

# Longitudinal Model Predicting Partner Violence Among White, Black, and Hispanic Couples in the United States

Craig A. Field and Raul Caetano

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**Background:** A limited amount of information pertaining to ethnic-specific risk factors associated with intimate partner violence across time currently exists. The current study examines ethnic-specific longitudinal predictors of male-to-female and female-to-male partner violence (MFPV and FMPV) in white, black, and Hispanic couples in the U.S. general population.

**Methods:** In 1995, a total of 1635 married or cohabitating couples 18 years of age or older living in households in the 48 contiguous states participated in a national survey that used a multistage probability sampling procedure with 100 primary sampling units and included oversamples of blacks and Hispanics. In 2000, the follow-up survey had an overall response rate of 72% and included 406 white, 232 black, and 387 Hispanic intact couples.

Ethnic-specific regression models predicting MFPV and FMPV at follow-up were developed. The risk factors of interest included male and female reports of history of childhood abuse, exposure to parental violence, impulsivity, alcohol problems, frequency of drinking five or more drinks per occasion, volume of alcohol consumed per week in average standard drinks, approval of marital aggression and male-to-female and female-to-male partner violence at baseline. MFPV and FMPV in 1995 and 2000 were based on the Conflict Tactics Scale Form R.

**Results:** Black and Hispanic couples were at approximately three times greater risk of MFPV and two times greater risk of FMPV at follow-up in comparison to white couples even after controlling for socio-demographic characteristics, alcohol consumption, and psychosocial variables. Extreme specific models indicated that among blacks, MFPV was a significant predictor of MFPV and FMPV at follow-up. In contrast, among Hispanics, FMPV was a significant predictor of FMPV and MFPV at follow-up.

**Conclusions:** Ethnic-specific multivariate logistic regression models indicated that the predictors of MFPV and FMPV including psychosocial variables, alcohol use, and alcohol-related problems varied by ethnicity. These findings contribute to our continually growing knowledge base regarding ethnic differences associated with the development of intimate partner violence and have important implications for prevention and intervention.

**Key Words:** Intimate Partner Violence, General Population Survey, Longitudinal Analysis, Ethnic Differences, Alcohol.

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**I**NTIMATE PARTNER VIOLENCE (IPV) continues to be a significant public health problem. Survey research over the last quarter century indicates that about one in five couples have experienced an episode of IPV in the last year (Schafer et al., 1998; Straus and Gelles, 1990). Baseline data for the national survey presented herein and conducted in 1995 indicated that 17% of Hispanics, 23% of blacks, and 11.5% whites reported an incident of male-to-female partner violence (MFPV) in the past year and that 15% of whites, 21% of Hispanics, and 30% of blacks re-

ported female-to-male partner violence (FMPV; Caetano et al., 2001b). Overall, these results indicated that MFPV and FMPV were higher among blacks and Hispanics with rates of FMPV being slightly higher than rates of MFPV (Caetano et al., 2001b). Although MFPV and FMPV often occur together because these forms of abuse have different risk factors and consequences (i.e., injury; Archer, 2000; Bachman and Saltzman, 1995; Caetano et al., 2003a; Stets and Straus, 1995), they are considered separately.

As with other forms of violence, alcohol is thought to play an important role in IPV (Caetano et al., 2001b; Leonard, 1993). A recent review of the literature that included a meta-analysis concluded that the statistical association between alcohol and violence is not trivial and that the largest associations are observed for chronic alcohol use and IPV (Lipsev et al., 1997). Furthermore, there is evidence that alcohol is associated with more severe forms of partner violence, an increased likelihood of physical

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*From the University of Texas Houston Health Science Center, School of Public Health, Dallas Regional Campus, Dallas, Texas.*

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*Reprint requests: Craig Field, PhD, MPH, UT Houston School of Public Health, Dallas Regional Campus, 5323 Harry Hines Blvd. Room V8.112, Dallas, TX 75390-9128; Fax: 214-648-1081; E-mail: craig.field@utsouthwestern.edu.*

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injuries, and more chronic IPV (Brecklin, 2002; Kyriacou et al., 1999; Leonard and Quigley, 1999; Quigley and Leonard, 1999, 2000).

