

Longitudinal Effect of Intimate Partner Abuse on High-Risk Behavior Among Adolescents

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Objective: To determine the longitudinal effect of abuse by an intimate partner on risk behavior among adolescents.

Design and Participants: Linear regression analyses of longitudinal data from 4443 adolescents surveyed in 1995 (Wave I) and 1996 (Wave II) from the National Longitudinal Study of Adolescent Health Public Use Dataset.

Main Outcome Measures: Abuse was assessed using a 5-point scale measuring if the subject had been insulted in public, sworn at, threatened with violence, pushed or shoved, or had something thrown at them by an intimate partner. The primary outcome measures were changes between Waves I and II in each of the following 5-risk behaviors: illicit substance use, antisocial behavior, violent behavior, suicidal behavior, and depression.

Results: Abuse between Waves I and II was associated with higher rates of all 5 risk behaviors at both Waves I

and II among both sexes. After adjusting for sociodemographic factors, number of intimate partners, time between interviews, baseline risk behavior scores, and the most abusive relationship experienced prior to Wave I, more severe abuse having occurred between Waves I and II was significantly associated with increased levels of depression in both sexes and increased involvement in illicit substance use, antisocial behavior, and suicidal behavior among female adolescents.

Conclusions: Abuse by an intimate partner is associated with higher levels of risk behavior in both sexes and incident abuse is associated with increased depression in both sexes and increased illicit substance use, antisocial behavior, and suicidal behavior among females. Intimate partner violence interventions should address the negative behaviors associated with abuse, particularly among female adolescents.

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ABUSE IN DATING relationships is a significant problem among adolescents. Between 38% and 46% of adolescents report a history of being physically assaulted by an intimate partner.¹⁻³ Several previous cross-sectional studies of adolescents have demonstrated associations between abuse by an intimate partner and risky behavior among males, females, or both sexes. The risk behaviors associated with a history of abuse by an intimate partner included school problems,^{4,5} higher numbers of sexual partners,^{4,6-9} sexual risk taking,⁷⁻⁹ illicit substance use,^{1,7-11} behavioral eating disorders,^{9,12} low self-esteem,^{3,12} depressed mood,¹⁰ suicidal ideation or attempts,^{7-10,12} community violence victimization^{7,8} or perpetration,^{7,10} and antisocial behavior.¹⁰ The major limitation of these studies has been the cross-sectional nature of the data used. This limitation has made it difficult to determine if abuse by

an intimate partner is an independent predictor of subsequent risk behavior among adolescents, occurs as a result of the abuse, or exacerbates preexisting problem behavior.

Most longitudinal studies examining the links between risk behavior and partner abuse in adults have concentrated on the associations between risk behavior and perpetration by males; however, a few studies have examined the links between risk behavior and victimization. These studies have yielded mixed results about the temporal relationship between involvement in risk behavior and victimization by an intimate partner. An examination of a New Zealand birth cohort found that both antisocial behavior and illicit 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.¹³ Antisocial behavior during adolescence (but not depression) has also been

significantly associated with involvement in a physically abusive relationship during young adulthood.¹⁴ However, neither of these 2 studies examined intimate partner abuse during adolescence. Finally, in a study of dating college-aged females, exposure to controlling behavior by an intimate partner, but not emotionally abusive behavior, was associated with an increase in depressive symptoms.¹⁵ Clarifying the relationship between participating in high-risk behavior and involvement in an abusive relationship among adolescents would have important implications for both risk behavior and abuse prevention programs.

For this study, we hypothesized that abuse by an intimate partner would be associated with subsequent increases in depressed mood and risk behavior. To test our hypothesis, we examined a nationally representative, longitudinal cohort of adolescents to assess the effect of abuse by an intimate partner on subsequent depression and risk behavior involvement among adolescents.

METHODS

SOURCE OF DATA

This study is a secondary data analysis using the National Longitudinal Study of Adolescent Health (Add Health), an in-home survey of a nationally representative sample of adolescents in school, aged 11 to 21 years. The current study used data from the baseline in-home sample (Wave I in April-December 1995) and the first follow-up (Wave II in April-August 1996). The mean time between Waves I and II was 10.8 months with an SD of 1.7 months (range, 4-16 months). This study used the Add Health public use data set, which contains 50% of the nationally representative sample. Only adolescents who responded to both Waves I and II of the survey were included in this analysis (N=4595).

