



**Identifying Unique and Shared Risk Factors for Intimate Partner Violence and Clinically-Significant Intimate Partner Violence**

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Complete List of Authors:	Slep, Amy; New York University, Cariology and Comprehensive Care Foran, Heather; Technische Universität Braunschweig, Heyman, Richard; New York University, Snarr, Jeff; SUNY Brockport, Travis, Wendy; United States Air Force, Family Advocacy Program
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Review

RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

RUNNING HEAD: Risk Factors for Intimate Partner Violence

Identifying Unique and Shared Risk Factors for Intimate Partner Violence and Clinically-Significant Intimate Partner Violence

Amy M. Smith Slep<sup>a</sup>, Heather M. Foran<sup>b</sup>, Richard E. Heyman<sup>a</sup>, Jeffery D. Snarr<sup>c</sup>

<sup>a</sup>Department of Cariology and Comprehensive Care, New York University

<sup>c</sup>Department of Psychology, State University of New York at Brockport

<sup>b</sup>University of Braunschweig

United States Air Force Family Advocacy Program<sup>1</sup>

Lackland-Kelly Air Force Base

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<sup>1</sup> Contributors from the United States Air Force Family Advocacy Program were, in alphabetical order, Maj. Rachel E. Foster, Lt. Col. David J. Linkh, and Lt. Col. James D. Whitworth.

## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

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## Abstract

Intimate partner violence (IPV) is a significant public health concern. To date, risk factor research has not differentiated violence that leads to injury and/or fear (i.e., clinically significant IPV; CS-IPV) from general IPV. Isolating risk relations is necessary to best inform prevention and treatment efforts. The current study used an ecological framework and evaluated relations of hypothesized factors within individual, family, workplace, and community levels with both CS-IPV and general IPV to determine whether they were related to one type of IPV, both, or neither for both men and women. Hypothesized risk and promotive factors from multiple ecological levels of influence were selected from the literature and assessed, along with CS-IPV and general IPV, via an anonymous, web-based survey. The sample comprised U. S. Air Force (AF) active duty members and civilian spouses (total  $N = 36,861$  men; 24,331 women) from 82 sites worldwide. Relationship satisfaction, age, and alcohol problems were identified as unique risk factors (in the context of the 23 other risk factors examined) across IPV and CS-IPV for men and women. Other unique risk factors were identified that differed in prediction of IPV and CS-IPV. The results suggest a variety of both established and novel potential foci for indirectly targeting partner aggression and clinically-significant IPV by improving people's risk profiles at the individual, family, workplace, and community levels.

*Keywords:* partner abuse, intimate partner violence, risk factor, ecological model, prevention.

## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

Identifying Unique and Shared Risk Factors for General and Clinically-Significant Intimate  
Partner Violence

Intimate partner violence (IPV) is a major public health problem; the prevalence of physical IPV in the United States is estimated at approximately 16% (e.g., Schafer, Caetano, & Clark, 1998). Both women and men are injured by IPV, though women's injury rates are higher (Cascardi, Langhinrichsen, & Vivian, 1992; Stets & Straus, 1990). IPV is associated with major depressive episodes and posttraumatic stress disorder in women (Campbell & Lewandowski, 1997; Cascardi et al., 1992); poorer health, depressive symptoms, substance abuse, and injury for both men and women (Cascardi et al., 1992; Coker et al., 2002; Stets & Straus, 1990); as well as relationship discord and divorce (Lawrence & Bradbury, 2001; Rogge & Bradbury, 1999).

Unfortunately, interventions for perpetrators directed to treatment for IPV have generally not been effective (see Babcock, Green, & Robie, 2004; Eckhardt et al., 2013). There are more encouraging findings, however, for primary prevention programs aimed at IPV in teens' dating relationships (see Whitaker et al., 2013). It may be that IPV will prove easier to prevent than treat. This first generation of prevention, however, targeted a limited number of individual-level risk factors (e.g., attitudes about IPV, expectations for relationships). To advance these prevention efforts, at least two gaps need to be filled.

First, we need to understand how risk factors for general IPV, which includes relatively commonplace acts of minor aggression (e.g., pushing, slapping), compare with those for clinically-significant physical IPV (CS-IPV), which invokes fear, results in injury, or both (see Heyman, Slep, & Foran, 2012). IPV exists on a continuum from milder acts of IPV (e.g., grab, slap) to more serious, potentially injurious IPV (e.g., punching, kicking). It is critical to know whether the same risk factors are implicated for the entire continuum. If some factors are less relevant to CS-IPV than to IPV generally, and the reverse is true for other risk factors, our

