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## Risk Factors for Physical Violence Against Partners in the U.S.

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## Risk Factors for Physical Violence Against Partners in the U.S.

### Abstract

Objective: To examine unique and relative predictive values of demographic, social learning, developmental, psychopathology, and dyadic variables as risk factors for perpetration of intimate partner physical aggression in a national sample of married or cohabiting individuals. Method: Men (n = 798) and women (n = 770) were selected from the public use data file of the 2003 National Comorbidity Survey Replication (NCS-R) which used a multistage cluster sampling design. Results: Eight percent of women and 5% of men reported perpetrating physical aggression in the past year. Based on multivariable regression analyses, among men, the unique risk factors for perpetrating physical aggression were parental violence, dating before age 14, dating aggression, Intermittent Explosive Disorder (IED) before and after age 20, and being victimized by partner. Among women, significant risk factors were younger age, dating aggression, IED before age 20, cohabiting, victimization by partner, and marital/relationship strain. Conclusions: A number of social learning, developmental, adult psychopathology, and dyadic factors were significant. Two dyadic variables, victimization and marital strain, had by far the strongest associations with perpetration of partner aggression. Given that dating aggression and early IED were risk factors for male and female IPV much later in life suggests early interventions for those at risk.

### Keywords

Intermittent Explosive Disorder, domestic violence, intimate partner violence, prediction, risk factors

### Disciplines

Experimental Analysis of Behavior | Psychology | Statistics and Probability

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## Risk Factors for Physical Violence against Partners in the U.S.

### Abstract

*Objective: To examine unique and relative predictive values of demographic, social learning, developmental, psychopathology, and dyadic variables as risk factors for perpetration of intimate partner physical aggression in a national sample of married or cohabitating individuals.*

*Method: Men (n=798) and women (n=770) were selected from the public use data file of the 2003 National Comorbidity Survey Replication (NCS-R) which used a multi-stage cluster sampling design.*

*Results: Eight percent of women and 5% of men reported perpetrating physical aggression in the past year. Based on multivariable regression analyses, among men, the unique risk factors for perpetrating physical aggression were parental violence, dating before age 14, dating aggression, Intermittent Explosive Disorder (IED) before and after age 20, and being victimized by partner. Among women, significant risk factors were younger age, dating aggression, IED before age 20, cohabiting, victimization by partner, and marital/relationship strain.*

*Conclusions: A number of social learning, developmental, adult psychopathology, and dyadic factors were significant. Two dyadic variables, victimization and marital strain, had by far the strongest associations with perpetration of partner aggression. Given that dating aggression and early IED were risk factors for male and female IPV much later in life suggests early interventions for those at risk.*

**Key Words:** partner violence; risk factors; Intermittent Explosive Disorder; family violence; dating aggression

Physical aggression against an intimate partner is a major public health problem in the United States. Approximately 10% of men and women in representative samples (Straus & Gelles, 1990) and over 50% of couples attending marital therapy clinics (Jose & O’Leary, 2009) report that they engaged in at least one episode of physical aggression against a partner (IPV) in the past year. Considerable research shows increased rates of depression, anxiety, and PTSD symptoms in female victims of physical IPV (e.g., Coker, Davis, Arias, Desai, Sanderson, Brandt et al., 2002), but much less is known about mental health risk factors associated with perpetration of physical IPV by either men or women, especially in representative samples. The current study was designed to fill this gap by examining the unique and relative contributions of demographic, family of origin, developmental, psychopathology, and dyadic risk factors for perpetration of physical IPV in a national U.S. sample.

The theoretical framework underlying our multifactorial model of perpetration of IPV (O’Leary, Slep, & O’Leary, 2007) was derived from four overlapping models: (1) the social learning perspective with an emphasis on observational learning within the family of origin (Bandura, 1977), including exposure to parental violence and being beaten as a child; (2) the developmental perspective which includes early dating, dating aggression, alcohol abuse, drug abuse, intermittent explosive disorder (IED), and mood and anxiety problems before the age of 20 (Capaldi, Shortt & Kim, 2005); (3) the psychopathology perspective which includes diagnoses in adulthood of alcohol abuse, drug abuse, intermittent explosive disorder, and mood disorder/anxiety disorders (Hamberger & Holtzworth-Munroe, 2009; O’Leary, Tintle, Bromet & Gluzman, 2008); and (4) the dyadic relationship perspective in which relationship strain and being the victim of partner aggression are key constructs, along with marital status (O’Leary &

Slep, 2003). In accord with the conceptualization, we now turn to a brief review of the empirical evidence supporting these four theoretical perspectives.

