

Drinking, Alcohol Problems and the Five-Year Recurrence and Incidence of Male to Female and Female to Male Partner Violence

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Background: This study examined the 5-year incidence and recurrence of male to female (MFPV) and female to male partner violence (FMPV) as well as their relationship with drinking and alcohol problems among intact couples in the United States.

Methods: A national sample of couples 18 years of age or older were interviewed in 1995 and again in 2000.

Results: Recurrence is slightly higher for FMPV (44%) than MFPV (39%), whereas incidence rates are similar for these two types of violence (MFPV, 5.7%; FMPV, 6%). Cross-tabulations show that a higher frequency of drinking five or more drinks on occasion is positively associated with the overall occurrence of MFPV and with both the recurrence and the overall occurrence of FMPV. Male alcohol problems are associated with a higher recurrence of MFPV and higher overall MFPV. Female alcohol problems are associated with incidence of FMPV. In multivariate analysis, black ethnicity, male unemployment, and severe physical abuse during childhood are associated with recurrence of MFPV. Black ethnicity, male unemployment, male employment status as "retired/other," female age, and couples in which the female drinks more are associated with recurrence of FMPV. Incidence of MFPV is associated with cohabitation, Hispanic ethnicity, and man's observation of violence between parents. Male unemployment, male observation of violence between parents, and man's drinking volume predict incidence of FMPV.

Conclusions: Volume of drinking is the only alcohol indicator associated with intimate partner violence once the effects of other factors are controlled in multivariate analysis. Both MFPV and FMPV are areas of health disparity across whites, blacks, and Hispanics. Factors of risk that predict recurrence and incidence can be identified and used in prevention efforts.

Key Words: Alcohol, Ethnicity, Partner Violence, Epidemiology, Survey.

THIS STUDY EXAMINED the association among drinking, alcohol-related problems, and the 5-year recurrence and incidence of male to female (MFPV) and female to male (FMPV) partner violence in a national sample of couples. Intimate partner violence (IPV) has been identified as a major public health problem in the United States. Results from a 1985 national survey indicated that the 12-month rate of MFPV and FMPV was 11.6% and 12.4%, respectively (Straus and Gelles, 1995). Cross-sectional analyses of the 1995 baseline survey in this

study showed that the rate of MFPV and FMPV among U.S. couples was 13.6% and 18.2%, respectively (Schafer et al., 1998).

Determining the course in time of MFPV and FMPV will contribute to further understanding of these two types of violence. Unfortunately, most longitudinal studies have not addressed this issue (Feld and Straus, 1995; Jasinski, 2001; Quigley and Leonard, 1996), having focused mostly on IPV. This previous longitudinal research indicates that the course of IPV in general population samples is neither as severe nor as chronic as in institutional samples (Feld and Straus, 1995; Leonard and Senchak, 1993; O'Leary et al., 1989; Quigley and Leonard, 1996). Quigley and Leonard (1996) reported a rate of 12-month "desistance" of aggression in their sample of newlyweds of 23.9%. In a study with national general population sample, Feld and Straus (1995) found that the 12-month rate of "desistance" of physical assaults by husbands who reported one to two severe assaults and three or more was 58 and 33%, respectively. Analyzing the 1988 to 2003 National Survey of Families and Households, Jasinski (2001) reported an overall rate of cessation of male aggression of 69% over 5 years, with blacks showing both a higher prevalence rate and a higher

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Received for publication July 6, 2004; accepted October 28, 2004.

Work on this paper was supported by a grant (R37-AA10908) from the National Institute on Alcohol Abuse and Alcoholism to the University of Texas School of Public Health. Data collection also had the support of a National Alcohol Research Center grant (AA05595) from the National Institute on Alcohol Abuse and Alcoholism to the Alcohol Research Group, Public Health Institute, Berkeley, California.