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3 prevention efforts might be made more effective by being engineered accordingly – universal  
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5 programs should focus on mitigating risk for general IPV, while selected and targeted prevention  
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7 might be most effective if an explicit focus on addressing risk for CS-IPV were incorporated.  
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11 Second, we need to understand how individual factors combine with factors from other  
12  
13 levels of influence to confer risk for IPV and CS-IPV. Effective IPV prevention programs have  
14  
15 focused on changing an individual's characteristics to reduce his or her risk for IPV perpetration.  
16  
17 Yet, both theoretical and empirical advances make a compelling case that risk and resilience  
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19 operate at other levels of an ecological framework, as well. Ecological theory has been applied to  
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21 IPV in the theoretical literature for decades (e.g., Dutton, 1995), but has rarely been incorporated  
22  
23 into empirical work (see O'Leary, Slep, & O'Learly, 2007 for one example). Focused, cross-  
24  
25 sectional studies do support the importance of outer ecological levels to IPV. Relationship  
26  
27 factors seem particularly critical in explaining variance in IPV both in the context of ecological  
28  
29 cross-sectional studies (e.g., O'Leary et al., 2007) and longitudinal studies (e.g., Capaldi, Shortt,  
30  
31 & Kim, 2005; O'Leary, Malone, & Tyree, 1994). Work-related factors seem critical in  
32  
33 understanding intervention effects including mandatory arrest policy impacts (Sherman, Smith,  
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35 Schmidt, & Rogan, 1992). Although less understood, community characteristics have factored  
36  
37 prominently in feminist and ecological theories of IPV (e.g., Dutton, 1985; Heise, 1998) and are  
38  
39 important in understanding another form of family violence—namely, child abuse (Duncan &  
40  
41 Raudenbush, 2001). However, very little research documenting the nature and relative  
42  
43 importance of workplace and community risk/promotive factors for IPV and CS-IPV exists.  
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45 Furthermore, no empirical guidance is available to suggest how factors at these disparate levels  
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47 might fit together to confer or reduce risk for IPV and CS-IPV.  
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56 To address these gaps, we partnered with the United States Air Force (USAF) to assess  
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58 IPV and CS-IPV as part of their biennial Community Assessment (CA). The CA included a  
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3 variety of psychometrically sound (Snarr, Heyman, & Slep, 2006), brief, self-report measures  
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5 assessing a broad range of individual, family, workplace, and community factors. We examined  
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7 the available CA scales in light of the existing IPV literature (e.g., Schumacher et al., 2001; Stith  
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9 et al, 2004). We focused on several hypothesized risk and promotive factors reflecting individual  
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11 functioning (e.g., depressive symptoms, general self-efficacy), relationship/family functioning  
12  
13 (e.g., relationship satisfaction, family coping ability), workplace functioning (e.g., workgroup  
14  
15 cohesion), and community functioning (e.g., community safety, community cohesion) in this  
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17 study. We hypothesized that all selected variables at each ecological level would be significantly  
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19 related to IPV perpetration and that a subset of these at each level would relate to CS-IPV  
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21 perpetration, although with the small amount of literature on CS-IPV among community  
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23 samples, we did not specifically hypothesize which factors would only relate to general IPV.  
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30 Similarly, based on the literature suggesting similar risk factors for men and women (e.g.,  
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32 Fletcher, 2010; O'Leary et al., 2007), there was not enough evidence to guide specific  
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34 hypotheses about gender differences. So, although we tested effects separately for men's and  
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36 women's perpetration, we did not put forth specific gender-based hypotheses. We were unable to  
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38 test directly for gender effects due to the complex structure of the data: The vast majority of men  
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40 and women in the data set were likely independent of each other, but some couples were likely  
41  
42 also present and not detectable.  
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46 Analyses at multiple ecological levels have implications for integrated theory  
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48 development and prevention and outreach activities, which can occur at any or all of the  
49  
50 ecological levels. Therefore, after testing the specifically hypothesized bivariate relations, we  
51  
52 then developed regression models of uniquely additive risk/promotive factors both within and  
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54 across ecological levels. These models were based on the results of the hypothesized bivariate  
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56 relations, but were themselves, exploratory. These multivariate and cross ecological level results  
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3 will allow theoreticians and program developers alike to understand, for example: (a) all the  
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5 significant community risk/promotive factors for IPV; (b) the unique community risk/promotive  
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7 factors for IPV; and (c) community risk/promotive factors that account for unique variance in  
8  
9 IPV when considered in the context of risk/promotive factors from all ecological levels.  
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13 The 2006 CA was a random survey of United States Air Force members and spouses at  
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15 all 83 major sites in the United States, Europe, and Asia. The AF is grossly representative of the  
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17 U.S. adult population of families with at least one employed adult. To be able to include both  
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19 active duty member and spouse data (and thus include civilians and as many women as possible),  
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21 we chose to weight the data to a comparable U. S. population. The sample was weighted to  
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23 match 2005 American Community Survey data (U.S. Census Bureau, 2006) for adults between  
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25 the ages of 18 and 50 (detailed in the Method section).  
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29 Although AF members are not randomly drawn from the civilian population, AF  
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31 members are not as divergent as some might believe. Six of the top seven reasons military  
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33 members gave as their primary reason for volunteering were economic/career and personal  
34  
35 (Defense Manpower Data Center, 2000): “money for college, college repayment, education  
36  
37 benefits and opportunities” (17.1%); “travel and new experiences” (8.2%); “security and stability  
38  
39 of the job” (6.4%); “time to figure out what you wanted to do” (6.3%); “get away from family,  
40  
41 personal situation, or home town” (6.1%); “training in skills useful for civilian employment”  
42  
43 (5.9%). AF volunteers (but not spouses) are initially screened for substance abuse, criminal  
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45 history, and mental and physical health problems. Legal and/or personality problems can lead to  
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47 expulsion. At least one member of the family is full-time employed (by the service) and all are  
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49 provided with housing and health care. However, no entirely civilian data set of equivalent size  
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51 ( $N > 100,000$  randomly sampled participants) and scope (83 communities assessed regarding  
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53 risk factors from four ecological levels and measures that discriminate clinically significant  
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levels of IPV) exists. Therefore, we believe that weighted analyses of this data set offered more advantages than the disadvantages.

### Method

#### *Participants*

Active duty (AD) members ( $N = 128,950$ ) of the United States AF and civilian spouses of AF AD members ( $N = 157,455$ ) were invited to complete the 2006 Community Assessment (CA), a biennial, anonymous survey. Sampling for the 2006 CA occurred at the same time as sampling for another large survey of AF AD members. To minimize survey fatigue, sampling was stratified on major command, installation, pay grade, AF Specialty Code job category, gender, race, and religious faith. Technical details of the sample selection process are available from the RAND Corporation (Bigelow, 2007). Civilian spouses were not sampled; all civilian spouses of AF AD members were invited to participate in the CA. A total of 54,543 AD members and 19,722 spouses responded, resulting in a response rate of 44.7% for AD members and 12.3% for spouses. After data cleaning (see below), the data obtained from 52,002 AD members and 17,226 spouses remained eligible for analysis.

#### *Procedure*

The 2006 CA was administered by Caliber Associates between April and June 2006. The survey was entirely Web-based; each AD member selected was sent an e-mailed invitation containing the Web link and access code. All civilian spouses were sent postcard invitations in the mail. From launch date to survey close, weekly e-mails were sent reminding the selected AD members to participate; civilian spouses received two reminder postcards (at 2 and 4 weeks post-launch). The survey took approximately 45 min.–1 hr. to complete and could be completed across multiple sessions.

#### *Measures*



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The CA included demographics, quantitative items (e.g., typical number of hours worked each week), and brief scales measuring individual, family, organization, and community constructs. Although based on existing literature, the CA was largely designed by a working group with outside consultants. The psychometrics of the CA scales have been reported in detail elsewhere (Snarr, Heyman, & Slep, 2006); factor analyses confirmed the structure of each scale, and the internal consistency coefficients were acceptable (mean alpha = .83, range = .63–.95).

The following scales were selected as hypothesized predictors of IPV from the CA:

*Individual Constructs*

*Depressive Symptoms.* Seven items (Mirowsky & Ross, 1992) of the widely-used Center for Epidemiological Studies Depression Scale (Radloff, 1977) were included.

*Perceived Financial Stress.* Five items were drawn from the Social Change in Canada Survey (Krause & Baker, 1992), a financial strain scale (Vinokur, Price, & Caplan, 1996), and a measure of family economic pressure (Conger et al., 1993).

*Personal Coping.* Nine items assessed participants' ability to cope with stress and to manage work and family demands. Six items were drawn from the General Self-Efficacy Scale (Scholz, Gutierrez, Sud, & Schwarzer, 2003), and three were drawn from an earlier CA.

*Physical Health.* Six items from the Short Form-8 Health Survey (Ware, Kosinski, Dewey, & Gandek, 2001) inquired about overall current health, pain, energy levels, sleep, diet, and exercise patterns.