An overview of studies examining alcohol consumption at the time when IPV took place indicated that men were drinking in about 45% of the events (range across all studies is 6–57%) and women were drinking in about 20% of the events (range 10–27%; Roizen, 1993). In addition, numerous studies based on clinical samples of battered wives and alcoholics have reported on the role of alcohol use during the violent event on the part of the perpetrator (Amaro et al., 1990; Murphy et al., 2001). In the National Family Violence Survey, the rate of MFPV was about three times higher among frequent binge drinkers than it was among men who abstained from alcohol (Kantor and Straus, 1987). Analyses of community samples also have shown a strong and positive association between drinking, alcohol problems, and IPV (Leonard and Quigley, 1999; Leonard and Senchak, 1993). Caetano et al. (2001b) reported that rates of MFPV were higher among men who had five or more drinks on occasion at least once a week than among abstainers and other drinkers. Black women who drank five or more drinks on occasion at least once a week were also twice as likely to report FMPV than those who did not report this type of drinking pattern. Baseline results from the survey analyzed in this article also indicated that after controlling for alcohol consumption as measured by the number of drinks consumed per week, alcohol-related problems were associated with partner violence, particularly among black couples (Cunradi et al., 1999). Caetano et al. (2001a) reported that female and male alcohol dependence predicted FMPV among black couples only. Cunradi et al. (2000) found that FMPV was associated with female alcohol-related problems among white couples and both female and male alcohol-related problems among black couples, but neither were significant among Hispanic couples. Thus, although alcohol use and its associated problems are clearly related to MFPV and FMPV, this relationship is complex and varies across ethnic groups.

Cross-sectional results of baseline data from 1995 indicated that blacks and Hispanics were at increased risk of MFPV and FMPV (Caetano et al., 2000a). When socioeconomic characteristics, alcohol use, and history of victimization were controlled for, these differences remained statistically significant for FMPV, but not for MFPV, and only among black couples (Caetano et al., 2000a). In general, ethnic-specific multivariate logistic regression models that used cross-sectional data at baseline also indicated that the predictors of MFPV and FMPV such as psychosocial variables, alcohol use, and alcohol-related problems varied by ethnicity (Caetano et al., 2000a, 2001a; Cunradi et al., 1999). Few studies have examined the nature of IPV and its associated risk factors among white, black, and Hispanic couples across time in the general population. However, Jasinski (2001) recently published a longitudinal study re-

garding the initiation, cessation, and persistence of intimate partner violence that included examination of ethnic differences. Jasinski's (2001) findings also suggest that different patterns of risk factors for MFPV emerge for each ethnic group. Recent longitudinal findings from the data that this article is based on also suggest that the course and predictors of incidence, remission and recurrence of IPV vary by ethnicity. For example, multivariate results indicate that black and Hispanic couples were 3.5 and 2 time more likely, respectively, than white couples to report IPV at baseline and follow-up. (Caetano R, Field CA, Ramisetty-Mikler S, McGrath C, Nelson S The five-year course of intimate partner violence among white, black and Hispanic couples in the U.S. *J Interpers Violence*, submitted.) These prior studies highlight the importance of considering ethnic differences in the examination of IPV across time and its associated risk factors.

This article examines the longitudinal predictors of MFPV and FMPV in white, black, and Hispanic couples in the U.S. general population. The outcome of interest is MFPV or FMPV at follow-up, and the predictors are previously identified and theoretically informed risk factors for IPV at baseline, including ethnicity, socioeconomic characteristics, history of childhood abuse and exposure to parental violence, alcohol use, and its associated problems. Drawing on previous findings, we anticipated that rates of FMPV would closely approximate rates of MFPV as measured by the Conflict Tactics Scale Form R (Straus, 1990) and that these rates would vary across ethnicity, with blacks and Hispanics having higher rates of both types of partner violence. Furthermore, we hypothesized that MFPV and FMPV at baseline would be predictive of MFPV and FMPV at follow-up, particularly among minority ethnic groups who evidence higher rates of prevalence, incidence, and stability along with lower rates of remission (Caetano R, Field CA, Ramisetty-Mikler S, McGrath C, Nelson S The five-year course of intimate partner violence among white, black and Hispanic couples in the U.S. *J Interpers Violence*, submitted). In addition, based on cross-sectional findings, we hypothesized that alcohol use and its associated problems at baseline would be associated with MFPV and FMPV at follow-up. Finally, ethnic differences in the risk factors associated with MFPV and FMPV at follow-up were anticipated.

## METHODS

### *Data Collection*

The Committee for the Protection of Human Subjects of the University of Texas Houston Health Science Center approved this study. All subjects interviewed signed a written informed consent before being interviewed. In both 1995 and 2000, face-to-face interviews were conducted in respondents' homes with standardized questionnaires. Members of the couple were interviewed separately. This methodology increases the likelihood of accurately identifying cases of MFPV and FMPV by relying on both partners' reports (Caetano et al., 2002; Schafer et al., 1998, 2003; Szinovacz and Egley, 1995).