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DOI: 10.1097/01.ALC.0000150015.84381.63

remission rate of IPV than whites. Finally, O'Leary et al. (1989) reported on MFPV and FMPV in a community sample of couples at premarriage and 30 months after marriage. There were no statistically significant differences in the rates of FMPV and MFPV at 30 months (25 and 32%), and the stability of aggression was higher for women than men. Common to all of these previous longitudinal analyses is that the recurrence of IPV is related to severity. In general, those who engaged in severe violence were more likely than those who engaged in moderate violence to report continued violence at follow-up.

Alcohol plays an important role in IPV. However, most of the research on drinking and IPV is cross-sectional. An overview of studies of IPV estimated that men are drinking at the time of the event in ~45% of cases (range across all studies is 6–57%) and women are drinking in ~20% of such events (range 10–27%) (Roizen, 1993). Another review concluded that the association between alcohol and violence is not trivial, with the largest associations being observed between chronic alcohol use and IPV (Lipsey et al., 1997). There is also evidence that alcohol is associated with more severe injuries and with greater chronicity of violence (Brecklin and Ullman, 2002; Quigley and Leonard, 1999, 2000; Reider et al., 1988). Previous cross-sectional analysis of the 1995 baseline survey in the research reported here showed that between 27 and 41% of the men and 4 to 24% of the women, depending on ethnicity, were drinking at the time of the violent incident (Caetano et al., 2000). Alcohol-related problems among women in the community have been identified as a significant predictor of MFPV among whites, blacks, and Hispanics; alcohol-related problems among men predicted partner violence only among blacks (Cunradi et al., 1999). Alcohol dependence indicators (e.g., withdrawal symptoms, alcohol tolerance), as compared with alcohol-related social problems (e.g., loss of job, legal problems), seem to be particularly strong predictors of IPV among blacks, independent of who in the couple reports the problems (Caetano et al., 2001).

Longitudinal research also shows a positive relationship between drinking and IPV. Leonard and Senchak (1996) reported a positive relationship between male average daily alcohol consumption and male marital aggression 1 year later. In contrast, female drinking was not related to male marital aggression 1 year later. However, in subsequent analyses of male marital aggression during the second and third years of marriage, Quigley and Leonard (2000) reported that male drinking was related to aggression only when the woman was a light drinker. In another analysis of the same sample of newlyweds, Quigley and Leonard (1999) reported an association between drinking and the frequency of severe marital aggression for couples who reported high verbal conflict behavior. A previous longitudinal analysis of data in this study showed that black and Hispanic couples were approximately three times more likely than white couples to report MFPV at follow-up

(Field and Caetano, 2003). Couples in the two minority groups were also two times more likely than whites to report FMPV at follow-up. Multivariate models predicting MFPV and FMPV in 2000, using 1995 baseline variables, showed that female alcohol problems in 1995 were positively associated with the presence of MFPV in 2000 among blacks, and male alcohol consumption was positively associated with FMPV in 2000 among whites. Thus, the association among average number of drinks consumed, the frequency of drinking five or more drinks on an occasion, and alcohol problems was not consistent across ethnic groups or particularly strong.

This study had two objectives: the first was to examine the association among drinking, alcohol-related problems, and the incidence and recurrence of MFPV and FMPV among U.S. couples between 1995 and 2000. Taking MFPV as an example, incidence is the proportion of couples who reported MFPV in 2000 but not in 1995 out of all of those who did not report MFPV in 1995. Recurrence is the proportion of couples who reported MFPV in both 1995 and 2000 out of all of those who reported MFPV in 1995. The second objective was to examine the predictors of recurrence and incidence of MFPV and FMPV, including volume of alcohol consumption, the frequency of drinking five or more drinks on an occasion, and alcohol problems.

As in previous analyses of this data set, overall theoretical guidance for the analysis is taken from the sociostructural or economic theory of violence as described by Straus and Gelles (1985), which suggests that factors such as racial discrimination, poverty, and unemployment lead to stressful life conditions and violence. Two other important predictors of MFPV and FMPV are drinking and alcohol problems (Caetano et al., 2000; Cunradi et al., 1999; Leonard and Quigley, 1999; Murphy et al., 2001). Other important predictors of IPV considered are victimization by physical abuse during childhood and the experience of observing threat or actual IPV between parents (Maxfield and Widom, 1996; Widom, 1989). Finally, the analyses control for the effects of sociodemographic factors. This is especially necessary when studying ethnic groups because of the potential confounding effect of socioeconomic status on the relationship between ethnicity and IPV.