#### Social Learning Perspective

Observation of parental violence has been investigated more than almost any other risk factor for perpetration physical IPV, including a recent report based on the National Comorbidity Survey Replication (NCS-R) sample (Affi, Macmillan, Cox, Asmundsen & Stein, 2009). Social learning theories proposed that children who were maltreated by their parents learned aggressive and hostile patterns of social interaction from their families, and went on to express these behaviors outside of the family unit and later to intimate partners (Ehrensaft, Cohen, Brown, Smailes, Chen & Johnson, 2003). However, a meta-analytic review by Stith, Rosen, Middleton, Busch, Lundeberg & Carlton (2000) found that effects of observation of parental violence and being a direct target of parental aggression were significant but small predictors of adult IPV.

#### Developmental Perspective

From a developmental perspective, externalizing problems as children/teens, early dating, dating aggression, early onset of alcohol problems and IED have been shown to be predictive of IPV in at least a few studies. More specifically, longitudinal studies have shown that a developmental history of antisocial behaviors predicts IPV in both young men and women (e.g. Ehrensaft, Moffitt & Caspi, 2004). In addition, conduct problems have been shown to be associated with physical aggression against a partner via retrospective reporting of physically aggressive men mandated to treatment (Boyle, O'Leary, & Rosenbaum, 2008).

In some of the early research on dating aggression, Makepeace (1987) found that dating at a young age is a risk factor for IPV perpetration, and, as stated by Wekerle & Wolfe (1999),

early romantic involvement that often stems from childhood intimacy problems signals a risk for varied rule breaking. Nocentini, Menesini & Pastorelli (2010) found that number of partners was associated with physical aggression at age 16. Further, using our own high school dating sample of over 1000 males and 1000 females (O’Leary & Slep, 2003), we report herein that age of first boyfriend/girlfriend as well as number of boyfriends/girlfriends was significantly associated with perpetration of IPV for both males and females. Thus, we predicted that early dating would be predictive of IPV.

In studies of engaged individuals, physical aggression against a partner prior to marriage is associated with IPV in marriage for both males and females (Lawrence & Bradbury; 2001; Leonard & Senchak, 1993; O’Leary, Barling, Arias, Rosenbaum, Malone, & Tyree (1989). However, less is known about whether teen IPV, often called dating aggression, or physical aggression in an early dating relationship with someone other than one’s spouse aggression is associated with later physical IPV among married individuals when they are much older. However, Gomez (2011) showed that teen IPV predicted perpetration of IPV against a partner four years later for both males and females (the majority of whom were 22-23yrs old and not married). Thus, the evidence suggests that teen IPV with someone other than your spouse might predict IPV against one’s spouse many years later.

In addition, in a representative sample of adults in Ukraine, adolescent onsets of alcoholism and intermittent explosive disorders (IED) were uniquely associated with IPV perpetration among married men while adolescent onsets of alcoholism mood/anxiety disorders were associated with aggression in married women (O’Leary et al. 2008). We include these adolescent onset disorders here because if they are significant predictors of IPV, their presence

can be incorporated into dating violence prevention programs. Should they only be associated as adult risk factors, they would have less import for prevention of IPV. As will be noted later, the developmental variables linked early onset of alcoholism and IED were analyzed in a fashion that they could be examined prior to the onset of adult IPV.

#### Adult Psychopathology

As summarized by Hamberger & Holtzworth-Munroe (2009), personality problems, such as uncontrollable anger, have been linked to perpetration of physical IPV for males. They emphasized that abusive men cannot be characterized by a particular profile, but that many abusive men show clear signs of psychopathology related to symptoms of anger, depression, and substance abuse. Norlkander and Eckhardt's meta-analysis (2005) meta-analysis showed that IPV perpetrators consistently had higher levels of anger and hostility than non-violent males across various measurement approaches. In a review of IED for DSM-V, Coccaro (2012) noted that the angry outbursts of individuals diagnosed with IED most commonly occur in response to a minor provocation by a close intimate or associate. Murray-Close, Ostrove, Nelson, Crick, & Coccaro (2010) found that adults diagnosed with IED had higher levels of relational aggression (a combined measure of peer and romantic aggression) than healthy controls or psychiatric controls. In a representative sample in Ukraine, adult episodes of alcoholism and IED were associated with aggression toward partner among both men and women (O'Leary et al. 2008). Thus, we predicted that IED would be associated with IPV in the present sample.

Mood disorders have been associated with perpetration of IPV in national (Kessler, Molnar, Feurer & Appelbaum, 2001), and community samples (see literature review by Dutton and Karakanta, 2012, and meta analytic review by Stith, Smith, Penn, Ward, and Tritt (2004).



In another review of this literature, Capaldi, Noble, Shortt & Kim (2012) found that depressive symptoms and IPV often had significant but small associations. Thus, we predicted that IED would be predictive of IPV, but that mood disorders would not.

Using data from the National Family Violence Survey and the National Survey of Family Households, Schumacher and O'Leary (2003) showed that while there was a significant association between drinking classification and partner aggression, the associated effect sizes were very small. Further, only heavy drinking and binge drinking were major contributors to the significant effects. Using a meta-analytic approach, Foran and O'Leary (2008) examined the link between alcohol use/abuse with male-to-female as well as female-to-male partner violence. There was a small to moderate effect size for the association between alcohol use/abuse and male-to-female partner violence and a small effect size for the association between alcohol use/abuse and female-to-male partner violence. While drug abuse is less common than alcohol abuse, it is also associated with physical IPV perpetration (Moore & Stuart, 2004).

