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Long Term Mental Health Effects of Partner Violence Patterns and Relationship Termination on Low-Income and Ethnically Diverse Community Women

Jeff R. Temple, Ph.D,
University of Texas Medical Branch, Department of OB/GYN, 301 University Blvd, Galveston, TX 77555-0587, (409) 747-8560

Rebecca Weston, Ph.D, and
University of Texas at San Antonio, Department of Psychology, One UTSA Circle, San Antonio, TX 78249, (210) 458-6432

Linda L. Marshall, Ph.D
University of North Texas, Department of Psychology, UNT Box 311280, Denton, TX 76203-1280, (940) 565-4329

Jeff R. Temple: jetemple@utmb.edu; Rebecca Weston: Rebecca.Weston@utsa.edu

Abstract

Intimate partner violence (IPV) is associated with psychological distress; however, differences in the impact of unidirectional IPV, typically male-dominated, and bidirectional IPV have not been examined. To address this gap in the literature, we compared the effects of various IPV patterns on women's reports of dissociation, post-traumatic stress disorder, and stress in 6 interviews over eight years. We also examined whether differences by IPV pattern existed in women's mental health upon leaving a violent relationship. The 489 low-income women completing all interviews were African American (40%), Euro-American (30%), and Mexican American (30%), over half of whom (58%) were no longer with Wave 1 partners by Wave 6. In general, worse mental health was associated with relationship termination and bidirectional violence.

Keywords

Partner violence; bidirectional IPV; mutual IPV; mental health; relationship dissolution; ethnicity

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Women in violent relationships are significantly more likely to experience mental health problems than are women in nonviolent relationships (Golding, 1999; Goodman, Koss, & Russo, 1993). Specifically, victimization has been associated with depression (Campbell, 2002), anxiety (Coker et al., 2002), posttraumatic stress disorder (PTSD) symptoms (Pico-Alfonso et al., 2006; Vogel & Marshall, 2001), and suicidal ideation (Simon, Anderson, Thompson, Crosby, & Sacks, 2002). Despite numerous studies showing that the frequency, severity, and chronicity of violence is related to increased levels of psychological distress (Blaauw, Winkel, Arensman, Sheridan, & Freeve, 2002; Mechanic, Uhlmansiek, Weaver, & Resick, 2000), there has been little research on the ways in which certain patterns of intimate partner violence (IPV) are associated with differing effects on women's mental health. For example, a pattern marked by persistent and severe forms of IPV by male partners would more likely be related to poor mental health among women than a pattern consisting of relatively infrequent and less severe forms of IPV by both partners. This negative impact may also extend after the relationship ends. Although IPV desistance has been associated with lower PTSD symptoms (Coker, Weston, Creson, Justice, & Blakeney, 2005), decreases in symptoms may vary by IPV pattern, with slower decreases among those experiencing the

most frequent and severe IPV. While IPV includes sexual assault and psychological abuse, the current study is focused on physical violence.

Patterns of IPV

Previous research has suggested women are as likely as men to perpetrate IPV (cf. Archer, 2000). However, a drawback of this literature was the failure to consider whether both partners in a relationship were perpetrators. As a result, researchers could not determine whether men's and women's violence within a relationship is comparable. Thus, based on women's perceptions of the frequency and severity of physical violence they and their male partners perpetrate, we developed a typology of bidirectional (mutual) violence (Weston, Temple, & Marshall, 2005). When women and their male partners generally perpetrate physical violence with similar frequency and severity, IPV can be considered gender symmetrical (SYM). When one partner generally perpetrates physical IPV more frequently and/or with greater severity, that partner is necessarily the primary perpetrator of IPV. By looking at both frequency and severity, we can begin to disentangle differences by gender in effects of chronic but less severe IPV (e.g., pushing) from infrequent but more severe IPV (e.g., punching). In prior research, we expected, and found evidence for, two patterns of asymmetric bidirectional physical violence: female primary perpetrator (FPP) and male primary perpetrator (MPP), and one pattern of symmetrical (SYM) physical violence. Although patterns were based on physical IPV, we compared women's and men's perpetration of several types of IPV (e.g., threats, severe physical IPV, sexual aggression) within patterns. In the MPP pattern, male partners perpetrated all types of IPV more often than women, resulting in a greater likelihood for women to sustain injury than their male partners. Fewer differences by gender were found in the FPP pattern. However, results also suggested that racial/ethnic differences in the MPP and FPP patterns may exist. Specifically, we found that when women are primary perpetrators there is slightly greater asymmetry in IPV for African American women than for Euro-American or Mexican American women and injury rates were slightly higher for male partners of Mexican American women in the FPP pattern.

In a follow-up study (Temple, Weston & Marshall, 2005), we compared IPV in bidirectionally violent relationships to IPV in unidirectionally violent relationships. Results indicated that IPV occurred more frequently and with greater severity in asymmetrical bidirectionally violent relationships (i.e., MPP and FPP) than in unidirectionally violent relationships. In addition, mental health effects of IPV were generally worse when women were in bidirectionally violent relationships than when women were in unidirectionally violent relationships. The present study extends this research by comparing the effects of different physical IPV patterns on symptoms of traumatic stress that have previously been associated with IPV (Cascardi, O'Leary, & Schlee, 1999; Tolman & Rosen, 2001; Yoshihama & Horrocks, 2002).

Relationship Termination

Mental health consequences of ending a violent relationship may also vary by IPV pattern. In general, relationship termination has been associated with increases in depression, anxiety, and hostility (Sprecher, 1994; Stewart, Copeland, Chester, Malley, & Barenbaum, 1997). Divorce has consistently been rated as one of the most stressful life events (Miller & Rahe, 1997), and dissolution of a dating relationship has been associated with posttraumatic stress symptoms including intrusion and avoidance (Chung et al., 2002; Chung et al., 2003). While it is reasonable that relationship dissolution would negatively impact mental health, the ending of a violent relationship could reasonably be expected to result in improved mental health, when IPV desists with termination. Although some studies support this

notion, women who leave abusive relationships continue to exhibit reduced psychological health, relative to women who never experienced partner violence (Campbell & Soeken, 1999; Mertin & Mohr, 2001; Sutherland, Bybee, & Sullivan, 1998). Moreover, in a prospective study of a national sample of American women, one study found that women who left an abusive relationship did not exhibit better psychosocial functioning than women who remained with their abusive partner (Zlotnick, Johnson, & Kohn, 2006).