### Sample

In 1995, at the time of the first interview, subjects in this study constituted a multistage random probability sample representative of married and cohabiting couples in the 48 contiguous United States. At that time, a total of 1925 eligible couples (3850 individuals) 18 years of age and older were randomly selected for participation in the study. Of those selected for participation, 1635 couples (3270 individuals) completed the interview for a response rate of 85%. Included in the sample were oversamples of black and Hispanic couples. In 2000, the 1635 couples previously interviewed were contacted again to participate in the 5 year follow-up. At follow-up, both members of 15 couples were either dead or incapacitated, leaving 1620 couples to be reinterviewed. Interviews were successfully completed with 1392 couples, or 72% of the 1925 couples from the 1995 original eligible sample (or 85% of the couples actually interviewed in 1995). Among these 1392 couples, 1136 couples were still married or cohabiting with the same partner they had during the baseline survey. The present analysis is limited to these couples. Because the aim of this article is to examine predictors of MFPV and FMPV among white, black, and Hispanic couples, this analysis was confined to those couples in which both respondents identified themselves as belonging to these ethnic groups in both 1995 and 2000. The sample under analysis includes 406 white, 232 black, and 387 Hispanic couples.

### Nonresponse Analysis

A multivariate logistic regression was conducted to identify factors associated with nonresponse (Caetano et al., 2003b). Logistic regression indicated that among men, those who were 18 to 29 years of age at baseline were more likely than those who were 50 years of age or older to be lost to follow-up. Unemployed men at baseline were also more likely than employed men to be lost to follow up. Women 40 to 49 years of age were two times more likely than women 50 years of age or older to be lost to follow-up. Also, women who reported being victimized by violence during their childhood were less likely to be among nonrespondents compared with those who were not victimized. The regression model accounted for only 5% of the variance in the response status variable.

### Measurements

**Male-to-Female and Female-to-Male Partner Violence.** Participants were asked about the occurrence of violence-related items that they may have perpetrated against their partners or that their partners may have perpetrated against them during the last year. The violence items were based on the Conflict Tactics Scale, Form R (Straus, 1990) and covered the following events (12 months): threw something; pushed, grabbed, or shoved; slapped; kicked, bit, or hit; hit or tried to hit with something; beat up; choked; burned or scalded; forced sex; threatened with a knife or gun; used a knife or gun.

**Childhood Physical Abuse.** Respondents were asked whether they had experienced any of the following acts at the hands of their parent or caregiver during their childhood or adolescence: hit with something; beaten up; choked, burned, or scalded; threatened with a knife or gun; had a knife or gun used against them. A three-category variable was created dividing respondents into those who had had no such experiences, those who had been hit with something, and those who had experienced more severe forms of violence. Those reporting no history of childhood violence served as the reference group.

**Exposure to Parental Violence.** Respondents were asked whether during their childhood or adolescence they had observed their parents or the persons who raised them threaten one another with physical violence or actually be physically violent with one another. On the basis of their response, individuals were categorized into two groups: never observed violence or threat of violence and observed threat of violence or observed physical violence.

**Impulsivity.** Respondents were asked to rate their behavior by responding to the following three items on a 4 point Likert scale: (1) I often act on the spur of the moment without stopping to think; (2) you might say I act

impulsively; and (3) many of my actions seem to be hasty. The mean of the response to these three statements formed the impulsivity measure, with higher scores reflecting higher levels of impulsivity.

**Alcohol Variables.** The respondent's frequency of drinking over the 12 month period before the survey was coded into nine categories ranging from never to every day or nearly every day. Quantity of consumption was assessed by asking for number of drinks the respondent drank—5 to 7, 8 to 11, and 12 or more drinks—in any combination of wine, beer, liquor, or drinks containing liquor of any kind. A drink was defined as 1 oz of spirits, a 4 oz glass of wine, or a 12 oz can of beer. Based on this information, two alcohol consumption frequency and quantity variables were computed including weekly alcohol consumption and frequency of consuming five or more alcoholic beverages per occasion.

**Weekly Alcohol Consumption.** The average number of drinks consumed weekly was assessed by combining the self-reported frequency and quantity of drinking wine, beer, and spirits in the past year. This weekly alcohol consumption variable was included in the model as a continuous independent variable. For purposes of data interpretation, the risk associated with drinking five standard drinks of alcohol per week is reported in the ethnic-specific multivariate analyses predicting partner violence.

**Frequency of Consuming Five or More Drinks Per Occasion.** This information on quantity and frequency of drinking wine, beer, and liquor was combined and used to estimate the frequency of consuming five or more drinks as less than once a month and once a month or more or, alternatively, not in past year/abstainers (reference group).

**Alcohol Problems.** Respondents were asked about 11 alcohol dependence symptoms and 12 drinking-related social consequences. These 23 items address 12 specific problem areas: salience of drinking, impaired control, withdrawal, relief drinking, tolerance, binge drinking, belligerence, accidents, health-related problems, work-related problems, financial problems, and problems with police. Due to survey time constraints, frequency data were not collected. As a result of the skewed distribution of the variable in the sample, respondents were divided into two groups: those who reported any problem in the past 12 months and those who did not report any problems.