SOCIODEMOGRAPHIC VARIABLES

Several sociodemographic factors were used as independent variables, including the following: sex, age in months, ethnicity (white non-Hispanic, black non-Hispanic, Hispanic, or other), number of parents living in the home at Wave II (1 or >1), highest level of education of parents the adolescent lived with at Wave I (less than high school, high school, beyond high school, or college education or more), family income (divided into quartiles based on median family income from 1989 census tract data), and type of neighborhood at Wave II (rural, suburban, or urban).

ABUSE SCALE

In Wave II of the Add Health survey, adolescents were asked to identify up to 3 males or females with whom they had a "special romantic relationship" during the last 18 months. They were also asked to identify up to 3 males or females with whom they had a sexual relationship, excluding those they listed as romantic partners, since the Wave I interview.

Questions asked about each relationship included 5 dichotomous items about victimization by an intimate partner from the Conflict Tactics Scales,¹⁶ which asked if that specific partner had ever done each of the following things: (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." If an adolescent responded yes to an abuse question, then a follow-up question asked what month and year that partner first perpetrated that type of abuse. Wave II data were used for this analysis because these questions were not asked on Wave I of the survey.

A single measure of abuse was created for each of the relationships by assigning 1 point for each positive response to the individual abuse questions and then adding together the scores from all the abuse questions in that relationship. For example, an adolescent who reported that his or her partner had threatened him or her with violence but said no to the other 4 abuse questions would have a score of 1 for that relationship. The abuse scale had a Kuder-Richardson 20 coefficient of 0.69; factor analysis revealed a single factor with an eigenvalue of 2.22.

If abuse was identified, then the timing of the initiation of abuse was determined for each relationship based on the questions about when each type of abuse identified first occurred. If the adolescent identified more than one type of abuse, then we determined which abusive behavior occurred first and marked that date as the initiation of abuse. For example, if a male reported that his partner first threatened him with violence in June 1995, pushed him in September 1995, and insulted him in public in May 1995, then the date of initiation of abuse was determined to be May 1995. If the adolescent did not provide information about when the abuse first occurred, we assumed that the abuse started with the beginning of the relationship.

Adolescents who reported an abusive relationship but did not provide enough information to determine the timing of the initiation of abuse in that relationship were excluded from analysis (152 of 4595); this resulted in exclusion of 152 (15%) of the 1006 adolescents who reported a history of involvement in at least one abusive relationship.

We compared the dates of initiation of abuse in each relationship with the date of the Wave I interview to categorize the abuse in the relationships as beginning before or after the Wave I interview. Abuse that began during the same month as the Wave I interview was classified as occurring before the Wave I interview for this analysis.

Using the abuse scale from each relationship and information on the initiation of abuse (before or after the Wave I interview), we identified the most abusive relationship (highest abuse scale score) in which the abuse began before the Wave I interview and we identified the most abusive relationship (highest abuse scale score) in which the abuse began after the Wave I interview. For example, if a young woman reported 3 abusive relationships, 1 with an abuse score of 3 in which the abuse began before the Wave I interview and 2 other relationships with abuse scores of 1 and 4 in which the abuse began after the Wave I interview, the highest level of abuse prior to the Wave I interview would be recorded as 3 and the highest level of abuse between Waves I and II would be 4.

DEPENDENT VARIABLES

Changes in the level of each of several risky behaviors between Waves I and II were used as the primary dependent variables for our study. These behaviors were selected from the following 4 major areas of risky behavior reported by adolescents: illicit substance use, antisocial behavior, violent behavior, and suicide or depression. The illicit substance use, antisocial behavior, violence, and suicide scales were based on previous reports from the Add Health survey data set by Resnick et al.¹⁷