Purpose and Hypotheses

The primary purpose of the current study is to examine differences in symptoms of traumatic stress by physical IPV patterns among a community sample of low-income women. First, we hypothesized that women in the no violence (NV) pattern would report the least perceived stress and fewest symptoms of dissociation and PTSD. Second, with past research indicating that IPV occurs more frequently and with greater severity in the two asymmetrical bidirectional violence patterns (i.e., MPP and FPP; Temple et al., 2005), we hypothesized women experiencing these patterns of violence would have poorer mental health than women in the unidirectional female (UF), unidirectional male (UM), and SYM patterns. Third, although we have found evidence for ethnic differences in patterns of bidirectional IPV, we have not previously considered women's race/ethnicity in the context of unidirectional IPV. Therefore, with limited previous research suggesting that IPV and associated effects may differ by ethnicity, we addressed a research question: Does ethnicity interact with IPV patterns in its effects on mental health outcomes? Finally, we considered whether relationship termination also interacts with IPV patterns. For example, the benefits of ending a violent relationship might be more readily apparent for women victimized in unidirectionally violent or male-dominated bidirectionally violent relationships than for women in symmetrically violent relationships, where levels of IPV are somewhat lower (Temple et al., 2005). This possibility was addressed with research question two: Do IPV patterns interact with relationship termination in effects on mental health consequences?

Method

Participants

The data analyzed in this study were from six waves of structured face to face interviews for Project HOW: Health Outcomes of Women, a study of low-income community women in the Dallas metroplex. The goal of the larger study was to examine factors that impact physical and mental health in a sample of ethnically diverse women. Although IPV was of specific interest, women were not recruited based on the presence of violence in their relationships.

To be included, women had to be between the ages of 20 and 49, in a heterosexual relationship for at least one year, and have a household income that was less than 200% of the poverty level or receive public aid. When the study began in 1995, the poverty threshold (i.e., 100% of poverty) was $15,150 for a family of 4. Women were not screened for IPV. All Wave 1 participants were eligible for participation in subsequent waves, regardless of their relationship status and whether or not they were missing from other waves.

Over 70% of the sample completed each wave. More than half of the sample (n = 489, 58.6% of the initial 835) completed all six waves. This subsample of women self-identified as African American (n = 194, 39.7%), Euro-American (n = 148, 30.3%), or Mexican American (n = 147, 30.1%). At Wave 1, women were 34.2 years old on average, had been with their partners for 8.58 years, and had incomes equivalent to 92% of poverty (i.e., 8% below the poverty line). Women classified their Wave 1 relationships as dating (n = 123, 25.2%), cohabiting (n = 46, 9.4%), common-law (n = 96, 19.6%), or legally married (n =

224, 45.8%). There was an average lag of approximately one year (M = 11.26 months) between waves, with a minimum average of 8.01 months between Waves 3 and 4 and a maximum average of 23.57 months between Waves 5 and 6. For more information on procedures see (Honeycutt, Marshall, & Weston, 2000; Kallstrom-Fuqua, Weston, & Marshall, 2004; Marshall, 1999; Vogel & Marshall, 2001).

Procedures

Recruitment took place in a low income area of the Dallas metroplex. In addition to mass mailings, flyers were distributed at apartment complexes, houses of worship, health clinics, laundromats, libraries, and businesses. Female students recruited volunteers at public gatherings such as shopping centers, flea markets, and health and employment fairs. Participants also referred family or friends to the study. The interview offices were located in the targeted neighborhood and staffed by women who lived in the area but did not qualify for study participation. The female office workers screened women for qualifications (age, poverty status, relationship, and education within the United States) before scheduling interviews. We limited participation to women who received an American education in order to minimize acculturation and language problems. Data were collected using a structured interview format in which participants verbally responded to interview questions.

Measures

At each wave, interviewers read all of the questions to the women and recorded their responses verbatim. Interviewers referred the participants to numbers in a notebook that contained response scales or other information for answering questions. A large calendar oriented women to time in order to facilitate recall of dates for specific events. All calendars had icons for holidays (e.g., Martin Luther King, Jr. Day, Valentine's Day, Cinco de Mayo) and spanned a 3-year period. The calendar changed with each interview wave. Women circled dates representing important events in their lives (e.g., births, deaths, anniversaries) and the date of their last interview. Although questions at each interview were related to aspects of women's lives including employment, social support, relationships with friends and neighbors, and so forth, only measures relevant to the current study are described here.

Mental health—Three measures of mental health were asked at all waves. The 28-item Crime Related-PTSD Scale developed by Saunders, Arata, and Kilpatrick (1990) measured women's PTSD symptoms (e.g., repeated unpleasant thoughts that won't leave your mind). A modified, 11-item scale developed by Briere and Runtz (1990) assessed dissociative symptoms (e.g., things feeling unreal, feeling outside of your body). For both scales, women indicated how much they had been bothered by each symptom in the last month with a scale ranging from *not at all* (0) to *extremely* (4). These measures were selected for inclusion in all interviews because they are brief, designed to be embedded within the Hopkins Symptom Checklist 90 (HSCL 90; Derogatis, Lipman, & Covi, 1973), and are easily administered by non-clinicians. Both scales have demonstrated good reliability and validity (Briere & Runtz 1990; Saunders et al., 1990), and both were internally consistent at all waves in the present study, with Cronbach's alphas ranging from .92 to .96. Table 1 includes means for each wave.

Stress was assessed with a modified version of the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). Women rated how often they experienced 14 indicators of stress (e.g., felt nervous and stressed, felt that things were going your way [reverse scored]) in the past six months with responses ranging from *never* (1) to *always* (7). The mean for perceived stress was used at all waves, with Cronbach's alphas ranging from .68 at Wave 5 to .82 at Wave 4. Means for perceived stress at each wave are reported in Table 1.

Relationship termination—At Wave 2, women were asked to respond to all relationship-related questions about their Wave 1 partner, regardless of whether they were still in that relationship. This resulted in 116 women (16.6% of the 740 completing Wave 2) discussing a recently terminated relationship. In all subsequent waves, women answered for their current or most recent past partner during the time frame specified in the interview. More than half (n = 285, 58.4%) of the sample of 489 women who completed all waves were no longer with their Wave 1 partners during at least one later wave. The vast majority of women (n = 246, 86.3%) did not discuss their Wave 1 partners during Waves 3 – 6. Of the 39 women who reconciled with their partners, for at least one subsequent wave, 23 (8.0% of the subgroup who had left Wave 1 partners) were discussing him again at Wave 6. However, all 23 women responded to questions about at least one and up to four other partners. In addition, all 116 women who were not with Wave 1 partners but had discussed him at Wave 2 reported on at least one other partner in subsequent waves. Therefore, we categorized women's Wave 1 relationships dichotomously as either continuing (n = 204; 41.7%) or having been terminated, at least temporarily.