MATERIALS AND METHODS

Sample and Follow-up Rates

At the time of the first interview (1995), participants in this study constituted a multistage random probability sample representative of married and cohabiting couples in 48 contiguous United States. All couples who were 18 years of age and older and living in randomly selected households were eligible to participate. This process identified 1925 couples, 1635 of whom 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 who were interviewed previously 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 (1635 – 15) to be re-interviewed.

Interviews were 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 couples, 1136 were still either married or living together with the same partner (intact) and are the focus of the analysis reported here in.

Data Collection

All participants 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 in their preferred language (English or Spanish). Members of the couple were always interviewed independently. Interviews in which this independence seemed to be compromised were discarded ($n = 20$).

Nonresponse Analysis

Nonresponse analysis is described by Caetano et al. (2003). 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 who were 40 to 49 years of age were two times more likely than women who were 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 in this nonresponse analysis accounted for only 5% of the variance in the response status variable. This model included variables that represented ethnicity, age, education, employment status, income, marital status, alcohol consumption, drinking problems, experience of childhood physical abuse, history of observation violence between parents, MFPV, and FMPV.

Measurements

IPV

In both 1995 and 2000, participants were asked about the occurrence of 11 violent behaviors that they may have perpetrated against their partners or that their partners may have perpetrated against them during the past year. The violence items were adapted from the Conflict Tactics Scale, Form R (Straus, 1995) and included 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; and used a knife or gun. Because of survey time constraints, no frequency data were collected. MFPV was considered present when the male partner informed perpetration of violence or the female partner informed victimization by her partner. The reverse is true for FMPV.

AVERAGE ALCOHOL CONSUMPTION PER WEEK

The respondent's frequency of drinking over the 12-month period before the survey was coded into 11 categories ranging from "never" to "three or more times a day." Quantity of consumption was assessed by asking for the proportion of drinking occasions on which the respondent drank five or six, three or four, and one or two glasses each of wine, beer, and liquor. This information on quantity and frequency of drinking wine, beer, and liquor was combined and used to estimate the average number of drinks of alcohol consumed weekly. A drink was defined as 1.5 oz of spirits, a 4-oz glass of wine, or a 12-oz can of beer, each of which contains ~12 g of absolute alcohol. See Dawson and Room (2000) and Room (2000) for a discussion of the history of these survey measures.

FREQUENCY OF DRINKING FIVE OR MORE DRINKS ON OCCASION

The information on drinking wine, beer, and liquor was also coded to identify the frequency of drinking occasions in which respondents drank

five or more drinks in the past 12 months. Respondents were divided into two groups: (1) drank five or more in the past 12 months and (2) all others.

ALCOHOL PROBLEMS

The items included in the survey address 14 specific problem areas: salience of drinking, impaired control, withdrawal, relief drinking, tolerance, binge drinking, belligerence, accidents, health-related problems, work-related problems, financial problems, problems with the police, problems with the spouse, and problems with people other than the spouse. Respondents were divided into two groups: (1) those who reported any problem in the past 12 months and (2) those who did not report problems (reference group). See Dawson and Room (2000) and Gmel et al. (2000) for a discussion of the properties of these problem measures.

PSYCHOSOCIAL VARIABLES: CHILDHOOD VIOLENCE VICTIMIZATION

Respondents were asked whether they had experienced any of the following acts at the hands of a parent or a caregiver during their childhood or adolescence: hit with something; beaten up; choked, burned, or scalded; threatened with a knife or gun; or had a knife or gun used against them. Respondents were divided into those who had had no such experiences (reference group), had been hit with something, or had experienced more severe forms of violence.