**Approval of Marital Aggression.** Respondents were asked to rate their approval on a 4 point Likert scale to the following items: (1) a husband is acting in a verbally aggressive or abusive way toward his wife; (2) a wife is acting in a verbally aggressive or abusive way toward her husband; (3) a husband is behaving in a physically violent way to his wife; (4) a wife is behaving in a physically violent way to her husband. Due to high correlation between those individuals approving of verbal and physical abuse, these categories were combined. Responses to these four items were dichotomized, and the reference group constituted couples in which both members indicated that they always disapproved of the husband or wife being verbally or physically aggressive.

### Sociodemographic Characteristics

**Ethnicity.** Respondents who identified themselves as "black of Hispanic origin (Latino, Mexican, Central or South American, or any other Hispanic origin)" and "white of Hispanic origin (Latino, Mexican, Central or South American or any other Hispanic origin)" were classified as Hispanic. Respondents who selected "black, not of Hispanic origin" were classified as black. And respondents who selected "white, not of Hispanic origin" were classified as white.

**Age.** The age of respondents was measured continuously in years.

**Education.** Each respondent was asked about the highest grade or year in school that he or she completed. Respondents were categorized into four categories including (1) less than high school graduate; (2) high school graduate; (3) some college; and (4) college graduate.

**Income.** Respondents were asked to identify the category into which their total pretax household income fell: (1) \$4,000 or less; (2) \$4,001 to \$6,000; (3) \$6,001 to \$8,000; (4) \$8,001 to \$10,000; (5) \$10,001 to \$15,000; (6) \$15,001 to \$20,000; (7) \$20,001 to \$30,000; (8) \$30,001 to \$40,000; (9) \$40,001 to \$60,000; (10) \$60,001 to \$80,000; (11) \$80,001 to \$100,000; and (12) more than \$100,000. On the basis of the responses, the 12 income

categories were collapsed into five categories: equal to or less than \$10,000; \$10,001 to \$20,000; \$20,001 to \$30,000; \$30,001 to \$40,000; and greater than \$40,000. Income was treated as a categorical variable, with the final income category (greater than \$40,000) as the reference group.

#### Data Analysis

Analyses were conducted on data weighted to correct for probability of selection into the sample and nonresponse rates. In addition, a poststratification weight was calculated to adjust the sample to known population distributions on certain demographic variables (ethnicity of the household informant, metropolitan status, and region of the country). To correct for clustering effects resulting from the multicluster sample design, statistical analyses were performed with SUDAAN (Research Triangle Institute, 1996). Bivariate analyses of the risk factors and outcome of interest by ethnicity were conducted. Logistic regression models were developed with procedures outlined by Hosmer and Lemeshow (1989) using a *p* value of 0.25 as the cutoff for inclusion. The outcome variables of interest for the longitudinal logistic regression models were male-to-female and female-to-male partner violence at 5 year follow-up. The risk factors of interest included male and female reports of history of childhood abuse, exposure to parental violence, impulsivity, alcohol problems, frequency of drinking five or more drinks per occasion, volume of alcohol consumed per week per five standard drinks, approval of marital aggression, and male-to-female and female-to-male partner violence at baseline in 1995. Logistic regression models also controlled for the effects of male and female age, education, and couple income. First, logistic regression models of couples from all ethnic groups together were conducted. The main purpose of this regression analysis was to assess whether ethnicity was a significant predictor of MFPV and FMPV at follow-up while controlling for sociodemographic characteristics and other predetermined risk factors at baseline. As a result of ethnicity being a significant predictor in this general model, ethnic-specific logistic regression models were developed. The odds ratio and associated 95% confidence interval for the risk factors at baseline are presented for each of the ethnic-specific logistic regression models predicting MFPV and FMPV at follow-up.

## RESULTS

### Prevalence of Risk Factors and Outcome in Whites, Blacks, and Hispanics

Less severe childhood abuse is less frequent among Hispanics but severe childhood abuse, among both males and a female, is more common among Hispanics (Table 1). When both indicators of childhood physical abuse are considered, blacks have higher rates of childhood physical abuse. Exposure to parental violence is slightly higher among blacks and Hispanics. Alcohol problems in the last year and drinking five or more drinks per occasion are twice as high in male Hispanics. Alcohol consumption was lower among females than males and lowest for Hispanic females. In addition, white females were significantly less likely to approve of marital aggression. Finally, similar to baseline rates, MFPV and FMPV were higher among blacks and Hispanics and FMPV was slightly higher than MFPV except for Hispanics in whom there were slightly lower rates of FMPV than MFPV at follow-up.