Violence—The 21-item physical violence subscale of Marshall's Severity of Violence Against Women Scale (SVAWS, Marshall, 1992a) assessed male partners' perpetration. The Severity of Violence Against Men Scale (SVAMS; Marshall, 1992b) assessed women's perpetration of the same behaviors. Because of their comprehensiveness, sensitivity, and ability to distinguish between the levels of severity of physical violence (minor, mild, moderate, serious), we chose to use the SVAWS and SVAMS for the current study. The ordering of items was determined in a thorough scale-development study in which community men and women reported the perceived severity of each item when done by women and men, respectively. At Wave 1, women indicated how often each act had occurred since the start of their relationship. Response options were *never* (0), *once* (1), *a few times* (2), *several times* (3), *many times* (4), and *a great many times* (5). The measures in this sample, as in others' (e.g., El-Sheikh, Cummings, Kouros, Elmore-Statin, & Buckhalt, 2008; Gerber, Ganz, Lichter, Williams, & McCloskey, 2005; Martinez-Torteya, Bogat, Eye, Levendosky, & Davidson, 2009; McFarlane et al., 2005) were internally consistent (αs = .90 and .95, respectively). Means representing women's physical IPV perpetration and victimization are reported in Table 1.

At Wave 1, women who reported any IPV in their relationship were asked how often they and their partners had perpetrated each of the 21 acts of physical violence in the past 6 months on a scale from (0) *never* to (9) *almost daily*. The 10-point scale was also used to assess physical IPV by women and partners at Waves 2, 3, 5, and 6. IPV was not measured at the Wave 4 health checkup, as this interview was time-limited. The time frame for Waves 2 through 6 was since the last interview so that all IPV experienced in women's current or most recent relationships would be captured. Measures for Waves 1 through 6 were internally consistent (αs $\geq$ .90 at all waves), and means are included in Table 1.

IPV Patterns

As described in previous studies (Temple et al., 2005; Weston et al., 2005) we used the Wave 1 physical violence data to create six groups representing different patterns of violence. The nonviolent and unidirectional IPV patterns were determined by at least one mean of zero on the physical violence subscale of the SVAW/MS. Women who reported neither perpetration nor victimization at Wave 1 were in the nonviolent pattern (NV; n = 110, 22.5%). Women with means greater than zero for perpetration, but not victimization were in the unidirectional-female perpetrator pattern (UF; n = 47, 9.6%). When the pattern was reversed, violence was categorized as unidirectional-male perpetrator (UM; n = 78, 16.0%).

We created three separate patterns for the 254 women who reported both perpetration and victimization. These women were placed in one of three groups based on severity weighted difference scores for physical violence. First, Marshall's (1992a; 1992b) weights for perceptions of physical harm were used to approximate the severity of each violent act. Weights ranged from .695 to .989 for male partners' acts and from .401 to .944 for women's acts. Weights were multiplied by the reported frequency of each act. Second, a difference score was created for each of the 21 items by subtracting the severity weighted frequency score of women's acts from partners' acts. Third, the 21 difference scores were summed to create a variable representing the overall disparity in male partners' and women's physical violence. A negative score indicated women were violent more often than their partners.

For example, imagine a woman who indicated her male partner had grabbed her *several times* (a 3 on the subjective frequency scale) and pushed her *a few times* (2). She also indicated that she had scratched her male partner *once* (1) and pushed him *a few times* (2). In step one, we would weight the frequency ratings:

Partner grabbed woman: 0.718 (impact weight) × 3 (frequency) = 2.154

Partner pushed woman: 0.706 × 2 = 1.412

Woman scratched partner: 0.538 × 1 = 0.538

Woman pushed partner: 0.414 × 2 = 0.828

In step two, we would compute the difference score for each behavior by subtracting the woman's behaviors from her partner's.

Grabbed: 2.154 − 0 (woman never grabbed) = 2.154

Pushed: 1.412 − 0.828 = 0.584

Scratched: 0 (partner never scratched) − 0.538 = −0.538

For most of the items in this example, the difference score would be zero because neither the woman nor the partner had perpetrated the acts. In step three, we would sum these difference scores:

2.154 + 0.584 + −0.538 = 2.200

In this example, the score is positive, indicating that the primary perpetrator is the male partner.

Considering the descriptors on the subjective frequency response scale, we opted to use a cutoff point of 2.0 for classification into patterns. Assuming equal impact (i.e., using an unweighted score) at the low end of the scale, if a woman grabbed her partner only once (i.e., a 1 on the frequency scale), but was grabbed by her partner several times (i.e., a 3 on the frequency scale), we would find a difference of 2.0. An average difference of 2.0 would indicate women consistently reported frequency scores for perpetration and victimization that were not contiguous (e.g., 1 and 3, 2 and 4), suggesting a perceived difference. Therefore, we categorized women with weighted scores of less than − 2.0 as female primary perpetrator (FPP; $n = 26$, 5.3%). Women with scores greater than + 2.0 were categorized as male primary perpetrator (MPP; $n = 131$, 26.8%), with the remainder (−1.99 to +1.99) categorized as symmetrical (SYM; $n = 97$, 19.8%).

Results

Attrition

Because analyses were conducted with the subsample of women who had completed all waves (n = 489, 58.6%), we gave particular attention to attrition. Study participants were compared to those who dropped out of the study or missed a wave. No significant differences occurred for poverty status, initial perceived stress, dissociation, or PTSD symptoms. However, we did find significant differences for education, $F(1, 819) = 4.55$, $p < .05$, $\eta^2 = .01$, age, $F(1, 819) = 16.55$, $p < .001$, $\eta^2 = .02$, relationship length, $F(1, 819) = 19.04$, $p < .001$, $\eta^2 = .02$, women's initial physical violence, $F(1, 819) = 5.07$, $p < .04$, $\eta^2 = .01$, and male partners' physical violence, $F(1, 819) = 9.97$, $p < .01$, $\eta^2 = .01$. Although effects were small, women completing all interviews were, on average, more likely to have completed high school (M = 12.09 years of education), were more than two years older (M = 34.17), and had been in their relationships more than two years longer (M = 8.32) than noncompleters (Ms = 11.78, 31.95, and 6.56, respectively). In addition, women who stayed in the study had perpetrated and been victimized by violence less frequently during their relationship (Ms = 0.21 and 0.33) than noncompleters (Ms = 0.46 and 0.47). Importantly, no significant difference occurred by IPV pattern for completion of all waves, χ^2 (5, N = 835) = 4.09, *ns*.