CHILDHOOD EXPOSURE TO PARENTAL VIOLENCE

Respondents were asked whether during their childhood or adolescence they had observed their parents or the people who raised them threaten one another with physical violence or actually be physically violent with one another. Individuals were categorized as never having observed violence or threat of violence (reference group), having observed threat of violence, and having observed actual physical violence.

IMPULSIVITY

Respondents were asked to rate their agreement on a four-point Likert scale of the following items pertaining to impulsivity: (1) "I often act on the spur of the moment without stopping to think"; (2) "You might say I act impulsively"; (3) "Many of my actions seem to be too hasty." Those who responded, "Quite a lot," or, "Some," to any one of the items were categorized as "impulsive," and those who responded, "A little," or, "Not at all," were categorized as not impulsive (reference group).

Sociodemographic Characteristics

ETHNIC IDENTIFICATION

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 the category "black, not of Hispanic origin" were classified as black. Respondents who selected "white, not of Hispanic origin" were classified as white. The labels being used in this variable are a mixture of race (e.g., black and white) and ethnicity (e.g., Hispanic), but the variable is understood as representing ethnicity as a social construct.

AGE

The age of respondents was measured continuously in years as the mean age of the man and the mean age of the woman.

Table 1. Selected Drinking Indicators and Incidence, Recurrence, and All MFPV and FMPV

	Abstainer	Drinks less than once a week	Drinks 1 to 2 times a week	Drinks 3 or more times a week
Frequency of drinking				
Male perpetrators				
Recurrence vs. no MFPV 1995 or 2000	4.6 (293)	3.4 (291)	7.4 (132)	8.0 (157)
Incidence vs. no violence 1995 or 2000	6.2 (295)	4.7 (295)	9.0 (140)	4.4 (152)
All MFPV 2000 vs. no violence 2000	9.9 (332)	7.7 (315)	13.5 (167)	11.4 (183)
Female perpetrators				
Recurrence vs. no FMPV 1995 or 2000	5.5 (432)	9.2 (303)	11.6 (67)	9.1 (52)
Incidence vs. no violence 1995 or 2000	6.4 (439)	6.0 (292)	7.8 (61)	2.7 (46)
All FMPV 2000 vs. no violence 2000	10.6 (516)	13.2 (361)	15.9 (76)	10.1 (60)
	Not in past 12 months/abstainer	Less than once a month	Once a month or more	
Frequency of drinking five or more drinks per occasion (past 12 months)				
Male perpetrators				
Recurrence vs. no MFPV 1995 or 2000	3.4 (560)	4.9 (186)	16.0 (128)	
Incidence vs. no violence 1995 or 2000	4.2 (562)	8.2 (190)	8.9 (131)	
All MFPV 2000 vs. no violence 2000 ^a	7.2 (616)	11.6 (215)	21.0 (167)	
	Not in past 12 months/abstainer	1 to 2 times	3 or more times	
Female perpetrators				
Recurrence vs. no FMPV 1995 or 2000 ^a	5.2 (753)	21.5 (54)	31.7 (47)	
Incidence vs. no violence 1995 or 2000	5.7 (756)	9.6 (43)	9.6 (39)	
All FMPV 2000 vs. no violence 2000 ^a	9.7 (886)	24.2 (63)	28.6 (64)	

Numbers in parentheses are unweighted denominators for rates.

^a $p < 0.05$, χ^2 .

INCOME

Respondents were asked to identify from among 12 categories the one into which their total 1994 pretax household income fell. For the present analysis, income categories were grouped as follows: (1) up to \$10,000; (2) \$10,001 to \$20,000; (3) \$20,001 to \$30,000; (4) \$30,001 to \$40,000; (5) \$40,001 and more.

MARITAL STATUS

Couples were classified as either cohabiting or married (reference group).