### Longitudinal Model of Partner Violence

Multivariate predictors of MFPV and FMPV in the entire sample, considering whites, blacks, and Hispanic cou-

**Table 1.** Prevalence of Risk Factors and Outcome in Whites, Blacks, and Hispanics

|                                      | Whites<br>(406) | Blacks<br>(232) | Hispanics<br>(387) |
|--------------------------------------|-----------------|-----------------|--------------------|
| Male childhood physical abuse*       |                 |                 |                    |
| Hit with something                   | 61.6            | 66.6            | 40.1               |
| Severe childhood physical abuse      | 3.9             | 9.8             | 23.9               |
| Female childhood physical abuse*     |                 |                 |                    |
| Hit with something                   | 44.0            | 50.9            | 35.8               |
| Severe childhood physical abuse      | 6.7             | 4.9             | 15.1               |
| Exposure to parental violence        |                 |                 |                    |
| Male*                                | 24.6            | 38.0            | 38.9               |
| Female*                              | 22.6            | 31.3            | 32.2               |
| Impulsivity**                        |                 |                 |                    |
| Male                                 | 0.8 (0.7)       | 0.7 (0.7)       | 0.7 (0.8)          |
| Female                               | 0.7 (0.7)       | 0.7 (0.8)       | 0.7 (0.8)          |
| Alcohol problems                     |                 |                 |                    |
| Male*                                | 9.4             | 10.8            | 21.9               |
| Female                               | 6.3             | 7.4             | 5.0                |
| Five or more drinks per occasion     |                 |                 |                    |
| Male*                                | 36.9            | 30.8            | 47.5               |
| Female                               | 26.4            | 24.0            | 28.9               |
| Number of standard drinks per week** |                 |                 |                    |
| Male                                 | 6.9 (15.8)      | 5.8 (16.8)      | 5.9 (17.4)         |
| Female*                              | 2.1 (6.8)       | 2.6 (7.7)       | 0.7 (3.0)          |
| Approval of marital aggression       |                 |                 |                    |
| Male                                 | 12.2            | 15.1            | 16.0               |
| Female*                              | 4.5             | 10.0            | 8.0                |
| Intimate partner violence in 1995    |                 |                 |                    |
| Male-to-Female*                      | 11.0            | 17.7            | 16.9               |
| Female-to-Male*                      | 13.1            | 24.0            | 20.8               |
| Intimate partner violence in 2000    |                 |                 |                    |
| Male-to-Female*                      | 7.8             | 19.9            | 20.6               |
| Female-to-Male*                      | 9.8             | 22.2            | 19.5               |

\* *p* < 0.05; \*\* mean (standard deviation).

ples together, were examined first. The results indicated that ethnicity was a significant predictor of MFPV and FMPV. Compared with white couples, black couples were three times more likely to engage in MFPV (odds ratio [OR] = 3.0, 95% confidence interval [CI] = 1.5–5.9) and two times more likely to engage in FMPV (OR = 2.2, 95% CI = 1.1–4.5). Hispanic couples were almost three times more likely to engage in MFPV (OR = 2.9, 95% CI = 1.4–5.9) and two times more likely to engage in FMPV (OR = 2.1, 95% CI = 1.2–3.7) in comparison to white couples. This finding indicates that ethnicity is a predictor of IPV longitudinally. Therefore, ethnic-specific longitudinal models were developed to predict MFPV and FMPV among white, black, and Hispanic couples to assess potential interaction effects between independent variables and ethnicity (Table 2 and 3).

### Ethnic-Specific Longitudinal Model of Partner Violence

A stable model for predicting MFPV at follow-up among white couples could not be fit using MFPV and FMPV as predictors at baseline. Coefficients became unstable with these variables in the model probably because of cells with zero observations. Therefore, Table 2 presents data for blacks and Hispanics only. However, a stable model to predict MFPV at follow-up among whites was developed by using IPV at baseline (i.e., either MFPV or FMPV at baseline). This analysis indicated that IPV at baseline was a