Preliminary Analyses

We first examined the data to determine whether IPV patterns differed by race/ethnicity or relationship termination. No differences by race/ethnicity (χ^2 (10, N = 489) = 8.18, *ns*) or relationship termination, (χ^2 (5, N = 488) = 1.65, *ns*) existed in the distribution of IPV patterns. We next tested for differences in the frequency of women's and partners' Wave 1 perpetration by IPV pattern and race/ethnicity, both to check the validity of the created groups and to determine whether effects of race/ethnicity were present for women's experiences of IPV. For women's violence, a main effect for IPV pattern, $F(5, 488) = 45.65$, $p < .001$, $\eta^2 = .33$, was modified by an interaction between IPV pattern and race/ethnicity, $F(10, 488) = 1.85$, $p = .05$, $\eta^2 = .04$. As shown in Figure 1, African American women tended to report perpetration more often than other women across IPV patterns. Similarly, for partners' perpetration, a main effect for IPV pattern, $F(5, 488) = 61.44$, $p < .001$, $\eta^2 = .40$, was modified by an interaction between IPV pattern and race/ethnicity, $F(10, 488) = 2.46$, $p < .02$, $\eta^2 = .05$. Figure 2 shows these results are similar to those for women's perpetration, except in the case of UM pattern violence where Mexican American women's partners perpetrated violence most often.

Testing Hypotheses and Research Questions

To address our hypotheses and research questions, we conducted three repeated measures MANOVAs with a 6 (IPV pattern) × 3 (race/ethnicity) × 2 (relationship status) design. Although no multivariate interactions occurred, multivariate main effects of time occurred for PTSD symptoms, Pillai's Trace $F(5, 445) = 17.52$, $p < .001$, $\eta^2 = .14$, dissociation, Pillai's Trace $F(5, 445) = 7.21$, $p < .001$, $\eta^2 = .08$, and perceived stress, Pillai's Trace $F(5, 439) = 8.04$, $p < .001$, $\eta^2 = .08$. As shown in Table 1, women's PTSD symptoms decreased from Wave 1 to Wave 6. Changes in dissociative symptoms and in perceived stress were more erratic, but generally below the midpoints of their respective scales.

Hypotheses 1 and 2—Main effects for IPV pattern were significant for all mental health variables (Table 2). The NV pattern reported the best mental health, supporting our first hypothesis. Otherwise, the trend was for women in bidirectionally violent relationships to report worse mental health than those in unidirectionally violent relationships, with women

in the MPP and FPP patterns always reporting the poorest mental health, providing support for Hypothesis 2.

Research question 1—A main effect of race/ethnicity occurred only for perceived stress, $F(2, 443) = 3.36$, $p < .05$, $\eta^2 = .02$. African American women reported significantly lower levels of perceived stress ($M = 3.53$) than Mexican American women ($M = 3.69$). Euro-American women ($M = 3.62$) did not differ from either group.

Research question 2—Univariate main effects occurred for relationship termination on PTSD symptoms, $F(1, 449) = 6.73$, $p < .02$, $\eta^2 = .02$, and on dissociative symptoms, $F(1, 449) = 6.53$, $p < .02$, $\eta^2 = .01$. Specifically, women whose Wave 1 relationships had ended reported more symptoms of PTSD and dissociation (Ms = 0.77 and 0.68, respectively) than women with their Wave 1 partners for all interviews (Ms = 0.62 and 0.53, respectively). Improvement in the health of women who left a violent relationship was not apparent, suggesting the benefits of leaving a violent partner may not be clear-cut.

Exploratory analyses—With no interactions between time and relationship termination, we were unable to determine whether the increases in reported symptoms of PTSD and dissociation occurred as a result of relationship termination or as a result of IPV experienced during the relationship. To clarify the nature of the association between decrements in mental health and termination of violent relationships, we conducted an exploratory analysis. Specifically, we were interested in determining whether women in new relationships were at an increased risk for experiencing physical IPV compared to women who remained with Wave 1 partners. Given the increase in psychological distress, we anticipated that women who had at least temporarily ended their Wave 1 relationships might have perpetrated and experienced more physical IPV in their new relationships than women still with Wave 1 partners.

A 6 (IPV pattern) × 2 (relationship status) repeated measures MANOVA was conducted to test for differences in women's and partners' physical IPV perpetration from Waves 1 to 6 (excluding Wave 4). To maximize power and because no interactions with ethnicity occurred in the primary analysis, we did not include race/ethnicity in the analysis. Significant multivariate interactions between time and IPV pattern, Pillai's Trace $F(40, 2275) = 4.56$, $p < .001$, $\eta^2 = .07$, and between IPV pattern and relationship status, Pillai's Trace $F(10, 916) = 2.22$, $p < .03$, $\eta^2 = .02$, modified multivariate main effects for relationship status, Pillai's Trace $F(2, 457) = 7.46$, $p < .01$, $\eta^2 = .03$, and IPV pattern, Pillai's Trace $F(10, 916) = 19.19$, $p < .001$, $\eta^2 = .17$.

Univariate interactions between time and IPV pattern occurred for partners' physical IPV, $F(20, 1832) = 5.42$, $p < .001$, $\eta^2 = .06$, and for women's physical IPV, $F(20, 1832) = 9.00$, $p < .001$, $\eta^2 = .09$. Figure 3 shows sharp decreases from Wave 1 to Wave 2 in partners' perpetration for women in the FPP and MPP patterns, with slighter decreases for women in the UM and SYM patterns. From Waves 2 to 5, partners' IPV in the FPP group increased, but declined again from Wave 5 to Wave 6 so that perpetration was most frequent in the MPP pattern. The trend for women's perpetration was similar, as shown in Figure 4. Decreases from Wave 1 to Wave 2 were greatest for women in the UF patterns, but also occurred for women in the MPP, SYM, and FPP patterns. By Wave 6, women's perpetration frequency was low in all groups.

Univariate interactions between relationship status and IPV pattern occurred for partners' physical IPV, $F(5, 458) = 2.49$, $p < .04$, $\eta^2 = .03$, and for women's physical IPV, $F(5, 458) = 3.75$, $p < .01$, $\eta^2 = .04$. Figure 5 shows that IPV was both experienced and perpetrated more frequently by women in new relationships, with the exception of women in the UF

pattern. UF-pattern women who had remained with their Wave 1 partners perpetrated IPV more often, across waves, than women who were initially categorized as UF and later ended their Wave 1 relationships.