Illicit substance use was measured at Wave I and Wave II with scaled variables measuring overall tobacco, alcohol, and marijuana use. Items from the Add Health survey were combined to create the following scales: smoking (never, has smoked

but not in the last 30 days, has smoked 1 or 2 days in the last 30 days, 3-5, 6-10, 11-20, and >20 days in the last 30 days); drinking alcohol (≤ 3 drinks in life, ≥ 4 drinks in life but none in the last 12 months, had drinks 1 or 2 days in last 12 months, 3-12 days, 2 or 3 days each month, 1 or 2 days each week, 3-5 days a week, and 6-7 days a week for the last 12 months); and marijuana use (never, 1 or 2 times in life, ≥ 4 times in life but none in the last 30 days, once in the last 30 days, 2-3 times, 4-5 times, and ≥ 6 times). These 3 items were then combined to form a single illicit substance use scale (Wave I, $\alpha = .75$; Wave II, $\alpha = .75$). The score at Wave I was also subtracted from the score at Wave II to create an illicit substance use change score (mean [SD], 0.76 [3.12]; range, -14 to 18).

Antisocial behavior was also measured using a single-scaled item, based on 10 questions about the subject's involvement in antisocial behavior during the last year. These questions asked about destruction of property, theft, lying to parents, runaway behavior, and other activities during the last year (Wave I, $\alpha = .79$; Wave II, $\alpha = .78$). 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. The change score for this item had a mean (SD) of -0.51 (3.42) and a range of -27 to 26.

The violence scale was based on 6 questions, from Waves I and II, asking if, in the past year, the subject had 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 (Wave I, $\alpha = .78$; Wave II, $\alpha = .81$). Adolescents had to answer all questions on this scale to receive a score. The change score for this item had a mean (SD) of -0.43 (1.84) and a range of -16 to 16.

The suicide scale measured the frequency of suicidal ideation and attempts in the last year at Wave I and Wave II. This was a 5-point scale scored as follows: 1, no suicidal ideation; 2, suicidal ideation but no attempts in the last year; 3, one attempt; 4, two to 3 attempts; and 5, four or more attempts. The change score for this item had a mean (SD) of -0.01 (0.63) and a range of -4 to 4.

Depression was measured using a modified version of the Center for Epidemiologic Studies–Depression Scale.¹⁸ The Add Health survey has 18 of the original 20 items from the Center for Epidemiologic Studies–Depression Scale. Following the work of Goodman and Haug,¹⁹ a total score equivalent to the original 20-item scale was imputed from the mean score of the 18 items present in the Add Health survey (Wave I, $\alpha = .85$; Wave II, $\alpha = .87$). Adolescents had to answer at least 16 items to receive a score. The change score for this item had a mean (SD) of -0.02 (6.54) and a range of -34 to 43.

ANALYTIC STRATEGY

We examined the bivariate relationship between experiencing any abuse between Waves I and II and changes in risk behavior scores between Wave I and II using independent sample *t* tests (for the antisocial, violent, and suicidal behavior scores) and independent sample *t* tests (for the illicit substance use and depression scores). The Mann-Whitney tests were used for the antisocial behavior, violent behavior, and antisocial behavior scales because these scales were not normally distributed at Wave I or Wave II. We examined bivariate association between experiencing any abuse between Waves I and II and the change in risk behavior scores between Waves I and II using independent sample *t* tests. Power analyses revealed that we had 95% power to detect the following differences in the risk behavior change scores at the $P < .05$ 2-tailed statistical significance level among male and female adolescents: male adolescents (illicit substance use, 0.72; antisocial behavior, 0.8; violent behavior, 0.50; suicidal behavior, 0.12; and depressed mood, 1.33), and

female adolescents (illicit substance use, 0.61; antisocial behavior, 0.60; violent behavior, 0.28; suicidal behavior, 0.14; and depressed mood, 1.46). These changes are approximately equivalent to a difference of 0.22 SD for male adolescents and 0.21 SD for female adolescents.

Linear regression models were developed to determine the independent effect of the highest level of abuse by an intimate partner occurring between Waves I and II on changes in risk behavior involvement between Waves I and II. These linear regression models adjusted for sociodemographic factors, the most abusive relationship with abuse beginning prior to Wave I, number of sexual partners between Waves I and II, time elapsed between Waves I and II, and the level of risky behavior at Wave I. Prior to testing of the regression analyses each of the outcome variables was standardized to a mean (SD) of 0 (1) to allow for comparison of effect sizes between the various outcome variables. All components of the regression analyses were tested for multiple collinearity; no correlations high enough to present problems in this analysis were found (all $r < 0.33$).

