ARTICLE

Intimate Partner Abuse and High-Risk Behavior in Adolescents

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Objectives: To determine the associations between abuse by an intimate partner and risk behaviors among adolescents and to determine whether these associations vary by gender.

Design and Participants: Ordinal and linear regression analyses of 1996 cross-sectional data from 4347 adolescents surveyed for wave 2 of the National Longitudinal Study of Adolescent Health public use data set.

Main Outcome Measures: A 5-point scale was used to measure whether the adolescent had been the victim of any of the following behaviors by an intimate partner: insulted in public, sworn at, threatened with violence, or had something thrown at them. Risk behavior involvement was determined using 5 measures: substance use, antisocial behavior, violent behavior, suicidal behavior, and depressed mood.

Results: There was no significant difference in the frequency of abuse by an intimate partner for males (21.0%) vs females (22.1%). In females, after adjusting for sociodemographic factors and number of intimate partners, a history of abuse was significantly associated with substance use (values given as β, 99% confidence interval) (0.87, 0.51-1.23), antisocial behavior (0.15, 0.10-0.20), violent behavior (0.06, 0.01-0.11), depressed mood (1.82, 1.21-2.43), and suicidal behavior (odds ratio, 1.37, 1.14-1.63). In males, abuse was independently associated with antisocial behavior (0.11, 0.03-0.19), violent behavior (0.09, 0.04-0.14), and depressed mood (1.29, 0.53-2.06). Abuse by an intimate partner had a significantly stronger association with substance use in females (0.87, 0.51-1.23) vs males (0.34, –0.09 to 0.77).

Conclusions: Abuse by an intimate partner is common among adolescents and has strong associations with risk behaviors among male and female victims of abuse.

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ABUSE IN DATING relationships is a significant problem among adolescents; 8% to 53% of adolescents report a history of being physically assaulted by an intimate partner.[1-7] Unlike studies of abuse in adult relationships, which find significantly higher rates of victimization among women,[8] most studies[2-5,9-11] of intimate partner abuse among adolescents have found similar rates of victimization among males and females. Some studies have found higher rates in females,[1,7,12] and one found a higher rate in males.[13] Some researchers[5,11,12] have suggested that the high rate of victimization of males may be a result of self-defense by their partners; however, in a study of eighth- and ninth-grade students, Foshee[10] found that males and females continued to report similar rates of victimization after excluding acts of violence performed in self-defense. Although the rate of victimization by an intimate partner is similar in males and females, females are more likely to report being injured by an intimate partner.[10,11] The lower rate of injuries present in male victims of abuse by an intimate partner has led some researchers[5,11,14,15] to suggest that the psychologic impact of involvement in an abusive relationship is less for male adolescents than for female adolescents and, therefore, that victimization by an intimate partner may be a weaker marker for other risk behaviors in males vs females. The evidence for this finding, among adolescents, is equivocal.

Most studies examining the association between abuse by an intimate partner and risk behavior have used nonrepresentative convenience samples. Several studies reported an association between alcohol or substance use and a history of abuse by an intimate partner for males and females[1,2] or for females only.[3] Another

study[16] demonstrated an association between abuse and an increased number of sexual partners in both genders. Kreiter et al[17] examined Youth Risk Behavior Survey data from Vermont to identify risk behaviors that were associated with a history of having fought with a dating partner during the most recent fight in which they were involved. In that study,[17] fighting with a dating partner was associated with the following risk behaviors in both genders: an increased number of male sexual partners and increasing involvement in pregnancies. Coker et al[14] examined Youth Risk Behavior Survey data from South Carolina and found that a history of being "physically beaten up by the person you date or go out with" was significantly associated with sexual risk taking, aggressive behavior, and substance use in bivariate analyses (males and females were not analyzed separately). In regression analyses controlling for demographic factors and risk behaviors (sexual risk taking, aggressive behavior, and substance use), being beaten up by a dating partner was significantly and independently associated with suicidal ideation in both genders and suicide attempts in females.[14] Finally, in an examination of Youth Risk Behavior Survey data from Massachusetts, Silverman et al[15] found that, among females, a history of being physically hurt by a dating partner was associated with smoking, cocaine use, unhealthy weight control practices, early initiation of sexual intercourse, pregnancy, and suicidal ideation. Males were not included in this analysis.