Discussion

Mental Health Outcomes

Women in violent relationships generally reported worse mental health than women in nonviolent relationships (e.g., Pico-Alfonso et al., 2006; Tolman & Rosen, 2001). In line with previous research showing that PTSD symptoms increase as IPV severity increases (Astin, Lawrence, & Foy, 1993; Cascardi et al., 1999; Houskamp & Foy, 1991; Kemp, Rawlings, & Green, 1991), we found significant differences between women in different patterns of violent relationships. As expected, the increased frequency and severity of IPV experienced by women in the MPP and FPP patterns (Temple et al., 2005) was associated with higher rates of traumatic stress symptoms. Not surprisingly, this dose-response effect suggests that women in relationships with more frequent and severe IPV may require increased attention to alleviate the consequences of abuse.

IPV Patterns and Ethnicity

The negative mental health effect of experiencing partner violence was observed across ethnic groups; in fact, we found this sample of racially diverse low-income women to be more similar than different with respect to health outcomes. However, African American women reported more frequent physical violence perpetration across all patterns than their Euro-American and Mexican American counterparts. West (2004; 2007) and others (e.g., Fox, Benson, DeMaris, & Van Wyk, 2002; Potter, 2006; Rennison & Planty, 2003) have argued that higher rates of IPV perpetration in African American couples, especially by women, can be attributed to higher rates of economic and social marginalization experienced by African American women. Further, West (2004; 2007) argues that, because violence is a frequent and common occurrence in the lives of African American women, they may be more inclined to use violence in protecting themselves or their children, and for retaliating against an abusive partner.

Relationship Termination

Consistent with limited existing research (Zlotnick et al., 2006), women's mental health did not improve when they left their abusive partner. It is likely that the stress and other negative effects of leaving any relationship, albeit violent, are dramatic and long lasting (Chung et al., 2003; Sprecher, 1994; Stewart et al., 1997). In fact, it has been reported that mental health consequences of IPV are stable and may actually worsen upon the dissolution of a violent relationship (Anderson & Saunders, 2003; Zlotnick et al., 2006). The possibility that violence may continue (Browne & Bassuk, 1997) and often increases in severity and lethality at relationship termination (Campbell et al., 2003) may also help explain why women's mental health symptoms became worse upon their violent relationship ending. These findings suggest that treatment for women who have exited or are contemplating leaving an abusive relationship should be long-term and persist well after the violent relationship has ended.

It is important to emphasize the low-income nature of this sample, as sustaining IPV continued to negatively affect women over and above the effects of chronic stress often associated with living in extreme poverty. Only a small number of studies have considered the longitudinal impact of IPV on women's mental health. For example, Campbell, Sullivan, & Davidson (1995) studied 141 women who had used a battered women's shelter over three time periods (i.e., immediately post-shelter, 10 week, and 6 month follow-ups). While

women still living with violent partners at 10 weeks had a higher rate of depression (68%), women no longer with violent partners continued to demonstrate an alarmingly high rate of depression (50%). Thus, it appears that experiencing IPV has both immediate and long-term mental health consequences, and treatment should be applied accordingly.

Another possible explanation could be that victimized women who leave their partner get involved in another violent relationship (Cole, Logan, & Shannon, 2008), thus compounding the effect on their mental health. This possibility was supported with exploratory analyses conducted in this study, suggesting that relationship termination was also associated with more frequent IPV perpetration and victimization across waves, with differences by initial IPV pattern. The potential implication that IPV may be stable across women's relationships is of concern and deserves further study. A prevention program that addresses IPV perpetration *and* victimization could be targeted to women exiting a violent relationship. From a perpetration perspective, programs should emphasize healthy relationship skills and non-violent conflict resolution strategies. While women are more likely to be injured as a result of IPV (Stets & Pirog-Good, 1990; Vivian & Langhinrichsen-Rohling, 1994), women are as likely to perpetrate IPV (Archer, 2000), and regardless of the reasons for this (e.g., instigation, self-defense), we firmly believe in a violence begets violence model. Thus, one member of a violent couple using more appropriate conflict resolution skills may reduce IPV escalation in the relationship

The persisting mental health problems following relationship termination could also be attributed to the demographic nature of our sample. Specifically, life circumstances of impoverished women may actually decline following relationship termination. In at least some cases, the concomitant loss of financial resources and housing that often accompany the ending of a relationship likely contributes to negative psychological health.

Limitations

Several limitations in this study should be considered. We relied solely on women's perceptions of victimization and perpetration of violence. Consequently, the proportions of patterns in this study may not be replicated in future research with different samples. Had male partners been interviewed, some change in the overall patterns as well as the frequency and severity of the violence reported would be expected. For example, previous research has found that men tend to underreport the severity of their behaviors (Heckert & Gondolf, 2000). Thus, data from male partners may result in the appearance of a more symmetrical relationship between women's and their male partners' violence. In addition, given previous research findings that psychological abuse may be as or more detrimental to women's health as physical violence, future studies should consider the role of other forms of IPV (e.g., psychological abuse, sexual assault, stalking).

Cell sizes were quite small for interactions between IPV pattern and race/ethnicity and relationship termination. Additional research with a larger sample, or with oversampling of women in FPP pattern relationships may help clarify the complex longitudinal association between IPV patterns, race/ethnicity, and relationship termination. In addition, significantly more violence was reported by women who dropped out or missed an interview wave than by women who completed all interviews. Although the differences in IPV and effect sizes were small, there may have been some unknown impact of attrition on the results. Finally, the use of a low-income sample necessarily limits generalizability to similar populations.

Implications and Summary

Despite these limitations, these findings support previous research in suggesting that all women in violent relationships, regardless of their race/ethnicity, or even the status of their

relationship are at risk of suffering from mental health problems. Thus, we suggest any treatment of abused women should include a psychosocial component that assists women in practical solutions such as obtaining financial stability, housing, daycare, etc. While our finding that the effects of abuse on mental health are long-lasting holds important implications, additional longitudinal studies that closely examine the dissolution of relationships are needed.