*Religious Involvement.* Five items assessed importance of spirituality and involvement in and satisfaction with a religious faith.

*Alcohol Problems.* The 10-item Alcohol Use Disorders Identification Test (AUDIT; Rumpf, Hampke, Meyer, & John, 2002) was administered.

*Age.* Civilian spouses were asked to report their current ages directly. AD members,

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3 however, were not, due to concerns about its possibly identifying nature. Rather, age distribution  
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5 data for the AF population—broken down by base, pay grade, and years of military service—  
6  
7 were obtained from the Air Force Personnel Center. AD participants' ages were then estimated.  
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9

*Family Constructs*

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12 *Family Income.* AD member income was calculated based on pay grade, years of military  
13  
14 experience, and additional reported work hours. Spouse income was estimated from employment  
15  
16 status and census figures (US Census Bureau, 2006). These were combined to estimate income.  
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20 *Relationship Satisfaction.* Four items from the widely-used Quality of Marriage Index  
21  
22 (QMI; Norton, 1983) were administered.  
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25 *IPV and CS-IPV.* An inventory of the frequency of aggressive acts perpetrated in the  
26  
27 previous year – similar to the Physical Assault subscale of the revised Conflict Tactics Scales  
28  
29 (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) – was administered. Respondents  
30  
31 could also select “other” and write in acts that were coded by the authors as IPV or not. Total  
32  
33 frequency of all acts reported was the IPV measure. Follow-up questions asked about injuries  
34  
35 and fear resulting from each act reported. CS-IPV was defined as at least one act of IPV with at  
36  
37 least one impact. Impact included victim injury or fear, or an exceptionally dangerous act that  
38  
39 least one impact. Impact included victim injury or fear, or an exceptionally dangerous act that  
40  
41 was judged likely to result in victim injury (e.g., choke).  
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44 *Family Coping.* Three items assessed the ability of families to work together as a team,  
45  
46 keep positive perspectives during rough times, and directly confront problems or challenges.  
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49 *Parent-Child Relationship Satisfaction.* Three items modified from the Relationship  
50  
51 Satisfaction Scale (Simons, Beaman, Conger, & Chao, 1993) were used.  
52

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54 *Parent-Child Physical Aggression.* Perpetration of specific acts of parent-child physical  
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56 aggression was assessed with a list similar to the Parent-Child Conflict Tactics Scales (Straus,  
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58 Hamby, Finkelhor, Moore, & Runyan, 1998). Rather than reporting the frequency of acts,  
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3 participants report reason(s) for the act. Pilot work (Heyman & Slep, 2003) found this promoted  
4 truthful reporting. Parent-child physical aggression was indexed by the number of different acts  
5 reported (i.e., a variety score). For parents of more than one child, the greatest number of  
6 different acts reported against any child was used.  
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11  
12 *Parental Status/Number of Children.* Respondents indicated how many minor children—  
13 from “0” to “4 or more” – were living in their homes. Because this variable incorporated both  
14 parental status and number of children, all analyses with this variable were checked to determine  
15 whether associations were due to being a parent or not versus number of children.  
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22 *Organizational Constructs*  
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25 *Satisfaction with the Air Force.* Five face-valid items assessed satisfaction with the Air  
26 Force as a way of life for AD members and their families.  
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30 *Work Group Cohesion/Preparedness.* Six questions were adapted from an Army Family  
31 Research Program individual readiness measure (U.S. Army Community and Support Center,  
32 1989) assessing cohesion (e.g., working together as a team, having high morale).  
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37 *Work Relationships.* Three items assessed the quality of relationships with co-workers,  
38 supervisors, and supervisees.  
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42 *Support from Leadership.* Seventeen items assessed the level of support received from  
43 various AF leaders and the preparation received before and support received after a deployment.  
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47 *Community Constructs*

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49 *Support from Formal Agencies.* Six items measured satisfaction with the abilities of  
50 community agencies to meet family needs, and with official base programs and services.  
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54 *Social Support.* Five questions, adapted from the 1989 Army Soldier and Family Survey  
55 (Research Triangle Institute, 1990), assessed availability of tangible support from varied sources.  
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59 *Community Safety.* Six items assessed perceived safety. Four of the items were adapted  
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3 from the Knight Community Indicators Survey (Princeton Survey Research Associates, 1999).

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5 *Community Stressors.* Thirteen questions assessed the availability, quality, and  
6  
7 affordability of community resources (e.g., housing, health care, child care). Three questions  
8  
9 assessed perceptions of the civilian community.  
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13 *Community Support for Youth.* Three face-valid items assessed (a) opportunities for youth  
14  
15 to use their time well and (b) support for youth by leadership.  
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19 *Community Cohesion.* Twenty-one items assessed members' senses of shared mission,  
20  
21 teamwork, unity, and connectedness in the community.  
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23

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25 *Support from Neighbors.* Six items assessed support from people in the neighborhood,  
26  
27 and one question (adapted from the Social Capital Benchmark Survey, 2000) asked how often  
28  
29 neighbors get together to fix or improve something.  
30  
31

### 32 *Data Management*

33  
34 *Missing Data.* Three patterns of missingness were observed in the data from all who  
35  
36 logged in ( $N = 54,543$ ). First, less than 3% ( $n = 1,369$ ) ended their participation without  
37  
38 answering the first few questions asking for demographics; these were considered non-  
39  
40 respondents and were removed. Of those remaining, over 75% ( $n = 42,215$ ) continued  
41  
42 responding until the end of the survey; the rest ( $n = 10,959$ ) ended their participation at some  
43  
44 point in between. Although there was less missing data than expected, it was not low enough to  
45  
46 be ignored (Allison, 2001).  
47  
48

49  
50 Prior to multiple imputation, all who entered "Other" as their location and could therefore  
51  
52 not be weighted ( $n = 305$ ) were removed. Because it was likely that both people from a few  
53  
54 couples would have participated (creating problems of non-independence), we "matched up"  
55  
56 these couples to the extent possible ( $n = 1597$  couples). One member of each such couple ( $n =$   
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58 833 AD members, 764 spouses) was then randomly chosen and removed from the dataset.  
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Significantly non-normal variables were transformed and multiple imputation was then conducted separately by gender. IVEware (Raghunathan, Solenberger, & Van Hoewyk, 2002) was used due to its ability to readily handle large, complex datasets comprising variables of various types (e.g., continuous, semi-continuous, categorical, dichotomous, count). Fifty iterations of multiple imputation were conducted, with every 10<sup>th</sup> resulting dataset saved.