#### Marital/ Relationship Problems

In a meta-analysis of studies of marital discord and intimate partner violence published through 2005, Stith, Green, Smith and Ward (2008) found that marital discord was a significant risk factor for partner perpetration for both men and women. There was a small to moderate effect size ( $r = -.27$ ) between marital satisfaction and IPV. Further, in more recent multivariate studies, marital discord was a significant risk factor for physical aggression among both men and women (O'Leary et al., 2007; Stuart & Holtzworth-Munroe, 2005). Finally, cohabitation is associated with more IPV perpetration than is marriage (Straus & Gelles, 1990).

#### Overall Predictions

A meta-analytic review of variables related to partner aggression concluded that while distal variables, such as observing violence in one's family of origin, were associated with perpetration of physical aggression, proximal variables, such as recent substance use disorders and marital problems, were even more strongly associated (Stith, Smith, Penn, Ward, & Tritt, 2004). Based on our multivariate examination of risk factors for perpetration of physical IPV (O'Leary et al., 2007), we predicted that current alcohol abuse and IED along with marital/relationship discord and current physical victimization would be the strongest individual risk factors for perpetration of physical IPV. The extent to which an individual experiences physical aggression from a partner (or victimization) often is the most robust risk factor for perpetration of IPV (Straus & Gelles, 1990; O'Leary et al., 2007). Thus, in order to provide a comprehensive evaluation of the risk factors for perpetration of IPV, victimization was examined herein, and it was expected to be the largest single risk factor for perpetration of IPV.

This analysis utilizes data from the National Comorbidity Survey-Replication (NCS-R) to examine associations of a comprehensive set of risk factors, including psychiatric and substance use diagnoses, to perpetration of IPV. The NCS-R included a nationally representative sample assessed with face-to-face interviews (Kessler, Bergland, Chiu, Demler, Heeringa, Hiripi et al. 2004). In this paper, we evaluated the associations of mental disorders occurring before age 20, that is before the age of first marriage for most of these respondents (85% of the men and 67% of the females were not married before age 20), and incident and recurrent episodes that occurred after age 20, with perpetration of IPV in the prior year. Specifically, we evaluated the unique and relative contributions of early and adolescent exposures (social learning perspective), anti-social behaviors and psychiatric and substance use disorders as well as evidence of dating

aggression in adolescence (developmental perspective), adult episodes of psychiatric and substance use disorders (psychopathology perspective), and marital strains and partner aggression (dyadic relationship model) to perpetration of intimate partner aggression in the past year among married and cohabitating men and women.

## Methods

### *Sample and procedure*

The data were obtained from the public-use data file of the 2003 NCS-R, a nationally representative survey of U.S. adults aged 18 years and older. The NCS-R utilized a multi-stage cluster sampling design and had a final response rate of 73.0%. Face-to-face interviews were conducted in respondents' homes. The Harvard Medical School and the University of Michigan Institutional Review Boards approved the recruitment and consent procedures (Kessler et al. 2003).

The survey instrument was an expanded version of the World Mental Health Composite International Diagnostic Interview (WMH-CIDI) (Kessler and Üstün 2004). To reduce respondent burden, all respondents were assessed for core psychiatric disorders but other risk factor modules were administered selectively. Specifically, 2,322 (weighted N) currently married or cohabiting heterosexual respondents completed the module assessing their relationship, among whom 1,568 (weighted N) were administered the risk factor modules containing the variables that are the focus of this report (substance use disorders; childhood adversities). Consistent with Afifi et al. (2009), we excluded respondents who did not self-identify as heterosexuals due to their small sample size ( $n=26$  non-heterosexual respondents completed the risk factor modules investigated here). The respondents who completed the module assessing

their relationship did not differ from the overall sample on rates of rates of IPV (Supplemental Tables available from authors).

As described below, weighting procedures were used to enable findings to be generalized to the married or cohabiting population in the U.S. All N's provided in this manuscript are weighted.

### Measurement of partner physical aggression

The items describing partner aggression were contained in a booklet read by the respondent to reduce discomfort from answering potentially embarrassing and personal questions (all respondents were able to read). The booklet contained two lists of behaviors that were taken from the Conflict Tactics Scales (Straus & Gelles, 1990). List 1 was comprised of three lines: (1) pushed, grabbed or shoved, (2) threw something, and (3) slapped or hit. List 2 was comprised of five lines: (1) kicked, bit or hit with a fist, (2) beat up, (3) choked, (4) burned or scalded, and (5) threatened with a knife or gun. After being told that “People handle disagreements in many different ways,” respondents were asked how often over the course of the relationship, when they had a disagreement with their spouse, they did anything on List 1 (often, sometimes, rarely or never) to their spouse/partner (perpetration). Respondents were then asked similar questions about the items on List 2. Any aggression was defined as answering often, sometimes or rarely to the items on either List 1 or List 2. Respondents reporting any aggression in their marriage were also asked the number of days these incidents occurred within the last year. Respondents reporting at least one occurrence within the last year were classified with past year aggression. Both past year physical aggression as well as physical aggression ever occurring in the marriage were assessed.

