psychiatric reason.