Given the conflicting evidence about the associations between victimization by an intimate partner in males and females and the lack of studies examining nationally representative samples of adolescents, we examined a nationally representative sample of adolescents to answer 3 main questions: (1) What sociodemographic characteristics are associated with a history of abuse by an intimate partner in male and female adolescents? (2) What risk behaviors are significantly associated with a history of abuse by an intimate partner? (3) Are the associations between a history of abuse by an intimate partner and risk behaviors different for males vs females?

METHODS

SOURCE OF DATA

This study is a secondary data analysis of wave 2 of the National Longitudinal Study of Adolescent Health (Add Health), an in-home survey that provides a nationally representative sample of adolescents in school (aged 11-21 years). For this survey, adolescents were initially randomly selected from a sample of junior and senior high schools and invited to complete 2 waves of in-home surveys approximately 1 year apart in 1995 and 1996. Schools were stratified by size, ethnic composition, region, and neighborhood type. Individual adolescents were stratified by gender and grade. Additional groups, such as disabled youths and African American adolescents with college-educated parents, were intentionally oversampled to supplement the nationally representative core sample group; 12118 adolescents completed the first wave of the in-home survey.

The Add Health public use data set contains 50% of the nationally representative core sample group and 50% of the oversampled group of African American adolescents with college-educated parents. Only the nationally representative core sample group was used for this analysis (n=6072 at wave 1). Respondents in 12th grade at wave 1 were not interviewed in wave 2 (n=1107). An additional 369 (7%) of 4965 adolescents did not complete wave 2 of the survey. Excluding the adolescents who were in 12th grade at wave 1, the adolescents who were not reinterviewed at wave 2 were significantly more likely to be male ($P=.001$).

On wave 2 of the survey, adolescents were asked to rate how honest they had been while answering the survey using a 4-point scale ranging from "not at all honestly" to "completely honestly." For this study, respondents who reported being "not at all honest" while responding to the survey or who did not answer the question were excluded (248 [5%] of 4596 respondents). This group was significantly less likely to be female ($P<.001$), white ($P=.005$), from the highest family income quartile ($P<.001$), or from a suburban neighborhood ($P=.003$) or to have college-educated parents ($P<.001$). The final population studied included 4347 adolescents.

SOCIODEMOGRAPHIC VARIABLES

A variety of sociodemographic factors were also used as predictor variables, including gender, age (categorized as 11-13 years, 14-16 years, and 17-21 years to correspond to early, middle, and late adolescence), ethnicity (white non-Hispanic, black non-Hispanic, Hispanic, and other), number of parents living in the home (1 or >1), highest level of parental education (less than high school, high school, beyond high school, and college or more), family income (divided into quartiles based on median family income from 1989 census tract data), and type of neighborhood (rural, suburban, and urban).

OUTCOME VARIABLES

Several high-risk behaviors were used as the primary outcome variables. These behaviors were selected from 4 major areas of high-risk behavior involvement reported by adolescents: substance use, antisocial behavior, violent behavior, and depression/suicide. The substance use, antisocial behavior, violence, and suicide scales were based on previous work with the Add Health data set by Resnick et al.[18]

Substance use was measured with a single-scaled variable measuring overall tobacco, alcohol, and marijuana use. Items from the Add Health were combined to create the following scales: smoking (never smoked; smoked but not in the past 30 days; and smoked 1-2 days, 3-5 days, 6-10 days, 11-20 days, and >20 days in the past 30 days), drinking (≤3 lifetime drinks; ≥4 lifetime drinks but none in the past 12 months; drinking 1 or 2 days in the past 12 months; drinking 3-12 days in the past 12 months; and drinking 2-3 days a month, 1-2 days a week, 3-5 days a week, or 6-7 days a week for the past 12 months), and marijuana use (never, 1-3 times in life, ≥4 times in life but none in the past 30 days; and 1 time, 2-3 times, 4-5 times, and ≥6 times in the past 30 days). These 3 items were then combined to form a single scale (standardized $\alpha=.74$, scale mean±SD, 4.6±4.6, skewness=1.0).