*Risk factor measures*

*Demographic and early life characteristics.* Demographic variables were age (18-39, 40+), race (white vs. non-white), education years (0-12, 13+) employment status (currently working vs. not working), and household income ( $\leq$ \$65,000,  $>$ \$65,000).

*Social learning variables.* Early life exposure to parental violence was based on two yes/no items about witnessing aggression between their parents as a child and being badly beaten by a parent.

*Developmental variables.* Two dating variables were included: young age when first dated (14 or younger, 15+) and perpetration of any physical aggression in dating relationships (defined using the same “List 1” described in the previous section). Five aspects of mental health with onset in childhood or adolescence (before age 20) were examined with the CIDI interviews, including screening positive for childhood conduct disorder, and DSM-IV diagnoses of mood/anxiety disorders (major depression, dysthymia, bipolar disorder, social phobia, agoraphobia, generalized anxiety disorder, panic disorder), intermittent explosive disorder (IED), drug abuse (with or without dependence), and alcohol abuse (with or without dependence). Reliability and validity data on CIDI interviews in the U.S. have been presented previously (e.g., Kessler and Üstün 2004; Kessler et al. 2004a).

*Adult psychopathology.* New or recurrent episodes from age 20 onward of DSM-IV mood/anxiety disorders, IED, drug abuse, and alcohol abuse were examined.

*Quality of dyadic relationship.* In addition to marital status (co-habiting, married once, married more than once), two ratings were included: (1) Victimization in the marriage was based on respondents’ report that their spouse/partner behaved aggressively toward them (List 1 and

List 2 above; see Measurement of Partner Aggression); (2) Current marital strain was a composite created by summing across five items indicating serious problems in the marriage: (1) spouse/partner ever threatened divorce/separation (yes/no); (2) respondent ever thinks about divorce/separation (yes/no); (3) frequent quarreling (most of the time vs. some/rarely/never); (4) issue-specific disagreements with spouse on matters of finance, recreation, friends, philosophy of life, and major decisions (all or most of the time on one or more areas vs. less frequently); and (5) spouse/partner having tantrums (often/sometimes vs. rarely/never). The final score had a range of 0-5.

### *Statistical Analysis*

The sample was weighted to account for non-response and selection bias, and to approximate the US population on key socio-demographic variables (Kessler et al. 2004b). All analyses were conducted using SUDAAN which uses the Taylor series linearization method to adjust standard errors for the multi-stage design and sample weights (SUDAAN 2008). In total, these procedures allow generalization of results to the US married and co-habiting population. Gender differences were analyzed using chi-squared tests for categorical variables and t-tests for continuous variables. The associations of the risk factors with IPV were examined in 3 stages. First, we examined the unadjusted odds ratios and 95% confidence intervals for each risk factor for the males and females separately. Second, we examined the adjusted associations of the demographic, social learning, and developmental risk factors (Block 1; Table 3) to account for risk factors occurring primarily prior to adult IPV. These multivariable logistic regression analyses were restricted to risk factors with significant unadjusted odds ratios, and are the values reported as the aORs in Table 3. As a third and final step, we added the adult psychopathology

and current strains in the relationship (Block 2; Table 3) to create a final integrative multivariable model. This multi-step approach was used in order to mirror the temporality of the risk factors, and provide insights into both early-life and current risk factors for adult IPV.

Because males and females were analyzed separately, and were not recruited as a couple, there is no violation of independence assumptions. All tests were two-tailed and  $\alpha=0.05$  was used to denote statistical significance. The variables were entered in three blocks in part to reflect temporal or developmental factors in that for example violence in the family of origin (Block 1) would have occurred before IPV in the current relationship (Block 2). Similarly, dating early, i.e. before age 14 (Block 1) is something that would have occurred before the current marriage and the assessment of current marital strain (Block 2).

## Results

### *Sample Characteristics*

Table 1 shows the sample characteristics for men and women separately. The majority of the sample was over 40 (the men were significantly older), white, and had education beyond high school. More men than women were currently employed, and nearly half of the respondents reported an annual household income above \$65,000. Approximately one in six respondents reported witnessing aggression in their parent's relationship while growing up, and nearly 6% reported being beaten as a child. Approximately 30% of respondents started dating at age 14 or younger (37.2% of men and 21.6% of women), and 6% overall reported that they engaged in physical aggression in a dating relationship. Approximately 40% screened positive for conduct disorder (significantly more men than women). For both early life and adult DSM-IV disorders,

significantly more men reported alcoholism and IED, and significantly more women had mood/anxiety disorders. While significantly more men than women reported being victimized by their spouse, there was no significant difference between men and women on severity of marital/relationship strain. Finally, two-thirds of the sample were in their first marriage.