**Table 2.** Ethnic-Specific Logistic Regression Models Predicting Male-to-Female Partner Violence

|                                   | Blacks           | Hispanics      |
|-----------------------------------|------------------|----------------|
| Male childhood abuse              |                  |                |
| Hit with something                | —                | 0.7 (0.3–1.6)  |
| Severe childhood physical abuse   | —                | 0.8 (0.3–2.6)  |
| Female childhood abuse            |                  |                |
| Hit with something                | —                | 2.0 (0.9–4.4)  |
| Severe childhood physical abuse   | —                | 2.8 (0.9–8.7)  |
| Exposure to parental violence     |                  |                |
| Male                              | 1.1 (0.3–4.5)    | 1.9 (0.8–4.3)  |
| Female                            | 1.1 (0.3–4.4)    | 0.8 (0.3–2.1)  |
| Impulsivity                       |                  |                |
| Male                              | 3.5 (1.4–8.7)*   | 1.7 (1.2–2.3)* |
| Female                            | —                | 1.3 (0.9–2.0)  |
| Alcohol problems                  |                  |                |
| Male                              | 4.0 (0.6–25.6)   | 1.1 (0.4–3.2)  |
| Female                            | 7.5 (1.4–39.6)*  | 1.8 (0.3–9.9)  |
| Five or More drinks per occasion  |                  |                |
| Male                              | 0.9 (0.2–3.1)    | 1.0 (0.5–2.2)  |
| Female                            | 1.7 (0.3–8.0)    | 0.8 (0.3–2.0)  |
| Weekly alcohol consumption**      |                  |                |
| Male                              | 1.0 (0.8–1.2)    | 1.0 (0.9–1.2)  |
| Female                            | 1.0 (0.8–1.3)    | —              |
| Approval of marital aggression    |                  |                |
| Male                              | 2.4 (0.4–13.0)   | 1.6 (0.4–5.6)  |
| Female                            | —                | —              |
| Intimate partner violence in 1995 |                  |                |
| Male-to-Female                    | 10.4 (2.4–44.4)* | 1.3 (0.5–3.3)  |
| Female-to-Male                    | 1.9 (0.5–6.4)    | 3.6 (1.4–9.4)* |

Control variables: age, education, and income.

—, Variables failing to meet criteria for inclusion in the model.

\*  $p < 0.05$ ; \*\* Risk per five standard drinks.

significant risk factor (OR = 9.1, 95% CI = 2.2–37.8) of MFPV at follow-up among white couples. In addition, female drinking five or more drinks per occasion was a significant risk factor (OR = 5.8, 95% CI = 1.5–22.2) of MFPV at follow-up among white couples. In contrast, male alcohol consumption was a significant predictor associated with the development of FMPV among white couples. Turning to the analyses presented in Table 2, male impulsivity was a risk factor for MFPV among blacks (OR = 3.5, 95% CI = 1.4–8.7) and Hispanics (OR = 1.7, 95% CI = 1.2–2.3). Female alcohol problems were a risk factor for MFPV among blacks (OR = 7.5, 95% CI = 1.4–39.6). Among black couples, MFMPV at baseline was a risk factor for MFPV at follow-up (OR = 10.4). In contrast, among Hispanic couples, FMPV at baseline was a risk factor for MFPV at follow-up (OR = 3.6, 95% CI = 1.4–9.4).

Ethnic-specific models indicated that the risk factors predicting FMPV at follow-up also varied by ethnicity. Among white couples, only male weekly alcohol consumption was a risk factor for FMPV at follow-up (OR = 1.2, 95% CI = 1.1–1.3). Among black couples, male and female impulsivity was a risk factor for FMPV at follow-up (males: OR = 3.3, 95% CI = 1.5–7.5; females: OR = 2.0, 95% CI = 1.0–4.0). Similar to the predictors for MFPV, among black couples, MFPV at baseline predicted FMPV at follow-up (OR = 3.7, 95% CI = 1.0–13.8) whereas, in

contrast, among Hispanic couples, FMPV at baseline predicted FMPV at follow-up (OR = 3.1, 95% CI = 1.5–6.4).

Ethnic-specific longitudinal models predicting MFPV and FMPV explained between 19% and 41% of the variance. Among white couples, longitudinal logistic regression models explained 29% of the variance in MFPV and 19% of the variance in FMPV. Among blacks, longitudinal logistic regression models explained 41% of the variance in MFPV and 41% of the variance in FMPV. Finally, among Hispanics, longitudinal logistic regression models explained 22% of the variance in MFPV and 25% of the variance in FMPV.

## DISCUSSION

The findings from this study confirm results from prior cross-sectional and longitudinal research on intimate partner violence. First, similar to the baseline results reported by Caetano et al. (2000a), the prevalence of intimate partner violence was higher among blacks and Hispanics. In addition, the rates of FMPV were higher than MFPV among whites and blacks and closely approximate the rates of MFPV among Hispanics. Second, similar to the longitudinal results from Jasinski (2001) and other cross-sectional findings (Caetano et al., 2000a, 2001a; Cunradi et al., 1999), the results of the current study indicate that the risk factors of intimate partner violence at follow-up vary by ethnicity. These results suggest that generalization regarding risk factors associated with IPV across ethnic groups may not be appropriate. Thus, future attempts at understanding IPV should be ethnically sensitive and, ideally, include oversamples of ethnic minorities as well as separate analyses for each ethnic group when applicable.