Antisocial behavior was also measured using a single-scaled item based on 10 questions about the adolescent's involvement in antisocial behavior during the past year. For example, these questions asked about destruction of property, theft, lying to parents, and runaway behavior during the past year (standardized $\alpha=.78$, scale mean±SD, 2.3±3.3, skewness=2.8). If an adolescent answered at least 9 of the questions, a total score was imputed from the remaining items. Adolescents who answered 8 or fewer items were dropped from analysis. This variable was log transformed before analysis (skewness of the transformed variable, 0.5).

The violence scale was based on 6 questions asking whether, in the past year, the adolescent was in a physical fight, injured

someone, was in a group fight, threatened someone with a weapon, used a weapon in a fight, or shot or stabbed someone (standardized $\alpha = .81$, scale mean ± SD, 0.7 ± 1.7, skewness = 4.1). Adolescents had to answer all questions on this scale to receive a score. This variable was also log transformed before analysis (skewness of the transformed variable, 1.6).

Depression was measured using a modified version of the Center for Epidemiologic Studies Depression Scale.[19] The Add Health includes 18 of the original 20 items from the Center for Epidemiologic Studies Depression Scale (standardized $\alpha = .87$, scale mean ± SD, 10.6 ± 7.3, skewness = 1.1). Following the work of Goodman and Huang,[20] a total score equivalent to the original 20-item scale was imputed from the mean score of the items present in the Add Health. Adolescents had to answer at least 16 of the items to receive a score.

The suicide scale was based on 2 questions measuring the frequency of suicidal ideation and attempts in the past year. This was a 5-point scale scored as follows: no suicidal ideation, suicidal ideation but no attempts in the past year, 1 attempt, 2 to 3 attempts, and 4 or more attempts.

ABUSE SCALE

During wave 2 of the Add Health, adolescents were asked to identify up to 3 males or females with whom they had a "special romantic relationship" during the past 18 months. They were also asked to nominate up to 3 males or females with whom they had had a sexual relationship, excluding the people they listed as romantic partners, since the wave 1 interview (time between waves 1 and 2: mean ± SD, 10.9 ± 1.7 months; range, 4-17 months). The questions about each relationship included 5 dichotomous items about victimization by an intimate partner from the Conflict Tactics Scales[21] that asked whether that specific partner had ever done any of the following: (1) "call you names, insult you, or treat you disrespectfully in front of others"; (2) "swear at you"; (3) "threaten you with violence"; (4) "push or shove you"; and (5) "throw something at you that could hurt you." Wave 2 data were used for this analysis because these questions were not asked during wave 1 of the survey.

We used the following process to determine which of the wide variety of abuse type (verbal and physical) and severity (insulting in public to throwing objects) measured in the Add Health data set to include in our single measure of abuse by an intimate partner. Results of the abuse questions from each relationship were combined into 5 dichotomous items measuring whether the adolescent had ever been a victim of any of the individual types of abuse (insulting, swearing, threatening, pushing, and throwing) by an intimate partner. After creating the dichotomous abuse measures, the relationships between each of the dichotomous abuse measures and the outcome variables were measured using Mann-Whitney *U* (suicide) or independent-sample *t* tests. Each dichotomous variable that was significantly associated with any of the outcome variables was entered into an ordinal (suicide) or linear regression analysis that was used to measure the independent predictive value of each of the different types of abuse for each of the outcome variables. All of the abuse variables that had significant effects on any of the outcome variables were then combined into a single measure of victimization by an intimate partner. The level of significance used for all tests in scale development was $P < .10$ to avoid dropping potentially important variables prematurely.