EMPLOYMENT STATUS

Male respondents were categorized into three employment categories: unemployed (unemployed or laid off and looking for work, unemployed and not looking for work, never worked for pay), retired or other (disabled, in school, volunteer, in job training program), and employed (work full time, work part time, have a job but not at work because of temporary illness, self-employed), which was the reference group. Female respondents were categorized into four employment categories: homemaker, unemployed, retired or other (disabled, in school, volunteer, in job training program), and employed (reference group).

DATA ANALYSIS

Analyses were conducted with the Software for Survey Data Analysis (SUDAAN) (Research Triangle Institute, 2002) to take into account the potential influence of the complex multicluster sampling design in estimating standard errors. Analyses were also 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). The assessment of statistical significance in Tables 1 and 2 was done with a χ^2 test. In Table 1, the distribution of recurrence of MFPV and FMPV across the categories of frequency of drinking and frequency

Table 2. Alcohol Problems and Proportion of Recurrence, Incidence, and All MFPV and FMPV

	Alcohol Problems	No Alcohol Problems
Male perpetrators		
Recurrence vs. no MFPV 1995 or 2000 ^a	18.5 (116)	4.1 (758)
Incidence vs. no violence 1995 or 2000	14.1 (112)	4.9 (771)
MFPV 2000 vs. no violence 2000 ^b	24.5 (149)	8.4 (849)
Female perpetrators		
Recurrence vs. no FMPV 1995 or 2000	25.4 (51)	6.9 (803)
Incidence vs. no violence 1995 or 2000 ^b	0.6 (36)	6.3 (802)
FMPV 2000 vs. no violence 2000	20.2 (64)	11.6 (949)

Numbers in parentheses are unweighted denominators for rates.

^a $p < 0.05$, ^b $p < 0.01$, χ^2 .

of drinking five or more on an occasion was contrasted with no MFPV or no FMPV in 1995 and 2000, respectively. The distributions of new cases (incidence) of MFPV and FMPV were contrasted with that for no violence in 1995 or 2000. The distributions of all MFPV and all FMPV in 2000 were contrasted with that for no violence in 2000. Table 2 uses the same contrasts. The multivariate analysis in Tables 3 and 4 uses the MULTLOG PROC of SUDAAN to implement multinomial logistic models and examine the 1995 predictors of incidence and recurrence of MFPV and FMPV. Three groups constitute the dependent variable: (1) no IPV in 1995 and 2000, (2) IPV in 2000 but not in 1995 (incidence), and (3) IPV in both 1995 and 2000 (recurrence). The reference group is the group of couples who did not report any type of violence in 1995 and in 2000.

RESULTS

Sample Characteristics

In 1995, the mean age for men in the sample was 47.2 (SE = 0.74), whereas in 2000, this was 52.1 (SE = 0.84). The mean age for women in 1995 was 44.6 (SE = 0.69) and in 2000 was 49.5 (SE = 0.80). Approximately 90% of the couples in 1995 were married compared with 97% in 2000.

Table 3. ORs and 95% CIs From Multivariate Multinomial Logit Model of Recurrence and Incidence of MFPV: 1995 to 2000