Cross-sectional results of baseline data from 1995 indicated that black and Hispanic couples reported higher crude rates of both MFPV and FMPV than white couples (Caetano et al., 2000a). The greatest differences across ethnic groups were found between white and black couples. These differences remained statistically significant for FMPV, but not for MFPV, when the researchers controlled for factors such as socioeconomic status, alcohol use, and history of childhood victimization (Caetano et al., 2001b). In contrast, results from the current study indicate that black and Hispanic couples were at two to three times greater risk of MFPV and FMPV at follow-up in comparison to white couples even after controlling for sociodemographic characteristics, alcohol consumption, alcohol-related problems, and psychosocial variables. This suggests that a complex interaction between ethnicity and individual attributes of both members of the dyad contribute to the development of MFPV and FMPV at follow-up.

Congruent with the hypothesis generated by the longitudinal course of IPV in this sample of whites, blacks, and Hispanics (Caetano R, Field CA, Ramisetty-Mikler S, McGrath C, Nelson S) The five-year course of intimate partner violence among white, black and Hispanic couples

**Table 3.** Ethnic-Specific Logistic Regression Models Predicting Female-to-Male Partner Violence

|                                   | Whites         | Blacks          | Hispanics      |
|-----------------------------------|----------------|-----------------|----------------|
| Male childhood abuse              |                |                 |                |
| Hit with something                | 1.9 (0.7–5.2)  | —               | —              |
| Severe childhood physical abuse   | 3.9 (0.6–24.9) | —               | —              |
| Female childhood abuse            |                |                 |                |
| Hit with something                | 0.8 (0.4–1.8)  | 1.7 (0.3–8.7)   | —              |
| Severe childhood physical abuse   | 1.4 (0.1–20.0) | 0.6 (0.1–5.3)   | —              |
| Exposure to parental violence     |                |                 |                |
| Male                              | 1.5 (0.5–4.3)  | 1.3 (0.4–4.8)   | 1.6 (0.9–3.1)  |
| Female                            | —              | 0.4 (0.1–1.8)   | 1.4 (0.7–2.8)  |
| Impulsivity                       |                |                 |                |
| Male                              | 1.1 (0.5–2.2)  | 3.3 (1.5–7.5)*  | 1.3 (0.9–1.9)  |
| Female                            | 0.9 (0.6–1.6)  | 2.0 (1.0–4.0)*  | —              |
| Alcohol problems                  |                |                 |                |
| Male                              | 0.9 (0.3–3.0)  | 2.9 (0.6–14.8)  | 1.2 (0.4–3.1)  |
| Female                            | —              | 3.1 (0.3–28.8)  | 1.7 (0.4–6.7)  |
| Five or more drinks per occasion  |                |                 |                |
| Male                              | 0.2 (0.1–1.2)  | 2.3 (0.6–9.7)   | 0.8 (0.4–1.7)  |
| Female                            | 3.3 (0.6–18.3) | 2.2 (0.4–10.9)  | 1.4 (0.7–2.9)  |
| Weekly alcohol consumption**      |                |                 |                |
| Male                              | 1.2 (1.1–1.3)* | —               | —              |
| Female                            | —              | —               | —              |
| Approval of marital aggression    |                |                 |                |
| Male                              | —              | —               | 1.6 (0.5–4.6)  |
| Female                            | —              | —               | —              |
| Intimate partner violence in 1995 |                |                 |                |
| Male-to-Female                    | 5.2 (0.8–32.6) | 3.7 (1.0–13.8)* | 2.1 (0.8–5.3)  |
| Female-to-Male                    | 2.5 (0.6–10.6) | 1.3 (0.4–4.0)   | 3.1 (1.5–6.4)* |

Control variables: age, education, and income.

—, Variables failing to meet criteria for inclusion in the model

\*  $p < 0.05$ ; \*\* per five standard drinks

in the U.S. J Interpers Violence, submitted), partner violence at baseline appeared to play an important role in the occurrence of partner violence among couples at follow-up, particularly for minorities. Ethnic-specific longitudinal models indicated that among blacks, MFPV in 1995 was a significant predictor of both MFPV and FMPV at follow-up. In contrast, for Hispanics, FMPV in 1995 was predictive of both MFPV and FMPV at follow-up. For whites, an alternative model indicated that the presence of IPV (either MFPV or FMPV or both) at baseline was predictive of MFPV at follow-up. Unfortunately, which component of IPV (i.e., the presence of male-to-female or female-to-male partner violence or the two together) could not reliably be determined in the present sample of white couples.