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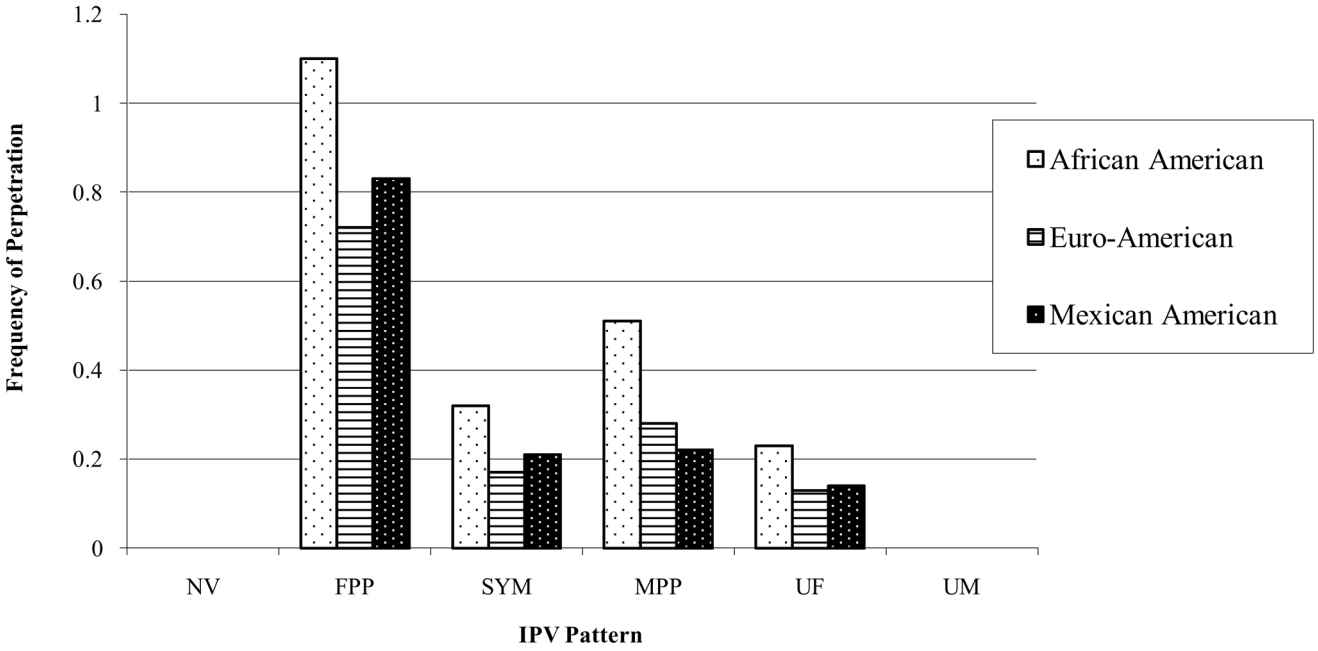

Figure 1. Means for women's physical violence perpetration at Wave 1 by IPV pattern and ethnicity

Note. NV = nonviolent; FPP = female primary perpetrator; SYM = symmetrical; MPP = male primary perpetrator; UF = unidirectional-female perpetrator; UM = unidirectional-male perpetrator. Means for women's violence, by definition, were zero in the NV and UM groups.

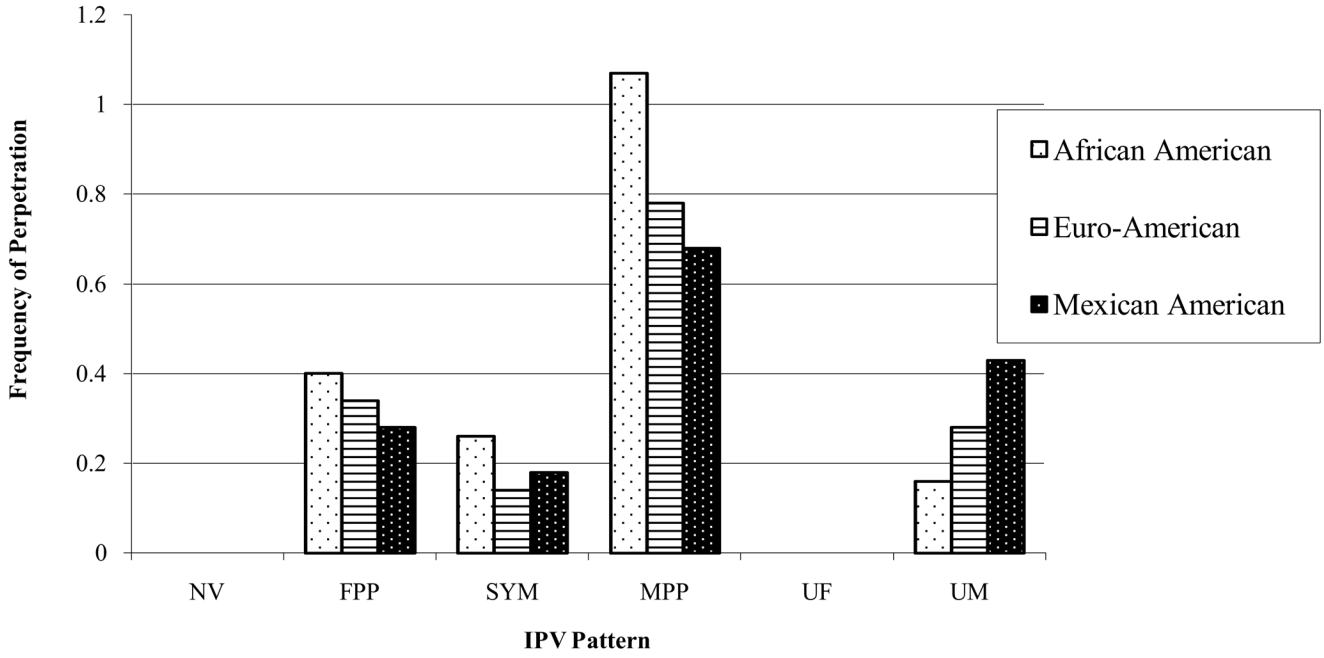

Figure 2. Means for male partners' physical violence perpetration at Wave 1 by IPV pattern and women's ethnicity

Note. NV = nonviolent; FPP = female primary perpetrator; SYM = symmetrical; MPP = male primary perpetrator; UF = unidirectional-female perpetrator; UM = unidirectional-male perpetrator. Means for partners' violence, by definition, were zero in the NV and UF groups.