	Recurrence (ref: no violence)		Incidence (ref: no violence)	
	OR	CI	OR	CI
Male age	0.9	0.86–1.07	0.9	0.88–1.04
Female age	0.9	0.88–1.05	0.9	0.88–1.06
Cohabiting (ref: married)	1.8	0.69–4.65	4.2 ^b	1.58–11.23
Couple income (ref: up to \$10,000)				
\$10,001–\$20,000	0.5	0.18–1.56	3.5	0.77–16.03
\$20,001–\$30,000	0.7	0.24–2.00	0.7	0.19–2.91
\$30,001–\$40,000	1.0	0.28–3.55	1.0	0.24–4.60
\$40,001 and more	0.9	0.36–2.39	3.9	0.88–17.62
Black (ref: white)	2.7 ^a	1.22–6.21	2.0	0.70–5.72
Hispanic (ref: white)	1.4	0.62–3.05	3.4 ^a	1.18–9.54
Mixed/other (ref: white)	0.6	0.18–2.04	0.9	0.33–2.72
Male employment (ref: employed)				
Unemployed	3.4 ^a	1.08–11.03	0.2	0.03–1.09
Retired/other	1.2	0.41–3.49	1.8	0.54–6.07
Female employment (ref: employed)				
Unemployed	0.6	0.19–1.82	0.4	0.13–1.49
Homemaker	0.7	0.28–1.88	1.6	0.69–3.67
Retired/other	2.4	0.65–8.61	1.5	0.31–7.05
Male alcohol problems (ref: no)	2.2	0.71–6.63	1.6	0.53–4.87
Female alcohol problems (ref: no)	1.6	0.37–6.61	1.4	0.27–7.27
Male: 5 or more drinks per occasion (ref: not in past year)	0.9	0.20–4.09	0.8	0.33–1.90
Female: 5 or more drinks per occasion (ref: not in past year)	1.8	0.49–6.34	1.3	0.35–4.81
Male average alcohol volume per week (five standard drinks)	1.0	0.96–1.14	0.9	0.81–1.09
Female average alcohol volume per week (five standard drinks)	1.0	0.79–1.32	0.7	0.08–1.42
Male observed parental violence (ref: no)				
Observed parental violence	1.5	0.59–3.83	3.1 ^a	1.20–7.81
Observed threat of parental violence	0.6	0.27–1.52	1.7	0.52–5.74
Female observed parental violence (ref: no)				
Observed parental violence	0.5	0.22–1.32	0.7	0.30–1.57
Observed threat of parental violence	2.8	0.73–10.97	0.6	0.13–3.00
Male childhood physical abuse (ref: no)				
Severe	4.6 ^b	1.47–14.66	1.0	0.31–3.43
Hit	1.4	0.48–3.96	2.4	0.88–6.33
Female childhood physical abuse (ref: no)				
Severe	4.2 ^a	1.25–14.24	3.0	0.74–12.26
Hit	0.7	0.29–1.57	1.4	0.72–2.61
Male impulsivity (ref: not impulsive)	1.1	0.56–2.38	2.2 ^a	1.08–4.47
Female impulsivity (ref: not impulsive)	1.2	0.63–2.48	1.2	0.54–2.77

^a $p < 0.05$.^b $p < 0.01$.

Male employment rates were 74% in both 1995 and 2000. Employment rates among women were 61% in 1995 and 63% in 2000. Mean family annual income was \$42,222 in 1995 and \$49,271 in 2000. In 1995, ~82% of the men and 85% of the women had high school education or more. In 2000, the proportions were 85% for men and 87% for women. Because of oversampling of blacks and Hispanics, the ethnic composition of the sample was adjusted by weighting in both 1995 and 2000 to conform to the U.S. population.

Prevalence, Incidence, and Recurrence of MFPV and FMPV

The prevalence of both MFPV [10%; 95% confidence interval (CI): 7.6–12.4] and FMPV (12%; 95% CI: 9.3–14.7) in 2000 was lower than in 1995 [MFPV, 12% (95% CI: 9.1–14.9); FMPV, 16% (95% CI: 12.9–19.1)]. Recurrence was slightly higher for FMPV (44%; 95% CI: 32–56) than MFPV (39%; 95% CI: 26.8–51.2), whereas incidence rates were similar for these two types of violence [MFPV, 5.7% (95% CI: 3.8–7.6); FMPV, 6% (95% CI: (4.3–7.9)].

MFPV and FMPV by Selected Drinking Indicators

There is no association between the overall frequency of drinking and male involvement in recurrence of MFPV, incidence of MFPV, and all MFPV (recurrent plus incident cases; Table 1). Men's frequency of drinking five or more drinks is not associated with recurrence or incidence of MFPV, but it is positively associated with prevalence of all MFPV in 2000. The rate of MFPV among men who drink five or more drinks on an occasion once a month or more often is three times higher than among those who are abstainers or drink but do not report drinking five or more drinks on an occasion.