### *Prevalence of IPV*

Table 2 shows the rates of perpetration of physical aggression for the men and women. Significantly more women (159/770=20.7%) than men (117/798=14.7%) reported that they ever engaged in physically aggressive behavior toward their spouse. After adjusting for age, the gender difference in lifetime reports remained significant ( $p<0.05$ ). For the 12 months prior to interview, 8.1% (62/770) of women and 5.0% (40/798) of men reported perpetrating IPV. Among the respondents reporting past-year aggression, 23.0% (14/62) of women and 13.6% (5/40) of men engaged in severe aggression within the past year, defined as answering frequently, sometimes or rarely to any of the items on List 2 ((1) kicked, bit or hit with a fist, (2) beat up, (3) choked, (4) burned or scalded, and (5) threatened with a knife or gun).

### *Relationships Between Risk Factors and Perpetration of Aggression.*

Table 3 presents the unadjusted and adjusted associations of the risk factors with past year perpetration of physical aggression. Among men, the demographic variables were not significant, but social learning and developmental factors were. Specifically, witnessing parental violence significantly increased the risk of past year perpetration. Dating at a young age (14 or younger), engaging in dating aggression, and having an early diagnosis of IED also increased the risk of perpetration within the past year. Lastly, adult alcohol and drug abuse, IED, victimization by the respondent's spouse and marital/relationship strain were significantly associated with



aggression. In the multivariable models, all of these variables remained significant except for alcohol and drug dependence after age 20 and marital/relationship strain. Most importantly, as reflected in the adjusted odds ratios in the final model, physical aggression when dating, episodes of IED after age 20, and especially being victimized by one's spouse/partner increased the likelihood of perpetrating IPV more than five-fold. The final multi-variable model was also run without victimization, in which case the only substantive change was that marital strain became significant (OR = 6.2, 95% CI = (2.3, 16.6),  $p < 0.001$ ).

Among women, younger age was significantly associated with perpetration of aggression toward the husband. While no social learning factors were significantly related to perpetration of aggression, five of the seven developmental factors were: dating aggression, screening positive for conduct disorder and alcoholism, drug abuse and IED before age 20 were significantly associated with past year perpetration. Adult IED, victimization, marital/relationship strain and marital status (cohabiting vs. first marriage) were significant adult risk factors. In the multivariable models, age, dating aggression, early onset IED, victimization and marital/relationship strain remained significantly associated with past year perpetration. Only one variable, victimization by spouse, was associated with a more than five-fold increase in IPV perpetration. The final multi-variable model was also analyzed without victimization, in which case the only substantive change was that the marital strain variable became more significant (OR=3.8, 95% CI=(2.1, 6.9),  $p < 0.001$ ).

### **Discussion**

Overall, the four theoretical conceptualizations regarding prediction of physical IPV all were associated with significant risk factors, namely, (1) social learning factors [observation of

family violence for males], (2) developmental factors [early dating (males), dating aggression (males and females), adolescent IED (males and females)], (3) psychopathology [adult IED (males and females), alcohol abuse (males) and drug abuse (males)], and (4) dyadic relationship problems [marital/relationship strain and victimization (males and females)]. We now turn to a discussion of the developmental nature of these findings.

The measurement of certain variables in this study allows one to have a developmental framework in interpreting some results. More specifically, witnessing parental aggression as a child occurs prior to becoming an adult. As assessed herein, the analyses allowed us to examine dating aggression of a physical nature that occurred before marriage/cohabitation. Further, we examined impulse control problems (IED) occurring before marriage/cohabitation. Overall, both for men and women, two factors hypothesized to be of import in childhood and adolescence were significant risk factors, namely, dating aggression, and having a diagnosis of intermittent explosive disorder before the age of 20 years. Observation of parental violence was a risk factor for men but not women. However, variables that occur in one's adult life, being physically victimized by one's partner and significant marital/relationship strain were also significant risk factors for perpetration of physical aggression.

While the data herein are cross-sectional, the variables cover different developmental periods, and thus the results can be interpreted in a developmental fashion, albeit in a non-causal manner. While one cannot say that observation of family violence led to dating aggression, as shown in various studies, it is a risk factor for such (Fritz, 2004). Similarly, the risk factor data herein do not allow one to conclude that dating aggression leads to physical IPV, but dating aggression during the engagement period is longitudinally predictive of physical IPV in marriage

(e.g., Leonard & Senchak, 1993; O’Leary et al, 1989). Further, problematic alcohol use has been shown to be longitudinally predictive of later physical aggression (Fals-Stewart, Klosterman, & Clinton-Sherrod, 2009). Finally, relationship discord is longitudinally predictive of physical aggression in early marriage (O’Leary, Malone, & Tyree, 1994), though for men it operated through psychological aggression. Thus, there appears to be some developmental progression of risk factors leading to partner aggression, such as family violence, dating aggression, alcohol use/abuse, and marital discord. The specific longitudinal relationships among these variables are not clear from these retrospective reports, and longitudinal models are sorely in need of testing, especially in couples who are not newly married.