*Weighting.* To weight the sample to the relevant U.S. population, we used the 2005 American Community Survey Public Use Microdata Sample (PUMS) dataset (U.S. Census Bureau, 2006), retaining only households with (a) at least one minor child and (b) at least one full-time-employed adult between 17 and 50 years of age. Gender-specific CA sample weights were created and raked, using WesVar Version 4.2 (Westat, 2002), on ethnicity (African American, non-Hispanic White, Hispanic/Latino, Other, or Unknown), age, and household employment status (single- or dual-income). Raking uses iterative proportional fitting to match marginal distributions of a sample to known population margins. In surveys, weights—especially for those in rare categories – can become very large. Extreme weights (four times greater than or less than the mean weight) were trimmed. This is typically done so that extreme weights do not overly influence results and do not result in large sampling variances (e.g., Potter, 1988).

### Results

Given the exploratory nature of some of the analyses, the sample was randomly split into development and validation subsamples. This resulted in a development sample of 17,436 men and 12,181 women and a validation sample of 17,425 men and 12,150 women. There were no significant differences between samples on any study variables ( $ps > .01$ ). Approximately 1% of the sample reported CS-IPV and 5-7% reported IPV. Rather than using an excessively large comparison group (~93% to 99% of the sample), we randomly selected comparison groups from the participants that did not endorse CS-IPV and IPV, as is typically done in large scale survey

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3 samples (Graubard & Korn, 1996). This resulted in 903 men and 645 women in the development  
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5 and 880 men and 675 women in the validation samples for analyses with CS-IPV and 5,741 men  
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7 and 7,064 women in the development sample and 5,714 men and 7,104 women in the validation  
8  
9 sample for analyses with IPV. The randomly selected comparison groups did not significantly  
10  
11 differ from the rest of the nonviolent participants on any of the study variables ( $ps > .01$ ).  
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15 Correlation analyses and linear regression were used to test predictors of IPV (a  
16  
17 continuous variable). Logistic regression analyses were used to test predictors of CS-IPV (a  
18  
19 dichotomous variable). First, we examined the bivariate associations between IPV and predictor  
20  
21 variables. Second, we tested which of the predictors within each ecological level (individual,  
22  
23 family, organizational, or community) uniquely contributed to IPV or CS-IPV using backward-  
24  
25 elimination regression analyses. This method was selected because (a) all bivariate analyses were  
26  
27 hypothesized and (b) backward elimination is less sensitive to possible suppressor effects among  
28  
29 predictors (Hosmer & Lemeshow, 2004). Third, an overall model across ecological levels was  
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31 tested with the unique predictors retained from each level added to the equation. Fourth, results  
32  
33 were tested in subsamples of married people and parents permitting examination of additional  
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35 hypothesized predictors specific to parenting or marital status (e.g., child IPV, marital length).  
36  
37 Fifth, results of all final models of unique predictors were tested to see whether they cross-  
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39 validated in the holdout samples. Lastly, final models were tested for generalizability across  
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41 region, marital status, and urbanicity.  
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48 Descriptive statistics and bivariate associations are presented in Table 2 for IPV and CS-  
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50 IPV. As hypothesized, nearly all predictors were significantly related to IPV for men and  
51  
52 women. The largest associations with IPV were all individual- or family-level variables and were  
53  
54 remarkably consistent across genders. Two variables—support from formal agencies and hours  
55  
56 worked per week – were not significantly related to IPV for either men or women.  
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3 Also consistent with our hypotheses, nearly all hypothesized predictors were significantly  
4 related to CS-IPV for men. All individual-level variables and all family-level variables were  
5 significant predictors of men's CS-IPV except religious involvement and number of children.  
6  
7 Three organization-level variables and five community-level variables were also significant  
8 predictors of men's CS-IPV. For women, all variables but one (i.e., hours worked per week)  
9 were significant bivariate predictors of CS-IPV.

*Backward-Elimination Regressions—Relationship Sample—IPV and CS-IPV*

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Backward-elimination linear regression analyses predicting IPV and logistic regression  
analyses predicting CS-IPV were conducted for each ecological level in the development  
subsamples. Analyses were first conducted for all individuals in relationships and excluded  
variables only available for parents or married individuals. Specific predictor variables entered  
for each ecological level are listed in Table 2. These variables were entered into a backward-  
elimination regression, and those that made a unique contribution to the prediction of IPV were  
retained. The final models of variables that made a unique contribution to predicting IPV and  
CS-IPV within ecological level in the development subsamples are presented in the leftmost  
columns of Tables 3-6. Linear regression coefficients, standard errors, and *t*-statistics are  
provided in Tables 3 and 4 for IPV; logistic regression coefficients, standard errors, and Wald  
statistics are provided in Tables 5 and 6 for CS-IPV.

Next, all significant unique predictors from each level were entered into a backward-  
elimination regression equation to test which made unique contributions overall. The unique  
overall predictors are also presented in Tables 3-6 under the "Overall in a Relationship" heading.  
In the overall model of men's IPV, six predictors were retained (see Table 3). For women's IPV,  
all the same predictors as for men were retained, plus support from neighbors (see Table 4).

The overall models of men's and women's CS-IPV retained a subset of the unique

## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

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3 predictors that were included in the overall model of men's and women's IPV (see Tables 5 &  
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6 6). For men, relationship satisfaction, alcohol problems, age, and personal coping were retained  
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8 as significant unique predictors. For women, relationship satisfaction, physical well-being, age,  
9  
10 alcohol problems, and economic well-being made unique contributions.  
11

12  
13 After final regression models were fit, these were tested with the validation subsamples.  
14  
15 In the rightmost columns of Tables 3-6, the cross-validation results are reported for each level  
16  
17 and for the final overall model. For models of IPV, the final models were largely replicated for  
18  
19 men and women, and the final cross-validated models were identical across genders. Results also  
20  
21 largely cross-validated for the models of men's CS-IPV but were less consistent for women.  
22  
23 None of the more distal predictors—the organization and community level variables—cross-  
24  
25 validated for women. However, the individual, family, and overall level models largely did.  
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*Backward-Elimination Regressions—Married and Parent Samples—IPV*

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32 Additional family-level analyses were conducted with subsets of participants that were  
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34 married, married with children, or in relationships with children to test which specific marital or  
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36 parental variables made unique contributions (i.e., parent-child relations, parent-child physical  
37  
38 aggression, family coping, and marital length). For married men and women, marital length and  
39  
40 family coping made additional unique, cross-validated contributions to predicting IPV. The only  
41  
42 difference for married men and women was that family income was not a significant predictor  
43  
44 for men when marital length and family coping were included. Parent-child physical aggression  
45  
46 was the only parent-specific variable to make an additional, cross-validated contribution for men  
47  
48 and women. Family income was not retained in the final models when parental variables were  
49  
50 added to the equations for fathers or mothers.  
51  
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55  
56 Although marital length and family coping made unique contributions at the family level  
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58 for married women, they did not in the context of the other ecological level predictors. For  
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## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