Separate analyses were done for male and female adolescents. All analyses were performed using SUDAAN (Research Triangle Institute, Research Triangle Park, NC) (except for the Mann-Whitney test, factor analysis, and scale reliability analyses) to account for the clustered sampling design of the Add Health survey.²⁰ The Mann-Whitney test, factor analysis, and scale reliability analyses were done using SPSS Version 11 (SPSS, Chicago, Ill) because these analyses are unavailable in SUDAAN. The protocol for this study was approved by the research subjects review board at the University of Rochester, Rochester, NY.

RESULTS

SAMPLE POPULATION

Abuse by at least one intimate partner between Waves I and II was reported by 273 (12.2%) of 2236 male adolescents and 302 (13.7%) of 2206 female adolescents in our analysis. The sociodemographic and relationship characteristics of the adolescents in our sample are listed in **Table 1**.

INTIMATE PARTNER ABUSE AND RISK BEHAVIOR (BIVARIATE ANALYSES)

Male and female adolescents who reported initiation of abuse by an intimate partner between Waves I and II of the Add Health survey also reported significantly higher levels of illicit substance use, antisocial behavior, violent behavior, suicidal behavior, and depressed mood on both the Wave I and Wave II Add Health surveys when compared with adolescents who did not experience the initiation of abuse between Waves I and II (**Table 2**). Among male adolescents, initiation of abuse by an intimate partner between Waves I and II was associated with a greater decline in the rate of antisocial behavior between Waves I and II than seen in male adolescents not reporting initiation of abuse. However, the level of antisocial behavior reported by abused male adolescents remained significantly higher than the non-abused male adolescents. Among female adolescents, initiation of abuse by an intimate partner between Waves I and II was associated with increased levels of illicit substance use compared with nonabused female adolescents (Table 2).

Table 1. Sociodemographic and Relationship Characteristics*

	Value
Sex (n = 4443)	
Male	2237 (50)
Female	2206 (50)
Age, mean (SD), y (n = 4346)	16.4 (1.6)
Ethnicity (n = 4441)	
White	3047 (69)
Black	619 (14)
Hispanic	566 (13)
Other	209 (4)
Family composition (n = 4320)	
≥2 Parents	3135 (73)
1 Parent	1185 (27)
Highest level of parental education (n = 4217)	
Less than a high school diploma	494 (12)
High school diploma	1406 (33)
Some college	851 (20)
College graduate or higher	1466 (35)
Neighborhood type (n = 4255)	
Rural	1141 (26)
Suburban	1821 (42)
Urban	1393 (32)
No. of intimate partners between Waves I and II (n = 4444)	
0	1683 (38)
1	1784 (40)
2	630 (14)
3	242 (5)
4	78 (2)
5	16 (<1)
6	11 (<1)
Partner types reported at Wave II (n = 4443)	
No partners	1432 (32)
Same sex only	35 (1)
Partners of both sexes	43 (1)
Opposite sex partners only	2933 (66)
Highest level of abuse prior to Wave I† (n = 4442)	
0	4134 (93)
1	154 (4)
2	73 (2)
3	45 (1)
4	29 (1)
5	7 (<1)
Highest level of abuse after Wave I† (n = 4442)	
0	3868 (87)
1	334 (8)
2	139 (3)
3	62 (1)
4	32 (1)
5	7 (<1)

*Data are given as the number (percentage) of adolescents unless otherwise indicated. Data from the National Longitudinal Study of Adolescent Health are abstracted from 4443 adolescents surveyed in 1995 (Wave I in April-December) and 1996 (Wave II in April-December).

†For an explanation of the rating for the Conflict Tactics Scales, see the "Abuse Scale" subsection of the "Methods" section.

ABUSE BY AN INTIMATE PARTNER AND CHANGES IN THE LEVEL OF RISK BEHAVIORS (REGRESSION ANALYSES)

In regression analyses, adjusting for sociodemographic factors, the level of abuse in the most abusive relationship with abuse beginning prior to Wave I, number of

sexual partners between Waves I and II, time elapsed between Waves I and II, and the level of risk behavior involvement at baseline, it was found that abuse by an intimate partner was associated with significant increases in depressed mood in male adolescents ($\beta = .08$; 95% confidence interval [CI], 0.00-0.16) and female adolescents ($\beta = .18$; 95% CI, 0.10-0.26) (**Table 3**). Among female adolescents, but not male adolescents, abuse by an intimate partner was also associated with significant increases in illicit substance use ($\beta = .16$; 95% CI, 0.06-0.26), antisocial behavior [$\beta = .09$, 95% CI, 0.03-0.15], and suicidal behavior ($\beta = .12$, 95% CI, 0.02-0.22). Abuse by an intimate partner was not associated with increased violent behavior in either sex.