While we acknowledge the high association between early life diagnoses (e.g., early IED) with their adult counterparts (e.g., adult IED), the purpose of the inclusion of both the early life diagnosis and the adult diagnosis is to isolate predictive relationships. Two separate hypotheses are possible: Risk of IPV is conferred from early onset of psychological diagnoses, and/or risk of IPV is conferred from recent symptomatology. In the case of male IPV, the significance of both early onset IED and adult IED in the male model suggests that both early onset and recent symptomatology confer risk, whereas for women, the primary evidence of increased risk is from early onset of IED, with less evidence that recent symptomatology confers additional risk, when controlling for early IED.

Given that dating aggression (for both males and females) and early onset IED (for both males and females) as well as early age of dating (for males) were significant predictors of perpetration of physical IPV in adulthood, both primary and secondary prevention programs with youth, teens, and young adults seem well-advised. While universal programs with a primary

prevention focus certainly have shown promise (Foshee & Reyes, 2009; Wolfe, Crooks, Jaffee, Chiodo et al., 2009), prevention programs for youth at risk are also worthy of consideration (Wolfe, Wekerle, Scott, Straatman, Grasley, & Reitzel-Jaffe (2003) as they are less costly and do not compete for time in often already burdened school health curricula. Teens at risk may have already been involved in relationships characterized by physical aggression and thus programs for them will of necessity have a secondary prevention focus.

Marital/relationship strain was a significant risk factor for perpetration of IPV for women and men. Marital/relationship strain was a significant predictor of aggression in males, increasing the odds 12-fold, but because marital/relationship strain and victimization were highly correlated, marital/relationship strain for men was not significant in the final multivariable model. It is not possible to know if marital/relationship discord precedes or follows IPV, but in many cases, the relationship is likely reciprocal. However, we know that reducing discord can lessen the likelihood of physical IPV (O'Leary, 2008), and reducing partner aggression can increase marital/relationship satisfaction (O'Leary, Heyman, & Neidig, 1999). Presumably interventions designed to reduce one or both targets are valuable. Moreover, since psychological and physical victimization by a partner are often the most potent predictors of physical aggression (O'Leary et al., 2007), interventions designed to prevent or reduce psychological aggression and marital/relationship discord can be useful in preventing or reducing IPV.

In a meta-analysis of studies regarding observation of violence in one's family of origin, Stith et al. (2004) found larger effects of witnessing for men (.21) than women (.13). Overall, our data suggest, consistent with Stith et al. (2004), that the association of witnessing parental

violence is greater for men and women since the adjusted odds ratio was 4.3 for males and non-significant for women.

There was a significant difference in the lifetime history of perpetration of physical aggression by men compared to women, with a larger percentage of women reporting being perpetrators. These prevalence results are in accord with a meta-analysis of published studies on physical IPV by Archer (2000) who showed a small but significant difference in male and female aggression. Despite such gender differences in prevalence of physical aggression against a partner, even in a representative sample of parents of young children, physically victimized women reported more fear of their partners and depressive symptomatology than non-victimized women, and they reported significantly more sexual victimization than men (Kar & O'Leary, 2010). In short, while the prevalence of perpetration of physical aggression in representative samples as well as the sample herein is similar or somewhat higher for females than males, the adverse impact of physical aggression is greater for females.

The fact that IED before 20 and after 20 years of age predicted physical aggression against a partner may reflect that individuals in their teens with general temper and aggression problems predict specific types of aggression such as physical IPV. This interpretation is in accord with the results of Ehrensaft, Moffitt and Caspi (2004) who found that trait aggression as an adolescent predicted later physical IPV. The phi coefficient was used to assess stability of IED diagnosis before and after 20 years. There were 62 males with an IED diagnosis before age 20 and 66 males with such a diagnosis after age 20. Given the very high phi, it is clear that the vast majority of men with a current IED diagnosis also had IED characteristics before age 20.

Limitations

Previous analyses of the NCS-R (e.g. Kessler et al. 2004b) discussed the limitations of the study. First, the sample did not include non-English speaking respondents. Second, non-response and response bias related to mental illness is a potential source of bias although evidence from a NCS-R non-response survey indicated that this not a major concern (Kessler, et al. 2004).

The assessment herein of partner abuse covered only one aspect of partner abuse, namely physical aggression. The predictors of sexual aggression within marriage may be different from the predictors of physical aggression, but there is relatively little research on possible differential predictors of physical and sexual aggression in community samples (Monson, Langhinrichsen-Rohling and Taft, 2009). The assessment of child abuse with one item, being badly beaten as a child may have underestimated the prevalence of physical abuse of the subjects herein.