ANALYTIC STRATEGY

We used χ^2 analyses to examine the bivariate associations among demographic variables, responses to the honesty question, and any abuse by an intimate partner. Mann-Whitney *U* tests were used to assess the association between any history of abuse by an intimate partner and number of partners among adolescents who reported having intimate partners. To determine the independent association between the victimization scale and risk behaviors, ordinal (suicidal behavior) and linear (all others) regression models, adjusting for sociodemographic variables, were developed for each of the outcome variables. Because adolescents with and without intimate partners were included in the analysis, we also included the total number of intimate partners reported by each adolescent in the regression models. All components of the regression analyses were tested for multiple collinearity, and no correlations high enough to present problems were found (all $r < 0.48$). The bivariate analyses of abuse and sociodemographic variables (except gender) and the regression analyses were performed separately for males and females.

All analyses were performed using SUDAAN,[22] except for the factor analysis and scale reliability analyses, to account for the clustered sampling design of the Add Health survey. The factor analysis, Mann-Whitney *U* test, and scale reliability analyses were performed using SPSS 11 (SPSS Inc, Chicago, Ill) because these analyses were not available in SUDAAN. Because of the large sample size and the large number of associations examined, the level of significance for all tests was set at $P < .01$, except as noted in the "Abuse Scale" subsection. The protocol for this study was approved by the Research Subjects Review Board at the University of Rochester as an exempt secondary use of preexisting data.

RESULTS

SAMPLE POPULATION

A description of the study population, number of intimate partners, and experience with abuse by an intimate partner is provided in **Table 1**. At least 1 intimate partner was identified by 69% of the adolescents. The sample reflected predominantly heterosexual relationships, with 98% of the adolescents who provided information about an intimate partner reporting relationships with the opposite sex only. Eleven percent of the adolescents reported a history of being insulted in public by an intimate partner, 16% reported an intimate partner swearing at them, 4% reported being threatened with violence, 7% reported being pushed by an intimate partner, and 2% reported an intimate partner throwing an object at them that could hurt them.

ABUSE SCALE DEVELOPMENT

Each of the abuse variables was significantly related to all of the outcome variables in bivariate analysis. In regression analyses, the following significant independent associations were found between the abuse variables and the outcome variables: swearing was independently associated with all of the outcome variables; throwing was associated with all of the outcome variables except suicide; threatening was associated with violence, suicide, and depression; insulting was associated with substance use, antisocial behavior, and depression; and pushing was associated with suicide (data not shown). We combined all of the abuse variables into a single measure of victimization by an intimate partner

Table 1. Sample Characteristics

Characteristic	Patients, No. (Weighted %)
Gender (n = 4347)	
M	2048 (50)
F	2299 (50)
Age, y (n = 4346)	
11-13	185 (4)
14-16	2351 (57)
17-21	1810 (39)
Ethnicity (n = 4345)	
White	2797 (69)
Black	783 (14)
Hispanic	532 (13)
Other	233 (4)
Family composition (n = 4232)	
≥2 Parents	3035 (72)
1 Parent	1197 (28)
Highest level of parental education (n = 4150)	
Less than a high school diploma	444 (11)
High school diploma	1320 (33)
Some college	852 (20)
College graduate or higher	1534 (36)
Neighborhood type (n = 4256)	
Rural	1186 (26)
Suburban	1776 (42)
Urban	1294 (32)
Intimate partners identified, No. (n = 4344)	
0	1364 (31)
1	1758 (41)
2	706 (16)
3	362 (8)
4	118 (3)
5	19 (<1)
6	17 (<1)
Sex of partners identified (n = 2981)	
Same-sex partners only	32 (1)
Partners of both sexes	37 (1)
Opposite-sex partners only	2912 (98)
History of abuse by an intimate partner (n = 4347)	
Insulting: called names, insulted, or treated disrespectfully in front of others	479 (11)
Swearing: sworn at by partner	676 (16)
Threatening: threatened with violence	159 (4)
Pushing: pushed or shoved	308 (7)
Throwing: partner threw something at you that could hurt you	92 (2)

(Kuder-Richardson 20 coefficient=0.70). Factor analysis revealed a single factor with an eigenvalue of 2.38.