COMMENT

As we hypothesized, we found significant associations between abuse by an intimate partner and longitudinal increases in almost all of the risk behaviors we examined among female adolescents including depressed mood, illicit substance use, antisocial behavior, and suicidal behavior. Contrary to our hypothesis, abuse by an intimate partner was only associated with longitudinal increases in depressed mood among male adolescents. The strong gender differences in the longitudinal response to abuse by an intimate partner were another unexpected finding of our study.

Our study agrees with previous studies that have found strong associations between involvement in an abusive relationship and a wide variety of risky behaviors among both male and female adolescents.⁷⁻¹² Our study confirms prior work by Magdol et al¹³ and Andrews et al¹⁴ that found that involvement in antisocial behavior was associated with subsequent involvement in an abusive relationship. However, in contrast to Andrews et al,¹⁴ we also found that depressed mood was associated with subsequent involvement in an abusive relationship. We also found the relationship between abuse by an intimate partner and subsequent increases in depressed mood that was previously found among college-aged female subjects by Katz and Arias.¹⁵

Several limitations of this study must be noted. This study is based on self-report data from a school-based sample. This study used a narrow definition of abuse by an intimate partner, which focused mainly on verbal abuse and relatively mild forms of physical abuse. More severe physical abuse and sexual abuse were excluded from this study. While these types of abuse are less common, female adolescents are significantly more likely than male adolescents to be the victims of more severe partner abuse.^{3,8} These forms of abuse may also have different associations with risky behaviors than the forms of abuse we examined. We were unable to measure perpetration of abuse against an intimate partner among these adolescents. This is an important variable because this is a strong predictor of victimization by an intimate partner.³ Mutually abusive relationships are also marked by higher severity and frequency of violence.²¹ Thus, adolescents involved in mutually abusive relationships may represent a distinct group from adolescents who only report victimization. We used longitudinal measures of risky

Table 2. Association of Initiation of Abuse by an Intimate Partner Between Waves I and II With Risk Behavior Scores at Wave I and Wave II, and Change in Risk Behavior Between Waves I and II*