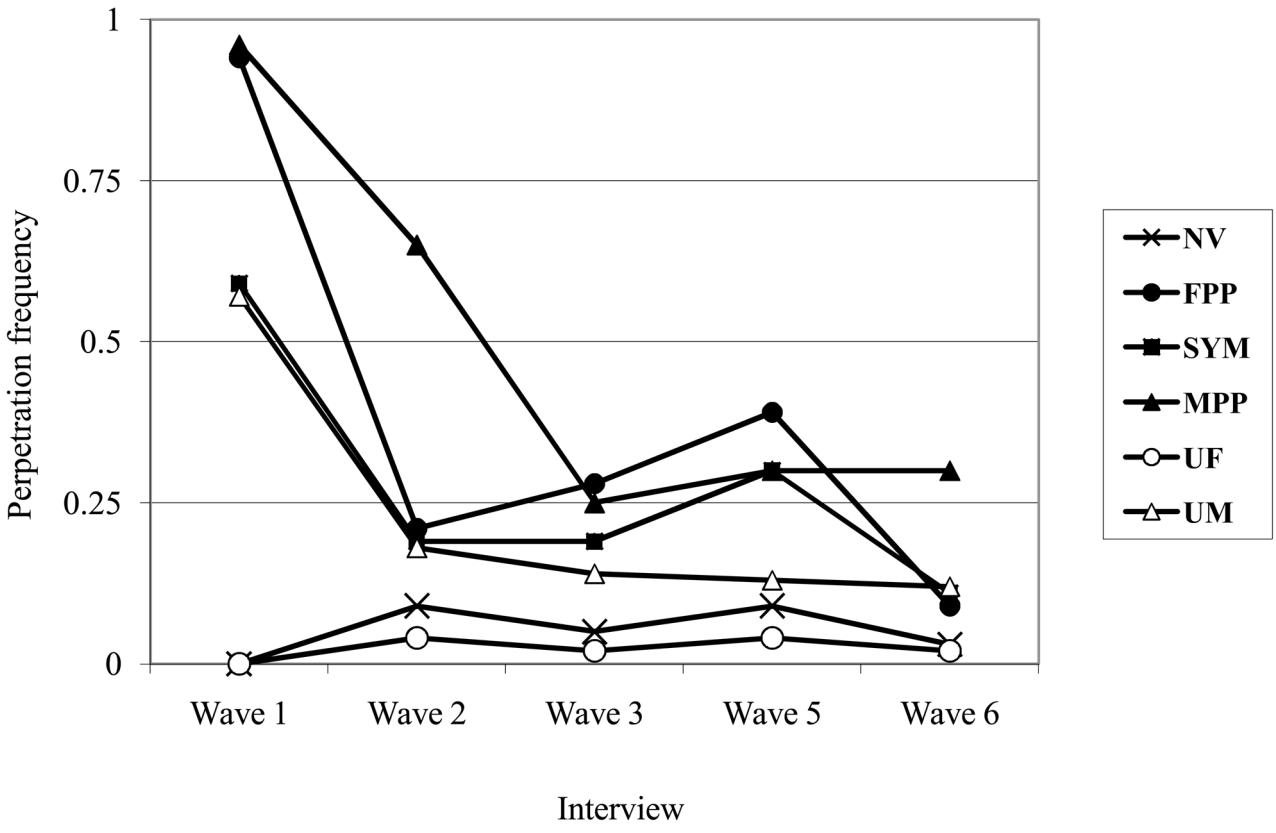

Figure 3. Means for male partners' physical violence perpetration over time by IPV pattern
Note. NV = nonviolent; FPP = female primary perpetrator; SYM = symmetrical; MPP = male primary perpetrator; UF = unidirectional-female perpetrator; UM = unidirectional-male perpetrator. IPV was not assessed at Wave 4.

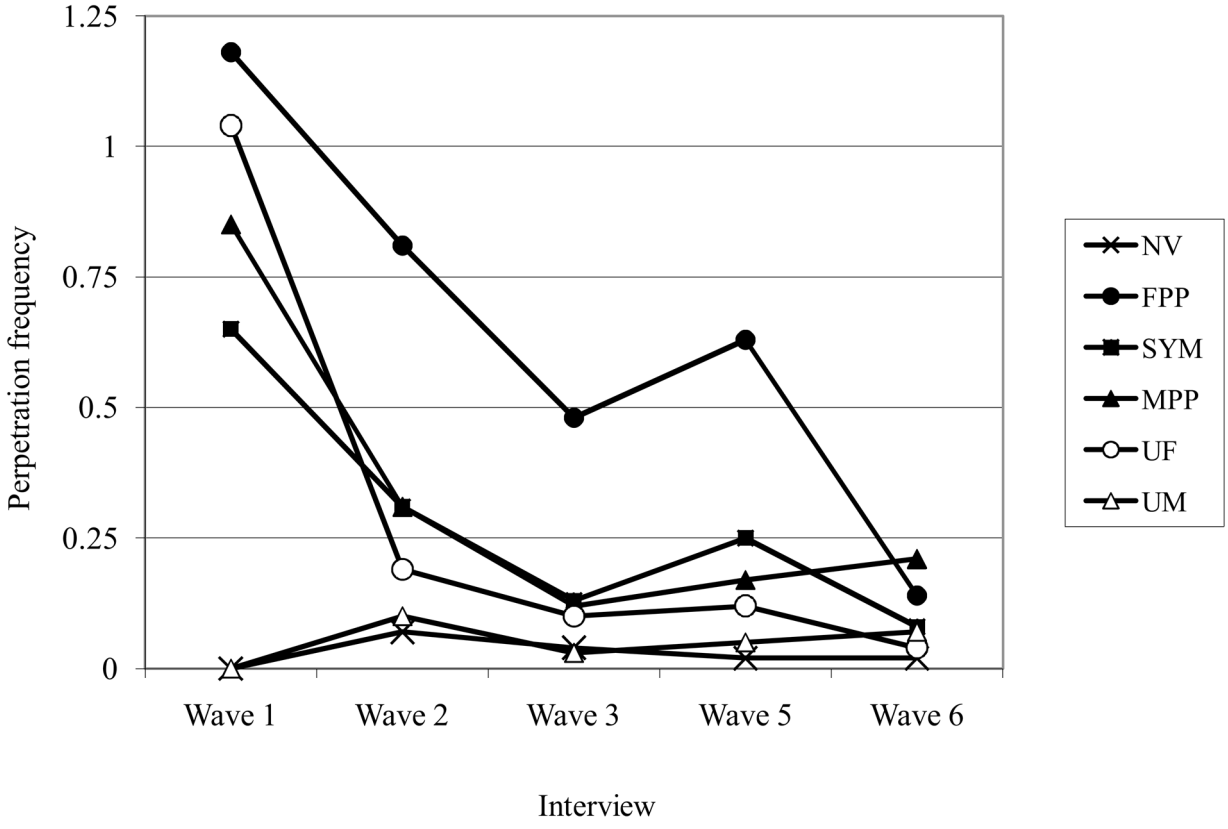

Figure 4. Means for women's physical violence perpetration over time by IPV pattern

Note. NV = nonviolent; FPP = female primary perpetrator; SYM = symmetrical; MPP = male primary perpetrator; UF = unidirectional-female perpetrator; UM = unidirectional-male perpetrator. IPV was not assessed at Wave 4.