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3 married men, marital length was a significant unique predictor at the overall level, but family  
4  
5 coping was not. In the holdout subsample, marital length cross-validated as a unique overall  
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7 predictor adding to the other overall predictors listed in Table 2 for men. In addition, one more  
8  
9 variable—community unity—was retained in the model for married men; it was a significant  
10  
11 unique predictor for married men across ecological levels, and this result cross-validated.  
12  
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15  
16 When parent-child physical aggression was added to the overall regression equation  
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18 across ecological levels, it made a significant unique contribution to predicting IPV for men and  
19  
20 women. However, the other predictors changed somewhat. For men with children, alcohol  
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22 problems, financial stress, personal coping, relationship satisfaction, and parent-child physical  
23  
24 aggression were retained in the final development subsample model; all but personal coping  
25  
26 cross-validated. For women with children, age, financial stress, personal coping, relationship  
27  
28 satisfaction, and parent-child physical aggression made unique contributions, and all cross-  
29  
30 validated. Hence, the variables from the overall model in Tables 3 and 4 that dropped out when  
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32 parent-child physical aggression was added were age for men and alcohol problems for women.  
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36  
37 *Backward-Elimination Regressions—Married and Parent Samples—CS-IPV*  
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40 Similar analyses were conducted to test which family-structure-specific variables made  
41  
42 unique contributions to CS-IPV. For fathers, parent-child physical aggression made a unique  
43  
44 contribution in the context of the other family variables. When parent-child physical aggression  
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46 was entered into the regression equation with other family level predictors, family income no  
47  
48 longer made a unique contribution, but relationship satisfaction was retained, and this cross-  
49  
50 validated. When parent-child physical aggression was included in the overall model, age,  
51  
52 personal coping, and alcohol problems were no longer significant predictors, which cross-  
53  
54 validated. Hence, parent-child physical aggression was most likely sharing variance with  
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56 economic and maturity factors. A similar pattern was apparent among married men. When  
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## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

marital length was included at the family level, family income was not a significant predictor, but relationship satisfaction remained. When marital length was entered into the overall equation across levels, it remained a significant predictor but age and alcohol problems did not. Marital length may be accounting for variance in CS-IPV that is due to increased maturity.

For married women, marital length and family coping made unique, cross-validated contributions both at the family level and across ecological levels. When family coping was included, relationship satisfaction was not significant. When marital length was included in the equation, similar to the results for men, age no longer made a unique contribution. None of the variables related to parenthood made unique contributions.

*Generalizability Analyses—IPV and CS-IPV*

The models that cross-validated (see Tables 3-6) were tested for generalizability across geographical regions (Northeast United States, Midwest United States, South United States, West United States, Asia, and Europe), city size (urban area of 1,000,000 or more, urban area of 250,000 to 1,000,000, urban area of less than 250,000, rural area of 20,000 or more, rural area of 20,000 or less), or marital status. Development and validation samples were combined, resulting in 1783 men and 1320 women for region and marital status generalizability analyses predicting CS-IPV and 11,455 men and 14,168 women for analyses with IPV. The analyses for city size used individuals living within the United States (CS-IPV: 1502 men and 1096 women; IPV: 9,507 men and 11,926 women). Mplus 5.1 statistical software (Muthén & Muthén, 2007) was used. The models constrained regression coefficients to be equal, and then again with regression coefficients free to vary, across groups. Satorra-Bentler scaled chi-square difference tests were used to check for differences in model fit across groups. The chi-square difference values were combined across the imputed datasets using Rubin and Schenker's (1991) formula.

The unconstrained models were not a significantly better fit than the constrained models

## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

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(chi-square difference test not significant,  $p > .05$ ) for any of the models tested for IPV; therefore, all of the cross-validated IPV models presented in Tables 3 and 4 generalized across marital status, region, and city size for men and women.

The chi-square difference test was also not significant ( $p > .05$ ) for any of the CS-IPV models for marital status and city size; nor were there differences across region for women. The unconstrained model was a significantly better fit than the constrained model for men for the organizational-level model (support from leadership; mean  $\Delta \chi^2(5) = 18.47$ , Rubin's  $F = 3.50$ ,  $p < .05$ ). The strongest associations between support from leadership and CS-IPV were for men in the Midwest and Asia; men living in the South, West, and Europe had weaker associations, and there was no significant association between these two variables for men living in the Northeast.

## Discussion

This is the first study to examine risk and promotive factors at four ecological levels for IPV and CS-IPV in the same sample. Both men's and women's IPV and CS-IPV were modeled and these models cross-validated. In addition, the final regression models were tested for their generalizability across married and unmarried couples, and couples from areas of different urbanities and different regions of the country.

First, although CS-IPV perpetration was reported by only one percent of the sample, it was measurable in this community-based survey. Second, nearly all hypothesized variables from each of the levels were significantly related to both IPV and CS-IPV, suggesting more similarities than differences between general and impactful IPV risk models, and that ecological approaches to both CS-IPV and IPV have merit. Of all the factors tested, only hours worked was unrelated to IPV and CS-IPV for both men and women. Clearly, a wide variety of not only individual and family factors, but also workplace and community factors, are linked with IPV and CS-IPV. A few factors were related to men's IPV (but not CS-IPV) and women's IPV and

## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

CS-IPV—religious involvement, number of children, and community stress. Interestingly, support from formal agencies was significantly related to men’s and women’s CS-IPV, but not the more inclusive construct of IPV. The finding that support from agencies was linked specifically with CS-IPV suggests that for couples engaging in non-clinical levels of IPV, formal agencies may be less relevant to functioning. This can provide some level of reassurance that formal systems may be able to impact those with the greatest need.

The variety of workplace and community factors associated with IPV and CS-IPV opens the door to preventing IPV in novel ways. To date, most IPV prevention efforts have targeted violence directly through awareness-raising public service messages or through proximal risk factors such as attitudes condoning IPV. If future work suggests the workplace and community correlates found here do indeed have a direct or indirect causal effect on IPV and CS-IPV, preventionists could augment existing strategies with programs that focus on such factors as support from management at work, work group relations, community unity, and/or support from neighbors. Although not directed at IPV, some innovative programs directed at more macro-level variables have begun to be developed and implemented to address issues such as alcohol problems (Treno, Lee, Freisthler, Remer, & Gruenewald, 2005).