Initiation of Abuse by an Intimate Partner Between Waves I and II	Risk Behavior Score at Wave I	Risk Behavior Score at Wave II	Change in Risk Behavior Score Between Waves I and II
Illicit Substance Use			
Male adolescents			
Abuse initiated	6.16 (5.47 to 6.85)	6.86 (6.23 to 7.49)	0.71 (0.16 to 1.26)
Abuse not initiated	3.63 (3.41 to 3.85)	4.33 (4.09 to 4.57)	0.70 (0.56 to 0.86)
Female adolescents			
Abuse initiated	5.53 (4.90 to 6.16)	6.95 (6.34 to 7.56)	1.41 (0.94 to 1.87)
Abuse not initiated	3.21 (3.01 to 3.41)	3.91 (3.69 to 4.13)	0.70 (0.56 to 0.84)
Antisocial Behavior			
Male adolescents			
Abuse initiated	5.55 (4.84 to 6.26)	3.75 (3.20 to 4.30)	-1.78 (-2.45 to -1.11)
Abuse not initiated	2.81 (2.61 to 3.01)	2.27 (2.09 to 2.45)	-0.53 (-0.73 to -0.33)
Mann-Whitney test score (z score)	169 340.5 (-10.3)	195 457.5 (-7.4)	NA
Female adolescents			
Abuse initiated	3.52 (3.05 to 3.99)	3.10 (2.71 to 3.49)	-0.41 (-0.88 to 0.06)
Abuse not initiated	2.23 (2.07 to 2.39)	1.89 (1.77 to 2.01)	-0.35 (-0.49 to -0.21)
Mann-Whitney test score (z score)	213 150.0 (-8.4)	221 897.5 (-7.3)	NA
Violent Behavior			
Male adolescents			
Abuse initiated	2.27 (1.94 to 2.60)	1.47 (1.22 to 1.72)	-0.80 (-1.13 to -0.47)
Abuse not initiated	1.46 (1.34 to 1.58)	0.41 (0.35 to 0.47)	-0.58 (-0.70 to -0.46)
Mann-Whitney test score (z score)	2 092 794.5 (-7.2)	260 811.0 (-5.0)	NA
Female adolescents			
Abuse initiated	1.13 (0.91 to 1.35)	0.78 (0.60 to 0.96)	-0.35 (-0.53 to -0.17)
Abuse not initiated	0.67 (0.59 to 0.75)	0.41 (0.35 to 0.47)	-0.26 (-0.32 to -0.20)
Mann-Whitney test score (z score)	250 332.0 (-5.3)	260 811.0 (-5.0)	NA
Suicidal Behavior			
Male adolescents			
Abuse initiated	0.24 (0.14 to 0.34)	0.19 (0.11 to 0.27)	-0.06 (-0.16 to 0.04)
Abuse not initiated	0.12 (0.10 to 0.14)	0.11 (0.09 to 0.13)	-0.01 (-0.03 to 0.01)
Mann-Whitney test score (z score)	252 499.0 (-3.7)	259 217.5 (-2.6)	NA
Female adolescents			
Abuse initiated	0.43 (0.33 to 0.53)	0.45 (0.33 to 0.57)	0.02 (-0.10 to 0.14)
Abuse not initiated	0.20 (0.18 to 0.22)	0.19 (0.17 to 0.21)	-0.01 (-0.05 to 0.03)
Mann-Whitney test score (z score)	259 325.5 (-5.4)	261 835.5 (-5.9)	NA
Depressed Mood			
Male adolescents			
Abuse initiated	11.77 (10.83 to 12.71)	11.82 (10.90 to 12.74)	0.05 (-0.85 to 0.95)
Abuse not initiated	9.39 (9.08 to 9.70)	9.23 (8.90 to 9.56)	-0.14 (-0.45 to 0.17)
Female adolescents			
Abuse initiated	13.58 (12.56 to 14.60)	14.54 (13.50 to 15.58)	0.92 (-0.08 to 1.92)
Abuse not initiated	11.26 (10.89 to 11.63)	11.15 (10.78 to 11.52)	-0.12 (-0.47 to 0.23)

Abbreviations: CI, confidence interval; NA, not applicable.

*Data are given as mean (95% CI) unless otherwise indicated. Boldfaced values indicate a statistically significant difference between abused and nonabused at $P < .05$. Data from the National Longitudinal Study of Adolescent Health are abstracted from 4443 adolescents surveyed in 1995 (Wave I in April-December) and 1996 (Wave II in April-December).

behavior, which is a major strength of our study; however, the interval between the 2 waves of data collection was relatively short (mean, 10.6 months). A study with a longer follow-up period might have produced different results. Finally, while we had longitudinal data on risk behavior involvement, we had to rely on retrospective recall of the severity and timing of abuse.

A final concern with the data used for our analysis is the 15% of the abused adolescents who did not provide enough information for us to determine when the abuse began in all of the abusive relationships they reported. Although we excluded this group from our analysis, we also assessed the sensitivity of our results to the

exclusion of these adolescents by repeating our regression analyses, including these adolescents using the following 2 extreme assumptions: (1) that all of the abusive relationships reported by these adolescents that we were unable to determine the timing of (174 of 197 total abusive relationships reported by these 152 adolescents) occurred prior to Wave I and (2) that all of these relationships occurred after Wave I. Under both of these assumptions, all of the relationships between victimization and risk behavior that were statistically significant in our original analysis remained significant. When we assumed that all of the unclassifiable relationships occurred after Wave I, abuse by an intimate partner also

Table 3. Regression Analyses of the Independent Association of Abuse by an Intimate Partner With Changes in the Level of Risk Behaviors Among 4443 Male and Female Adolescents*