Results from cross-sectional findings from baseline data of this study also indicated that alcohol problems rather than alcohol consumption were important predictors of intimate partner violence, particularly among black couples (Caetano et al., 2001a, Cunradi et al., 1999). Although not significant, the odds ratios for alcohol problems were greater than one, particularly among black couples. However, the results of the current study indicate that alcohol consumption variables are a significant predictor of partner violence at follow-up but only among whites. [It may be that alcohol problems are indicative of concomitant intimate partner violence, whereas alcohol consumption patterns, as indicated by volume of alcohol consumed per week and frequency of drinking five or more drinks per occasion, are more indicative of the development of intimate partner violence over time.] This, however, is a hypothesis that

should be more thoroughly evaluated and may only be the case among white couples. Among minority couples, other predictors aside from partner violence, most notably impulsivity, appear to play a more central role in the prevalence of intimate partner violence at follow-up. Various models have been hypothesized to explain the relationship of alcohol and IPV (Leonard and Quigley, 1999). The spurious model hypothesizes that the relationship between alcohol use and partner violence is the result of a third factor (i.e., personality characteristics) that influences both drinking and aggression. The indirect effects model proposes that marital conflict including partner violence develops as a result of chronic alcohol abuse by one or both partners. In contrast, the proximal effects model argues that alcohol use facilitates violence perhaps as a result of the disinhibiting effects of alcohol on behavior and cognition or alcohol expectancies. Fals-Stewart (2003) recently examined the day-to-day relationship between male partners' drinking and the occurrence of MFPV. His findings indicated that MFPV was more likely on days of drinking by males and was most likely close in time to the drinking episode, compared with days on which no alcohol was consumed or days on which alcohol consumption followed the occurrence of MFPV even after controlling for relationship satisfaction and drinking severity. These findings strongly support the proximal effects model. [Although the collection of daily alcohol consumption and daily episodes of partner violence may not be feasible in a general population survey, research regarding the relationship of alcohol use and IPV in the general population should more closely

evaluate the potential indirect and proximal effects of alcohol use on the occurrence and frequency of IPV as well as the influence of relationship satisfaction and sociopathy.]

As a result of the longitudinal nature of the current analysis, a number of factors should be kept in mind when interpreting the results of this study. First, this sample is now 5 years older than baseline data, and age is negatively correlated with intimate partner violence (Caetano et al., 2000a; Cunradi et al., 2000; Suito et al., 1995). In an examination of the 5 year course of IPV (Caetano et al., 2003a), the relationship between age and IPV was different among Hispanics than among blacks and whites. Similar to previous findings, age was found to be less predictive of IPV among Hispanics (Caetano et al., 2000b; Cunradi et al., 2000; Suito et al., 1995). Second, the current analysis is restricted to intact couples. That is, couples who were no longer together at follow-up were excluded from the current analysis. Couples who reported violence at baseline may have been more likely to be separated or divorced within the 5 year period of the study, and this is a limitation that should be kept in mind when interpreting the results of this study. Similar to the relationship between age and IPV, the relationship between separation and IPV also varied among different ethnic groups. The highest separation rate (36%) among couples who reported MFPV at baseline was observed among black couples, compared with Hispanic (14%) and white (17%) couples. Likewise, the highest rate of separation (34%) among couples who reported FMPV at baseline also was observed among black couples, compared with Hispanic (14%) and white (26%) couples (Ramisetty-Mikler and Caetano, 2003). Despite these potential limitations, these findings contribute to our continually growing knowledge base regarding ethnic differences associated with intimate partner violence.

Despite certain limitations, the current longitudinal study has several advantages over prior studies examining ethnic differences in intimate partner violence. Although the primary aim of the longitudinal analysis conducted by Jasinski (2001) was to determine the sociodemographic risk factors and ethnic differences in the persistence, cessation, and initiation of MFPV, the current study considers a broader array of potential risk factors, and examines the occurrence of both male-to-female and female-to-male partner violence at follow-up. Finally, these findings have important clinical implications in that they can make a valuable contribution to the development of culturally sensitive interventions aimed at preventing IPV or reducing the risk of IPV among identified cases. In brief, such information can help tailor intervention and prevention efforts to the needs of the client. For example, the results suggest that among black couples, MFPV at baseline plays a central role in the development of both types of partner violence. Among Hispanic couples, the opposite is observed: FMPV at baseline is a significant predictor of the development of both types of intimate partner violence at follow-up. These risk factors are important indicators that

may potentially be used to identify couples at risk for the development of IPV over time. Moreover, male impulsivity was a risk factor among blacks and Hispanics supporting the use of impulse control and anger management techniques in addressing the risk of partner violence in these couples. In contrast, alcohol use may be a more relevant risk factor for identification and intervention among white couples. Thus, this information is of importance to professionals responsible for the development and implementation of prevention and interventions aimed at reducing IPV in the community and should facilitate the development of ethnically informed and culturally sensitive interventions.

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