INTIMATE PARTNER ABUSE

Sociodemographics

Males and females reported similar rates of abuse by an intimate partner. In males, 21.0% reported any history of abuse by an intimate partner (abuse scale score >0), and 22.1% of females reported any history of abuse. In males, a history of abuse by an intimate partner was significantly associated with increasing age (11-13 years, 5.7%; 14-16 years, 15.7%; and 17-21 years, 29.7%), living in a single-parent household (1 parent, 29.1%; 2 parents, 17.6%), African American race (African American, 33.3%; Hispanic, 24.3%; and white, 18.5%), and a higher number of intimate partners (Mann-Whitney $U=174\,446$; $Z=-8.7$; $P<.001$). In females, a history of abuse by an intimate partner was significantly associated with increasing age (11-13 years: 13.7%; 14-16 years: 19.6%; and 17-21 years: 27.2%) and a higher number of intimate partners (Mann-Whitney $U=195\,734.5$; $Z=-9.1$; $P<.001$) (data not shown).

Table 2. Regression Analysis of the Independent Association of Abuse by an Intimate Partner With Risk Behaviors in Adolescent Males and Females*

High-Risk Behavior	β (99% Confidence Interval) Males	Females
Substance use	0.34 (–0.09-0.77)	0.87 (0.51-1.23)†
Antisocial behavior (ln)	0.11 (0.03-0.19)†	0.15 (0.10-0.20)†
Violent behavior (ln)	0.09 (0.04-0.14)†	0.06 (0.01-0.11)†
Depressed mood	1.29 (0.53-2.06)†	1.82 (1.21-2.43)†
Suicidal behavior	1.36‡ (1.00-1.85)	1.37‡ (1.14-1.63)†

Abbreviation: ln, $\log_e$-transformed variable.
*Results were adjusted for age, ethnicity, number of parents living in the home, level of parental education, family income, neighborhood type, and number of intimate partners identified.
†Significant at $P<.01$.
‡Odds ratio.

Risk Behaviors

In regression analyses, adjusting for sociodemographic variables and number of intimate partners, males with a history of abuse by an intimate partner were significantly more likely to report involvement in all of the risk behaviors examined except substance use and suicidal behavior (**Table 2**). Females reporting victimization by an intimate partner were significantly more likely to report involvement in all of the risk behaviors examined. The association between substance use and abuse by an intimate partner was significantly stronger for females than males; there were no other significant differences in the associations between victimization and risk behavior.

COMMENT

Previous studies[2-5,9-11] on dating violence among adolescents have suggested that the rate of victimization by an intimate partner is similar for males and females. Our data confirm this finding. We also found the positive associations between victimization and increased age and increasing number of partners that have been found in previous studies.[3,5,12,15,17,23] Other previous studies[2,3,5,9,15] have demonstrated inconsistent associations between African American race and single-parent households and an increased frequency of victimization. We found a significant positive association between African American race and living in a single-parent household for males but not for females. None of the other sociodemographic factors we examined were significantly associated with a history of victimization.

Several previous studies have used statewide samples of adolescents to examine the associations between vic-

timization by an intimate partner and other risk behaviors. Kreiter et al[17] found associations between fighting with your dating partner and sexual risk behavior in both genders and substance use in females. Coker et al[14] found associations between victimization of severe dating violence and suicidal behavior in both genders, although the associations were much stronger among females. Silverman et al[15] examined a statewide sample of female adolescents and found significant associations between a history of being physically hurt by a dating partner and several risk behaviors, including smoking, cocaine use, and suicidal behavior. Using a nationally representative sample of adolescents, we found independent associations between a history of victimization by an intimate partner and antisocial behavior, violent behavior, and depression for both genders. We also found independent associations between substance use and suicidal behavior and victimization in females but not in males. The magnitude of the associations between risk behavior and victimization were not significantly different for males and females except for substance use.

The results of this study confirm the relationship between victimization by an intimate partner and risk behavior found in previous studies. However, this study does not support previous studies that have suggested that the associations between risk behavior and victimization are weaker among male victims. The nationally representative sample of adolescents used in this study provides a more generalizable picture of the associations between victimization by a dating partner and risk behavior.