Change in High-Risk Behavior	Male Adolescents	Female Adolescents
Illicit substance use	0.02 (−0.10 to 0.14)	0.16 (0.06 to 0.26)
Antisocial behavior	0.05 (−0.05 to 0.15)	0.09 (0.03 to 0.15)
Violent behavior	0.00 (−0.08 to 0.08)	0.03 (−0.03 to 0.09)
Suicidal behavior	−0.00 (−0.06 to 0.06)	0.12 (0.02 to 0.22)
Depressed mood	0.08 (0.00 to 0.16)	0.18 (0.10 to 0.26)

*Data are given as β level (95% confidence interval). Boldfaced values indicate statistical significance at $P < .05$. Data from National Longitudinal Study of Adolescent Health are abstracted from 4443 adolescents surveyed in 1995 (Wave I in April–December) and 1996 (Wave II in April–December). Results were adjusted for sociodemographic factors, highest severity of abuse prior to Wave I, number of intimate partners between Waves I and II, time elapsed between Waves I and II, and baseline risk behavior involvement. All scale change scores are standardized to a mean (SD) of 0 (1) to allow for comparison of effect sizes between items.

had a significant positive association with violent behavior (data not shown).

Despite limitations, the large nationally representative sample of male and female adolescents used in this study, the longitudinal measures of risky behavior involvement using well-validated measures, and the wide range of sociodemographic factors examined in this study add significantly to previously published work in this area. Our findings also suggest several opportunities for further research including examination of the effect of a wider range of abusive behavior including sexual abuse and perpetration of abuse on subsequent risk behavior, examination of the effect of abuse in the home of origin on the relationship between partner abuse and risk behavior, and studies with a longer follow-up period than this study. In our study, we found that defining the causes of the strong gender differences in the response to abuse by an intimate partner also offers an opportunity for further research. One potential area of inquiry would be the links between social isolation by an intimate partner and depression. Qualitative work with abused adolescent females suggests that many young female adolescents become involved with abusive partners during a period of emotional upset and social isolation. As these relationships progressed the young women reported their partners becoming increasingly controlling and the social isolation from friends and family becoming increasingly severe while their partner continued to be able to maintain his social connections.²² The social isolation could put a young woman at risk for increased depressive symptoms and other risk behavior as a result. This potential mechanism is consistent with previous research in college-aged female subjects, which found an association between dominating-isolating behavior by an intimate partner but not emotionally abusive behavior and subsequent increases in depressed mood.¹⁵

Abuse by an intimate partner is associated with higher levels of risky behavior among female and male adolescents. In both sexes this involvement in higher rates of risky behavior exists prior to the beginning of abuse. This probably reflects underlying processes that put an adolescent

What This Study Adds

Prior studies of intimate partner abuse among adolescents have demonstrated strong, cross-sectional associations between abuse and involvement in risk behavior. Other studies have examined the temporal associations between depression, antisocial behavior, and abuse by an intimate partner in young adults. However, none of these studies have examined the temporal association of partner abuse and risk behavior involvement among adolescents.

We examined a longitudinal sample of adolescents and found that involvement in illicit substance use, antisocial behavior, violent behavior, suicidal behavior, and depressed mood preceded abuse by an intimate partner. We also found that abuse by an intimate partner was associated with subsequent increases in depressed mood among both sexes and with increases in illicit substance use, antisocial behavior, and suicidal behavior in female adolescents.

at risk for both involvement in high-risk behavior and abusive relationships. However, even the relatively mild forms of abuse by an intimate partner that we examined in our study are associated with increased levels of depressed mood in both sexes and with significant increases in illicit substance use, antisocial behavior, and suicidal behavior among female adolescents but not male adolescents. These increases in mood problems and risk behavior beyond the levels that existed prior to the abuse put these adolescents at additional risk for morbidity and mortality. This potential for increased morbidity and mortality is particularly problematic among female adolescents given the stronger negative effect of intimate partner abuse on the trajectory of risk behavior among female adolescents compared with male adolescents. Clinicians and others involved in caring for adolescents must be attentive to the problem of intimate partner abuse and should intervene to reduce the effect of these relationships. Parents should help foster an expectation of mutually supportive, nonabusive intimate relationships and should help their children identify abusive relationships and provide them support in leaving these relationships. Educators should be involved in teaching healthy conflict-resolution techniques and foster an environment intolerant of violence and abuse. 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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