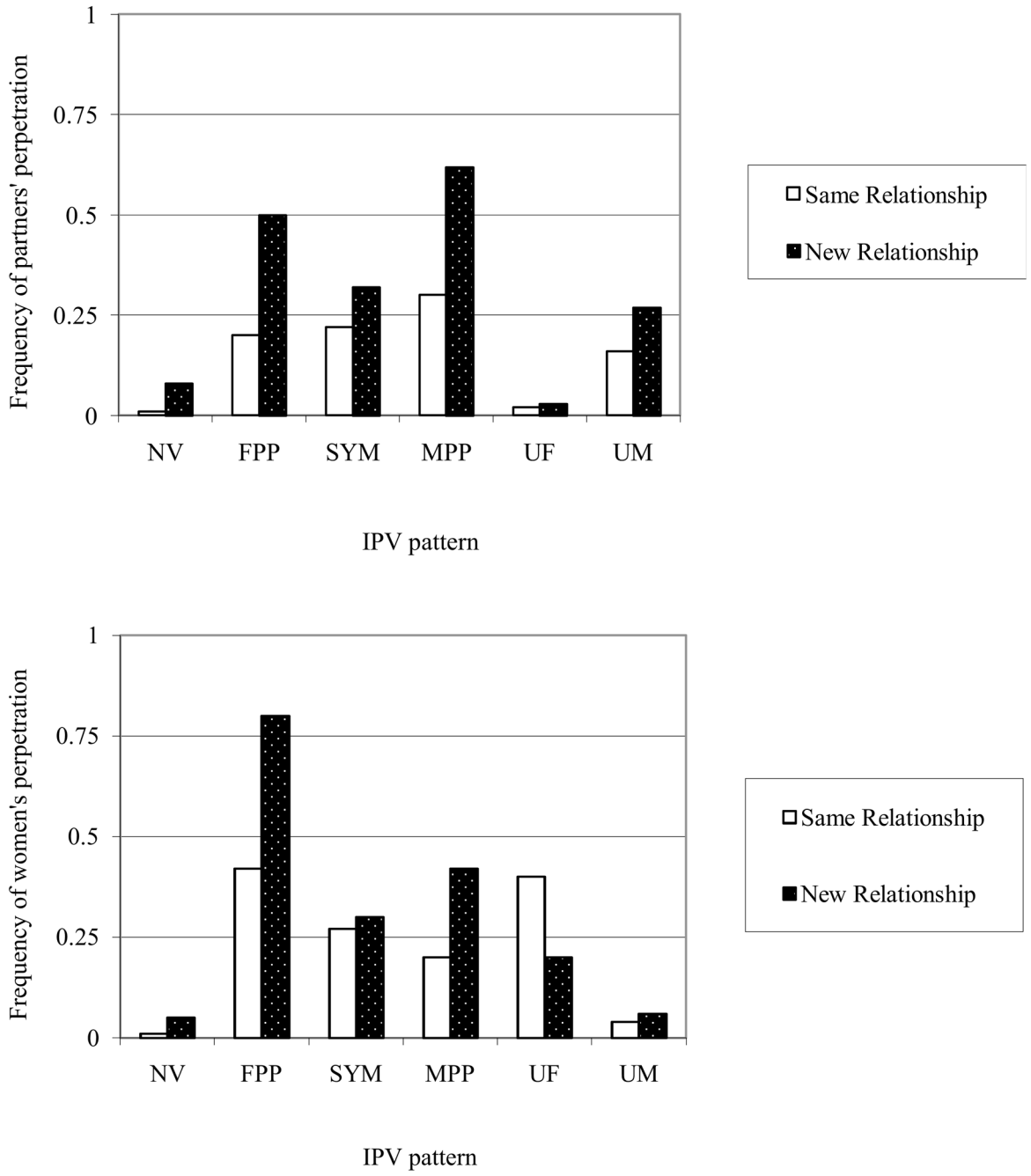

Figure 5. Frequency of perpetration by relationship status and IPV pattern

Note. NV = nonviolent; FPP = female primary perpetrator; SYM = symmetrical; MPP = male primary perpetrator; UF = unidirectional-female perpetrator; UM = unidirectional-male perpetrator.

Table 1

Means for study variables over time (N = 473).

Variable (Range)	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Health Outcomes						
PTSD (0 – 4)	1.04	0.78	0.78	0.77	0.74	0.70
Dissociation (0 – 4)	0.82	0.66	0.70	0.65	0.66	0.61
Perceived stress (1 – 7)	3.75	3.55	3.66	3.51	3.65	3.55
Physical Violence[a]						
Women's (0 – 9)	0.53	0.24	0.11	--	0.16	0.10
Partners' (0 – 9)	0.52	0.28	0.16	--	0.20	0.13

[a]Physical violence was only assessed as a dichotomous variable at Wave 4.

Table 2

Significant between subjects main effects for mental health outcomes by violence pattern.

	NV (*n* = 105)	FPP (*n* = 26)	SYM (*n* = 96)	MPP (*n* = 126)	UF (*n* = 44)	UM (*n* = 76)	*F*	η^2
PTSD symptoms	0.56[a]	1.01[b]	0.87[b]	0.95[b]	0.71[a,b]	0.76[a,b]	6.03***	.06
Dissociation	0.48[a]	0.83[b]	0.72[a,b]	0.83[b]	0.61[a,b]	0.64[a,b]	4.34**	.05
Perceived stress	3.45	3.72	3.67	3.74	3.43	3.59	3.80**	.04

Note. Groups with different superscripts differ significantly, *df* = 5, 449 for all analyses. NV = nonviolent; FPP = female primary perpetrator; SYM = symmetrical; MPP = male primary perpetrator; UF = unidirectional-female perpetrator; UM = unidirectional-male perpetrator.

** $p < .01$.

*** $p < .001$.