The percentages of women (8%) and men (5%) who reported that they were physically aggressive are lower than the 10-12% rates of perpetration and victimization found in the two major representative sample surveys of Straus & Gelles (1990) and Schafer, Caetano & Clark. (1998), but similar to past year victimization rates for women (4%) and men (5%) found in the representative sample of Black, Basile, Breiding, Smith et al. (2011). The latter study did not include perpetration rates but in national samples like that of Straus and Gelles (1990), the rates of perpetration and victimization were almost identical. Nonetheless, one must be cautious in generalizing from our prevalence rates of partner abuse. However, with the identical measures used in a representative WHO sample in Ukraine, several findings, including IED, had very similar elevated risks for perpetration of physical aggression (O'Leary et al., 2008).

The data herein suggest the need for early interventions for those at risk for IPV many years later since dating aggression, and IED before age 20 were significant risk factors for IPV. As far as we know, this is the first study using a representative sample to evaluate dating aggression and a diagnosis of IED as risk factors for perpetration of IPV. Given that several studies show that dating aggression before marriage predicts physical aggression in early marriage (Lawrence & Bradbury, 2001; Leonard & Senchak, 1993), these data support the view that physical aggression before marriage may well continue long into marriage.

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**Table 1** Descriptive characteristics (%; n) of married/co-habiting men and women in the U.S. (weighted data)

	Total (N=1568)	Men (N=798)	Women (N=770)	Test Statistic <sup>a</sup>
<i>Demographic characteristics</i>				
Aged 18-39 (vs 40+)	32.7 (513)	27.6 (220)	38.0 (293)	10.2**
Race, White	81.6 (1279)	80.3 (641)	82.9 (638)	0.3
Education, 0-12 years	45.7 (716)	49.1 (391)	42.2 (325)	4.2*
Employment Status, Not Working	33.1 (519)	26.7 (213)	39.7 (306)	22.1***
Household income, <\$65,000	52.7 (826)	50.5 (403)	54.9 (423)	3.2
<i>Social learning factors</i>				
Parental violence toward each other	16.4 (255)	14.8 (118)	18.0 (137)	1.5
Beaten as a child by parent	5.9 (93)	6.6 (53)	5.3 (41)	1.7
<i>Developmental factors</i>				
First dated 14 or younger	29.6 (460)	37.2 (295)	21.7 (165)	25.7***
Physical aggression in dating relationship	6.0 (94)	4.9 (39)	7.1 (55)	2.2
Childhood conduct disorder (screen pos.)	41.8 (655)	46.6 (372)	36.8 (283)	10.2**
Alcohol abuse onset before age 20	4.9 (77)	7.2 (57)	2.6 (20)	31.6***
Drug abuse onset before age 20	3.2 (50)	4.1 (33)	2.2 (17)	8.3**
Intermittent explosive disorder before age 20	5.3 (83)	7.8 (62)	2.7 (21)	28.3***
Mood/anxiety disorders before age 20	14.4 (226)	11.6 (93)	17.3 (133)	16.8***
<i>Adult psychopathology (episodes from age 20)</i>				
Alcohol abuse	9.1 (143)	13.6 (109)	4.4 (34)	37.1***
Drug abuse	4.7 (74)	6.6 (53)	2.7 (21)	19.1***
Intermittent explosive disorder	5.8 (91)	8.3 (66)	3.2 (24)	22.8***
Mood/anxiety disorders	25.0 (392)	19.6 (157)	30.5 (235)	29.3***
<i>Quality of dyadic relationship</i>				
Victimized by spouse	16.0 (251)	18.8 (150)	13.2 (101)	9.0**
Marital strain index, mean $\pm$ SD	0.7 $\pm$ 1.1	0.7 $\pm$ 1.2	0.8 $\pm$ 1.1	1.1
<i>Marital Status</i>				
Cohabiting	9.7 (153)	10.4 (83)	9.1 (70)	1.4
First marriage	66.1 (1037)	64.7 (516)	67.6 (521)	
Second+ marriage	24.2 (379)	24.9 (199)	23.3 (180)	

<sup>a</sup>Chi-square tests for categorical variables and t-test for continuous variables (Marital problems)\* $p \leq 0.05$  \*\* $p \leq 0.01$  \*\*\* $p \leq 0.001$



**Table 2** Rates of aggressive behavior by the respondent against their spouse/partner (weighted data)<sup>a</sup>

	Men	Women	
	%	%	OR (95% CI)
Total sample (weighted)	N=798	N=770	
Lifetime history of aggression	14.7	20.7	0.66 (0.51, 0.85)**
Aggression in the past year	5.0	8.1	0.60 (0.33, 1.09)
Aggression sample with past year aggression (weighted)	N=40	N=62	

Note. OR, odds ratio; CI, confidence interval.