Several limitations of this study must be noted. First, this survey was school based and surveyed only those adolescents who were enrolled in school at the beginning of the recruitment process. Because many of the risk behaviors we studied are associated with school difficulty and dropping out of school, this survey may underestimate the level of risk behavior and intimate partner abuse in the general adolescent population. Second, this study uses self-reported data, and we have no way to know the reliability of adolescent reports of abuse by an intimate partner and risk behavior involvement. This issue was addressed during data collection by using a self-administered computer-assisted survey technique for the sensitive areas of the survey, a method that has been shown to maximize the confidentiality of these responses and disclosure of sensitive information.[24] This study also used the self-reported "honesty question" provided on the survey to exclude adolescents reporting dishonesty when answering the survey. Third, this study used a narrow definition of abuse by an intimate partner that focused mainly on verbal abuse and relatively mild forms of physical abuse. More severe forms of physical abuse and sexual abuse were not included in this study. Although these types of abuse are less common, female adolescents are significantly more likely than males to be the victims of more severe types of partner abuse.[5,10-12,14] These forms of abuse may have different associations with risk behavior than the forms of abuse we examined. Fourth, we only measured abuse that had occurred in the context of romantic relationships that the adolescent had been involved in during the 18 months prior to the interview and sexual relationships that had occurred between wave 1 and wave 2 of the survey. The relationships we examined probably did not reflect the entire dating history of all of the adolescents surveyed and would tend to underestimate the lifetime prevalence of abuse by an intimate partner. However, any such misclassification of adolescents who were abused by an intimate partner into the group with no history of abuse would tend to weaken the association we found between abuse and risk behavior. Fifth, we did not measure perpetration of abuse against an intimate partner among these adolescents. This is an important variable because studies[5] have found that this is the strongest predictor of victimization by an intimate partner. Mutually abusive relationships are also marked by a higher severity and frequency of violence,[25] so adolescents involved in these relationships may represent a group distinct from adolescents who report only victimization. Sixth, we included adolescents who reported relationships with the opposite gender only, with the same gender only, and with both genders. We included all of these groups in our study because we believe that the impact of being abused by an intimate partner would be similar regardless of the partner's gender. However, it is unknown whether this assumption is correct. Finally, the data for this study were cross-sectional, so we could not assess the causal relationship between victimization by an intimate partner and risk behavior. Most studies examining the links between risk behavior and partner abuse in adults have concentrated on the associations between risk behavior and perpetration by men; however, a few studies have examined the links with victimization. These studies have yielded mixed results about the temporal relationship between involvement in risk behavior and victimization by an intimate partner. Examination of a New Zealand birth cohort[26] found that antisocial behavior and substance use at age 15 years were significantly associated with being verbally or physically abused by an intimate partner at age 21 years among males and females. Another longitudinal study[27] found that antisocial behavior during adolescence, but not depression, was significantly associated with involvement in a physically abusive relationship during young adulthood. Finally, in a study[28] of dating college-aged females, controlling behavior by an intimate partner, but not emotionally abusive behavior, was associated with a longitudinal increase in depressive symptoms among women with low levels of interpersonal control. These study limitations suggest a need for future research into the link between partner abuse among adolescents and risk behavior. Also, given the independent associations between risk behavior and victimization present in males and females, future studies of the associations between partner violence and negative outcomes should include the effects on male and female adolescents. Despite these limitations, the representative sample of adolescents used in this study and the inclusion of male adolescents add significantly to previously published studies in this area and provide a more generalizable picture of the behavioral context of victimization by an intimate partner among adolescents.

Abuse by an intimate partner is associated with higher levels of risk behavior among female and male adolescents. Clinical and community interventions de-

What This Study Adds

Previous studies of intimate partner violence among adolescents have not involved nationally representative samples and have not given equal attention to the association between abuse by an intimate partner and risk behavior in males and females. In this study, we found that a history of abuse by an intimate partner is associated with a variety of risk behaviors in males and females. Clinical and community interventions designed to address the problem of partner violence among adolescents should address the needs of male and female victims of abuse by an intimate partner.

signed to address the problem of partner violence among adolescents should address the negative behaviors associated with victimization among males and females. In the clinical setting, recognition of involvement in an abusive relationship should prompt intervention with supportive education, assistance with assessment of personal safety, referral to community agencies, and more intense screening for involvement in other risk behaviors.

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