Additionally, IPV prevention efforts might benefit generally from focusing on a wider range of related risk and promotive factors, thereby targeting IPV indirectly. Communities that Care (Hawkins & Catalano, 1992) has achieved impressive reductions in the prevalence of adolescent substance use by targeting risk factors (rather than substance problems themselves) with empirically-supported efforts (Hawkins, 2010). Similarly, NORTH STAR (Slep & Heyman, 2008) is a recent prevention effort that targets CS-IPV as well as other problems through use of evidence-based activities aimed at risk factors. An initial trial found that, under adverse or worsening conditions in the community, NORTH STAR reduced rates of CS-IPV (Heyman,

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3 Slep, & Nelson, 2011). Approaches that target proximal and distal risk factors complement  
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5 existing efforts that target IPV more directly. In addition to potentially lowering risk, they might  
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7 also be relatively palatable to people who would not be open to interventions for IPV itself.  
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11 The overall regressions suggest that many of the links of IPV with workplace and  
12  
13 community factors are indirect. When tested in the context of overall models, noticeably fewer of  
14  
15 these variables accounted for unique variance. Instead, individual and family variables appeared  
16  
17 more proximal and had unique additive effects. This is consistent with O’Leary, Slep, and  
18  
19 O’Leary (2007), who tested ecological models of IPV (but not CS-IPV) in a community sample.  
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23 Interestingly, and seemingly new to the literature, having children and having more  
24  
25 children appear to decrease risk for IPV and CS-IPV, respectively. It could be that children serve  
26  
27 as a discriminative stimulus that helps inhibit escalated conflict and IPV. This is consistent with  
28  
29 Finkel’s (2007) theory of IPV, which suggests risk factors can be considered either violence-  
30  
31 impelling or -inhibiting. Further study of how partners think of their children and how this  
32  
33 impacts IPV could be useful in reducing IPV (at least among couples with children).  
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37 The factors that emerged as consistent, unique predictors of IPV and CS-IPV have  
38  
39 received a great deal of empirical attention: relationship satisfaction (e.g., Stith, Green, Smith, &  
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41 Ward, 2008), age (e.g., O’Leary & Woodin, 1999), and alcohol problems (e.g., Foran &  
42  
43 O’Leary, 2008). These factors might be particularly potent prevention targets—for example,  
44  
45 targeting younger couples with activities that improve relationship satisfaction (e.g., Halford,  
46  
47 Moore, Wilson, Dyer, & Farrugia, 2004; Markman, Stanley, Blumberg, Jenkins, & Whaley,  
48  
49 2004) and reduce problematic drinking (e.g., McCambridge & Strang, 2004).  
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52  
53 Uniquely, we were able to test risk models for generalizability across marital status,  
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55 urbanicity, and geographic location. Perhaps surprisingly, with the exception of only one  
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57 parameter in one model (support from leadership as it related to men’s CS-IPV), models  
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## RISK FACTORS FOR INTIMATE PARTNER VIOLENCE

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3 generalized completely. It could be that this sample, due to potentially greater-than-typical  
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5 mobility, does not provide as strong a test of potential geography-related differences as some  
6  
7 samples might. However, to the extent that the culture of a community carries potentiating or  
8  
9 buffering influences, it would be likely to impact risk relations among those in that community to  
10  
11 some degree. The consistency of the relations across these factors for men and women for IPV  
12  
13 and CS-IPV, suggests that although mean levels of risk and promotive factors might differ  
14  
15 among these different subpopulations, the way these factors relate to IPV does not. This is  
16  
17 encouraging and suggests that prevention approaches found to work in one region (e.g., Foshee's  
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19 work in the southern US) or with either married or unmarried couples, might reasonably be  
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21 expected to maintain that impact when more broadly disseminated.  
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28 Despite the many strengths of this study, a number of limitations should be noted. These  
29  
30 data are subject to all the typical biases and limitations inherent in self-report data. The  
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32 anonymity procedures certainly helped encourage honest reporting to an extent, but undoubtedly  
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34 some participants under- or over-reported violence. Also, these data are cross-sectional and  
35  
36 cannot test causal hypotheses. Finally, the sample comprised Air Force Active Duty members  
37  
38 and civilian spouses of AF members. Although data reviewed earlier suggest they are reasonably  
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40 representative of a parallel entirely civilian sample, they are not generalizable to some segments  
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42 of the U.S. population at all, including families with neither member of the couple employed.  
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47 As the field moves toward the next generation of prevention research, we believe the  
48  
49 results of this study help fill critical gaps. There is indeed a high degree of overlap in the risk and  
50  
51 promotive factors for IPV and CS-IPV with a few potentially important, unique contributors to  
52  
53 each. Prevention programs can choose to focus on risk factors for both IPV and CS-IPV (e.g.,  
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55 alcohol, relationship satisfaction), or can choose to focus more specifically on risk factors for  
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57 either IPV or CS-IPV in particular. Further, although it is clear that the emphasis on individual  
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3 factors in most existing IPV prevention programs is appropriate, these results suggest that  
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5 unique, proximal risk is carried through relationship factors, which are critical to target (see  
6  
7 O'Leary & Slep, 2010). Although workplace and community factors do not account for unique  
8  
9 variance when individual and family factors are considered, these factors do relate to both IPV  
10  
11 and CS-IPV. Some of these factors account for more unique variance than others, and the results  
12  
13 from the regression analyses within ecological level can provide guidance to preventionists and  
14  
15 policymakers when considering what workplace or community variables they could target to  
16  
17 ultimately help reduce IPV. Although this study is clearly only a first step, continued efforts will  
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19 provide the building blocks necessary to enhance the effects of the first generation of  
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21 empirically-supported IPV prevention efforts (Foshee et al. 2004; Wolff et al., 2003).  
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Table 1