<sup>a</sup> Rates were nearly identical in the full sample of individuals completing the marital relationship module (see Supplemental Table 2)

\*  $p \leq .05$  \*\*  $p \leq .01$  \*\*\*  $p \leq 0.001$

**Table 3** Risk factors for any perpetration in the past year

	Men		Women	
	OR (95% CI)	aOR <sup>a</sup> (95% CI)	OR (95% CI)	aOR <sup>a</sup> (95% CI)
<b>Block 1.</b>				
<i>Demographic Characteristics</i>				
Age groups, 18-39 (vs. 40+)	1.5 (0.5, 4.3)	-- <sup>a</sup>	4.3 (2.0, 9.0)***	3.5 (1.6, 7.6)**
Race, White	1.2 (0.5, 2.9)	--	1.6 (0.8, 3.5)	--
Education, 0-12 years	0.9 (0.4, 2.2)	--	1.3 (0.7, 2.5)	--
Employment Status, Not Working	0.4 (0.1, 1.4)	--	1.1 (0.5, 2.3)	--
Household Income, <\$65,000	0.7 (0.3, 2.0)	--	1.4 (0.6, 3.0)	--
<i>Social Learning Factors</i>				
Observation of parental violence	8.3 (2.9, 23.9)***	4.3(1.6,11.5)**	2.2 (0.9, 5.3)	--
Beaten as a child by parent	0.9 (0.3, 2.8)	--	1.6 (0.6, 4.2)	--
<i>Developmental factors</i>				
First dated 14 or younger	4.4 (2.0, 9.5)***	3.0 (1.4, 6.2)**	0.9 (0.5, 1.5)	--
Physical aggression in dating	13.5 (4.5, 40.7)***	7.9 (2.8,22.5)***	4.7 (2.3, 9.5)***	3.5 (1.7, 7.1)**
Childhood Conduct dis. (screen pos)	1.9 (0.7, 4.9)	--	2.6 (1.3, 5.0)*	1.7 (0.8,3.6)
Alcohol abuse onset before age 20	2.4 (0.9, 6.5)	--	2.9 (1.2, 6.7)*	1.2 (0.3, 4.1)
Drug abuse onset before age 20	2.9 (0.8, 10.6)	--	2.9 (1.5, 5.9)**	0.5 (0.2, 1.4)
IED before age 20	4.8 (2.1, 11.4)***	3.8 (1.5, 9.5)**	6.1 (2.6, 14.8)***	3.2 (1.2, 8.7)*
Mood/anx disorders before age 20	1.6 (0.6, 4.6)	--	1.6 (1.0, 2.7)	--
<b>Block 2.</b>				
<i>Adult psychopathology (episodes from age 20)</i>				
Alcohol abuse	2.4 (1.1, 5.3)*	0.4 (0.1, 2.0)	1.4 (0.6, 3.3)	--
Drug abuse	6.5 (3.0, 14.0)***	3.8 (0.8, 18.4)	2.4 (1.0, 5.8)	--
IED	6.6 (3.0, 14.4)***	14.5 (2.2, 96.1)**	6.0 (2.7, 13.4)***	1.9 (0.4, 9.2)
Mood/anxiety disorders	1.9 (0.8, 4.4)	--	1.6 (0.9, 3.0)	--
<i>Quality of dyadic relationship</i>				
Victimized by spouse	27.9 (8.0, 96.8)***	27.8 (4.6, 167.7)***	7.5 (3.6, 15.7)***	5.6 (2.3,13.9)***
Marital strain index, 2+	12.3 (4.9, 31.3)***	1.5 (0.4, 5.4)	5.3 (2.8, 9.9)***	2.5 (1.2, 5.2)*
<i>Marital status</i>				
Cohabiting	1.7 (0.5, 5.6)	--	5.1 (2.4, 11.2)***	2.5 (1.0, 6.5)
First marriage	1.0	--	1.0	1.0
Second+ marriage	1.0 (0.3, 2.6)	--	1.5 (0.7, 3.2)	1.5 (0.6, 3.9)

<sup>a</sup>Adjusted for all significant variables in the block and all significant variables in the previous block. See analysis section for more details. -- indicates that variable was not included in adjusted model.

<sup>b</sup> To account for the fact that dating aggression could be reported for the current spouse, we explored the relationship between dating aggression and partner violence for the subsample of people who did not date their current spouse/partner before age 21 (Men:  $n=407$ ; Women:  $n=283$ ). The analysis of the subsample yielded OR's of similar size between dating aggression with someone other than their current spouse/partner and aggression towards their current spouse/partner (Men: 20.7 (4.1, 104.3),  $p=0.0005$ ; Women: 3.2 (0.9, 11.7),  $p=0.08$ ).

\* $p \leq 0.05$  \*\*  $p \leq 0.01$  \*\*\*  $p \leq 0.001$

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