*Bivariate Correlations among Predictor Variables and Intimate Partner Violence*

	Partner Aggression				CS-IPV			
	Men		Women		Men		Women	
<u>Individual Level</u>	M (SD)	<i>r</i>	M (SD)	<i>r</i>	<i>b</i>	Odds Ratio	<i>b</i>	Odds Ratio
Alcohol problems	3.53(3.50)	.13**	1.93(2.30)	.07**	0.38	1.46***	0.61	1.84***
Age	32.79(7.44)	-.13**	37.04(9.01)	-.14**	-0.43	0.65***	-0.70	0.49***
Financial Stress	1.85(0.88)	.12**	1.72(0.87)	.14**	0.38	1.46***	0.76	2.14***
Depressive Symptoms	1.52(0.60)	.14**	1.60(0.65)	.13**	0.41	1.51***	0.67	1.95***
Personal Coping	4.14(0.50)	-.15**	3.87(0.54)	-.14**	-0.54	0.58***	-0.57	0.57***
Physical Well-being	4.10(0.71)	-.11**	4.10(0.78)	-.12**	-0.37	0.69**	-0.75	0.47***
Religious involvement	3.09(1.12)	-.09**	3.36(1.07)	-.07**	-0.13	0.88	-0.30	0.74**
<u>Family Level</u>								
Relationship Satisfaction	5.73(1.16)	-.19**	5.94(1.03)	-.18**	-0.64	0.53***	-0.60	0.55***
Number of children	62.4% <sup>a</sup>	-.11** <sup>b</sup>	66.2% <sup>a</sup>	-.05* <sup>b</sup>	-0.23	0.79	-0.32	0.72*
Family Income (US\$ mo)	6398(3213)	-.12**	9227(5669)	-.10**	-0.33	0.72*	-0.69	0.50***
Marital Length	8.64(6.73)	-.13**	12.68(8.04)	-.13**	-0.37	0.69**	-0.75	0.47***
Family Coping	4.88(1.13)	-.15**	5.13(0.94)	-.15**	-0.59	0.56***	-0.95	0.39***
Parent Child Relations	5.02(0.75)	-.08**	5.08(0.75)	-.07**	-0.60	0.55**	-0.54	0.58**
Child Physical Agg.	1.10(1.14)	.18**	0.99(1.26)	.13**	0.77	2.16***	0.54	1.72**
<u>Organization Level</u>								
Support from Leadership	4.08(0.87)	-.09**	3.81(1.06)	-.07**	-0.30	0.74**	-0.38	0.68***
Workgroup Cohesion	4.12(1.11)	-.10**	3.96(1.16)	-.10**	-0.29	0.75**	-0.35	0.70*
Work Relations	3.95(0.85)	-.09**	3.76(0.89)	-.10**	-0.33	0.72**	-0.48	0.68***
Hours Worked	40.91(4.00)	.05	40.55(3.09)	.02	0.01	1.01	0.09	1.10
<u>Community Level</u>								
Community Unity	4.07(0.82)	-.08**	4.04(0.92)	-.08**	-0.22	0.80*	-0.41	0.67**
Support from Neighbors	3.54(1.00)	-.07**	3.60(1.05)	-.09**	-0.21	0.81*	-0.31	0.73**
Support for Youth	4.29(0.97)	-.05**	4.22(1.08)	-.05**	-0.21	0.81*	-0.30	0.74*
Support from Formal Ag.	4.37(0.91)	-.04	4.33(1.04)	-.05*	-0.12	0.89	-0.44	0.64***
Social Support	4.19(1.35)	-.06**	4.22(1.48)	-.05**	-0.32	0.72**	-0.28	0.76**



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Community Safety	5.05(0.75)	-.06*	5.09(0.75)	-.06**	-0.20	0.82*	-0.43	0.65**
Community Stress	4.06(0.91)	.06**	4.12(0.95)	.07**	0.16	1.17	0.44	1.55***

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ . Intimate partner violence (IPV): Means, standard deviations, and correlation coefficients are presented for the aggression development subsample ( $n = 5,741$  men and  $n = 7,064$  women for all variables except those that were only answerable by married individuals (marital length:  $n = 4,857$  men and  $n = 6,480$  women), married individuals or parents (family coping:  $n = 4,953$  men and  $n = 6,634$  women), or parents (child physical aggression and parent child relations ( $n = 3,584$  men and  $n = 4,677$  women), or Active Duty members (work relations and work cohesion:  $n = 5,606$  men and  $n = 2,315$  women)). Clinically Significant IPV: Results are presented for abuse development subsample: ( $n = 903$  men and  $n = 645$  women for all variables except those that were only answerable by married individuals (marital length:  $n = 727$  men and  $n = 585$  women), married individuals or parents (family coping:  $n = 756$  men and  $n = 602$  women), parents (child physical aggression and parent child relations:  $n = 534$  men and  $n = 418$  women), or military employed (work relations and work group cohesion:  $n = 885$  men and  $n = 204$  women)). <sup>a</sup> Represents the percentage of men and women with children in this sample. <sup>b</sup> Indicates parental status was associated with less IPV, rather than number of children in the family.

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Table 2

*Backward-Elimination Regression Analyses Predicting Men's Intimate Partner Violence*

	Development Sample ( $n = 5,741$ )			Validation Sample ( $n = 5,714$ )		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
<u>Overall in a Relationship</u>						
Relationship Satisfaction	-0.24	0.02	-9.78 <sup>***</sup>	-0.31	0.03	-11.46 <sup>***</sup>
Alcohol Problems	0.12	0.03	4.58 <sup>***</sup>	0.12	0.02	5.41 <sup>***</sup>
Financial Stress	0.10	0.03	3.81 <sup>***</sup>	0.11	0.03	4.16 <sup>***</sup>
Parental Status	-0.30	0.05	-6.02 <sup>***</sup>	-0.25	0.05	-4.91 <sup>***</sup>
Age	-0.13	0.03	-4.68 <sup>***</sup>	-0.16	0.03	-5.70 <sup>***</sup>
Personal coping	-0.11	0.03	-3.42 <sup>***</sup>	-0.06	0.03	-2.15 <sup>*</sup>
<u>Individual Level</u>						
Depressive symptoms	0.10	0.03	3.11 <sup>***</sup>	0.15	0.03	11.69 <sup>***</sup>
Alcohol problems	0.14	0.03	5.29 <sup>***</sup>	0.15	0.02	6.47 <sup>***</sup>
Age	-0.15	0.03	-5.18 <sup>***</sup>	-0.16	0.03	-5.09 <sup>***</sup>
Financial Stress	0.09	0.03	3.63 <sup>***</sup>	0.11	0.02	4.46 <sup>***</sup>
Personal Coping	-0.15	0.04	-3.85 <sup>***</sup>	-0.10	0.03	-3.23 <sup>**</sup>
Religious Involvement	-0.07	0.03	-2.41 <sup>*</sup>	-0.03	0.02	-1.07
<u>Family Level</u>						
Parental Status	-0.35	0.05	-7.13 <sup>***</sup>	-0.31	0.05	-6.62 <sup>***</sup>
Family Income	-0.18	0.03	-5.88 <sup>***</sup>	-0.17	0.03	-6.11 <sup>***</sup>
Relationship Satisfaction	-0.29	0.02	-11.91 <sup>***</sup>	-0.36	0.03	-13.63 <sup>***</sup>
<u>Organization Level</u>						
Support from Leadership	-0.16	0.03	-5.05 <sup>***</sup>	-0.19	0.02	-7.74 <sup>***</sup>
<u>Community Level</u>						
Community Unity	-0.10	0.03	-3.16 <sup>**</sup>	-0.12	0.04	-3.19 <sup>**</sup>
Support from Neighbors	-0.08	0.03	-2.69 <sup>**</sup>	-0.09	0.03	-3.33 <sup>**</sup>

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ .

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Table 3

*Backward-Elimination Regression Analyses Predicting Women's Intimate Partner Violence*

	Development Sample ( $n = 7,064$ )			Validation Sample ( $n = 7,104$ )		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
<u>Overall in a Relationship</u>						
Relationship Satisfaction	-0.19	0.02	-8.42***	-0.19	0.02	-8.42***
Alcohol Problems	0.06	0.02	2.92**	0.15	0.02	6.48***
Financial Stress	0.10	0.02	4.35***	0.12	0.02	5.64***
Personal Coping	-0.11	0.02	-5.77***	-0.11	0.03	-3.85***
Parental Status	-0.20	0.04	-4.51***	-0.10	0.05	-1.99*
Age	-0.13	0.02	-5.63***	-0.17	0.02	-8.84***
Support from Neighbors	-0.05	0.02	-2.24*	-0.01	0.02	-0.67
<u>Individual Level</u>						
Alcohol problems	0.09	0.02	3.91***	0.15	0.02	6.51***
Age	-0.14	0.02	-6.19***	-0.16	0.02	-8.41***
Financial Stress	0.11	0.02	4.45***	0.12	0.02	5.79***
Personal Coping	-0.13	0.02	-6.05***	-0.11	0.03	-3.78***
Depressive Symptoms	0.08	0.04	2.12*	0.13	0.03	4.36***
<u>Family Level</u>						
Parental Status	-0.22	0.04	-5.00***	-0.15	0.05	-3.53**
Relationship Satisfaction	-0.29	0.02	-12.85***	-0.26	-0.02	-11.29***
Family Income	-0.12	0.02	-4.86***	-0.12	0.02	-5.40***
<u>Organization Level</u>						
Support from Leadership	-0.09	0.02	-4.34***	-0.09	0.02	-4.44***
<u>Community Level</u>						
Community Unity	-0.07	0.02	-3.22**	-0.05	0.02	-2.54*
Support from Neighbors	-0.10	0.02	-4.89***	-0.09	0.02	-4.21***

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ .

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Table 4

*Backward-Elimination Logistic Regression Analyses Predicting Men's Clinically Significant Intimate Partner Violence*

	Development Sample ( <i>n</i> = 903)			Validation Sample ( <i>n</i> = 880)		
	<i>b</i>	<i>SE</i>	<i>Wald's statistic</i>	<i>b</i>	<i>SE</i>	<i>Wald's statistic</i>
<u>Overall in Relationship</u>						
Relationship Satisfaction	-0.55	0.10	28.29 <sup>***</sup>	-0.55	0.11	23.72 <sup>***</sup>
Alcohol Problems	0.23	0.10	5.16 <sup>*</sup>	0.32	0.11	8.87 <sup>**</sup>
Personal Coping	-0.35	0.12	8.34 <sup>**</sup>	-0.07	0.13	0.29
Age	-0.31	0.12	6.53 <sup>*</sup>	-0.71	0.16	19.40 <sup>***</sup>
<u>Individual Level</u>						
Alcohol Problems	0.27	0.10	7.57 <sup>**</sup>	0.35	0.10	11.96 <sup>***</sup>
Age	-0.26	0.11	5.40 <sup>*</sup>	-0.61	0.14	18.93 <sup>***</sup>
Personal Coping	-0.46	0.12	13.86 <sup>***</sup>	-0.21	0.12	2.82 <sup>a</sup>
<u>Family Level—In Relationships</u>						
Family Income	-0.36	0.14	7.06 <sup>**</sup>	-0.51	0.13	14.17 <sup>***</sup>
Relationship Satisfaction	-0.66	0.10	43.74 <sup>***</sup>	-0.62	0.10	41.46 <sup>***</sup>
<u>Organization Level</u>						
Support from Leadership	-0.30	0.10	8.96 <sup>**</sup>	-0.43	0.10	18.30 <sup>***</sup>
<u>Community Level</u>						
Social Support	-0.32	0.10	11.04 <sup>***</sup>	-0.20	0.10	4.30 <sup>*</sup>

<sup>\*\*\*</sup> *p* < .001, <sup>\*\*</sup> *p* < .01, <sup>\*</sup> *p* < .05, <sup>a</sup> *p* < .10.

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Table 5

*Backward-Elimination Logistic Regression Analyses Predicting Women's Clinically Significant Intimate Partner Violence*

	Development Sample ( $n = 645$ )			Validation Sample ( $n = 675$ )		
	<i>b</i>	<i>SE</i>	<i>Wald's statistic</i>	<i>b</i>	<i>SE</i>	<i>Wald's statistic</i>
<u>Overall in Relationship</u>						
Relationship Satisfaction	-0.53	0.12	18.75 <sup>***</sup>	-0.34	0.13	7.00 <sup>**</sup>
Financial Stress	0.40	0.11	13.53 <sup>**</sup>	0.23	0.13	2.95 <sup>a</sup>
Physical Well-being	-0.29	0.14	4.49 <sup>*</sup>	-0.07	0.13	0.27
Age	-0.47	0.14	10.68 <sup>**</sup>	-0.41	0.14	8.22 <sup>**</sup>
Alcohol Problems	0.28	0.13	5.02 <sup>*</sup>	0.39	0.14	7.81 <sup>**</sup>
<u>Individual Level</u>						
Depressive Symptoms	0.34	0.16	4.59 <sup>*</sup>	0.24	0.14	3.13 <sup>a</sup>
Financial Stress	0.58	0.12	24.39 <sup>***</sup>	0.24	0.13	3.45 <sup>a</sup>
Age	-0.52	0.13	14.85 <sup>***</sup>	-0.38	0.14	7.75 <sup>**</sup>
Alcohol Problems	0.59	0.14	17.57 <sup>***</sup>	0.40	0.14	7.95 <sup>**</sup>
Physical Well-being	-0.33	0.16	4.11 <sup>*</sup>	-0.04	0.14	0.08
<u>Family Level</u>						
Family Income	-0.69	0.14	24.42 <sup>***</sup>	-0.25	0.13	3.38 <sup>a</sup>
Relationship Satisfaction	-0.61	0.11	31.94 <sup>***</sup>	-0.46	0.11	16.81 <sup>***</sup>
Number of Children	-0.29	0.13	4.68 <sup>*</sup>	-0.31	0.15	4.51 <sup>*</sup>
<u>Organization Level</u>						
Support from Leadership	-0.38	0.11	13.08 <sup>***</sup>	-0.12	0.12	1.01
<u>Community Level</u>						
Community Stress	0.31	0.12	6.89 <sup>**</sup>	0.11	0.14	0.60
Support from Formal Agencies	-0.28	0.14	3.94 <sup>*</sup>	-0.03	0.13	0.05

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , <sup>a</sup>  $p < .10$ .

## Author Note

Correspondence concerning this article should be addressed to Amy M. Smith Slep, Cariology and Comprehensive Care, New York University, 345 East 24<sup>th</sup> St 2s-VA, New York, NY 10010. Phone: (212)998-9815. Electronic mail may be sent to amy.slep@nyu.edu.

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