There is no association between overall frequency of drinking and female involvement in recurrence of FMPV, incidence of FMPV, and all FMPV. However, there is a positive relationship between women's frequency of drinking five or more drinks on occasion and recurrence of FMPV and all FMPV.

With regard to mean alcohol consumption (data not shown), men's mean volume of drinks consumed per week is larger for those who reported recurrence of MFPV than

Table 4. ORs and 95% CIs From Multivariate Multinomial Logit Model of Recurrence and Incidence of FMPV: 1995 to 2000

	Recurrence (ref: no violence)		Incidence (ref: no violence)	
	OR	CI	OR	CI
Male age	1.0	0.91–1.10	0.9	0.88–1.03
Female age	0.8 ^b	0.76–0.96	1.0	0.91–1.07
Cohabiting (ref: married)	1.3	0.54–3.29	0.8	0.27–2.28
Couple income (ref: up to \$10,000)				
\$10,001–\$20,000	0.3	0.08–1.26	1.2	0.34–4.22
\$20,001–\$30,000	0.2 ^a	0.07–0.72	0.6	0.16–2.47
\$30,001–\$40,000	0.2	0.03–1.21	0.7	0.14–3.09
\$40,001 and more	0.5	0.18–1.41	1.1	0.36–3.76
Black (ref: white)	3.5 ^a	1.34–9.00	2.2	0.74–6.48
Hispanic (ref: white)	1.5	0.63–3.41	1.6	0.57–4.70
Mixed/other (ref: white)	2.3	0.96–5.77	0.5	0.17–1.49
Male employment (ref: employed)				
Unemployed	17.3 ^b	3.81–78.35	4.5 ^a	1.42–14.40
Retired/other	3.5 ^a	1.04–11.87	1.6	0.44–5.63
Female employment (ref: employed)				
Unemployed	0.5	0.11–2.11	1.2	0.37–3.78
Homemaker	1.0	0.37–2.86	0.9	0.34–2.49
Retired/other	0.1	0.01–1.64	2.0	0.51–7.49
Male alcohol problems (ref: no)	0.8	0.24–2.51	0.8	0.22–3.02
Female alcohol problems (ref: no)	2.0	0.64–6.58	0.1	0.01–1.03
Male: 5 or more drinks per occasion (ref: not in past year)	1.6	0.61–4.30	0.6	0.17–1.82
Female: 5 or more drinks per occasion (ref: not in past year)	3.1	0.94–10.12	2.5	0.91–7.13
Male average alcohol volume per week (five standard drinks)	1.1	0.99–1.22	1.1 ^a	1.04–1.24
Female average alcohol volume per week (five standard drinks)	1.2 ^a	1.02–1.29	0.9	0.24–1.57
Male observed parental violence (ref: no)				
Observed parental violence	1.1	0.29–4.19	3.2 ^a	1.30–7.88
Observed threat of parental violence	1.1	0.38–3.04	2.3	0.67–7.98
Female observed parental violence (ref: no)				
Observed parental violence	0.7	0.22–2.09	0.7	0.26–2.02
Observed threat of parental violence	3.4	0.79–14.73	0.4	0.07–2.59
Male childhood physical abuse (ref: no)				
Severe	2.6	0.76–8.74	1.1	0.22–5.26
Hit	1.5	0.54–4.02	1.9	0.66–5.46
Female childhood physical abuse (ref: no)				
Severe	2.7	0.68–11.22	3.9	0.97–15.58
Hit	1.1	0.43–2.79	1.0	0.41–2.44
Male impulsivity (ref: not impulsive)	1.5	0.63–3.78	1.5	0.67–3.33
Female impulsivity (ref: not impulsive)	1.7	0.73–3.91	0.7	0.36–1.38

^a $p < 0.05$.^b $p < 0.01$.

for those who did not report violence (13.7, SE = 3.4; 6.1, SE = 1.1; $p = 0.02$). There is no difference in the volume of consumption for men who reported incidence of MFPV and no violence (6.2, SE = 2.1; 6.1, SE = 1.1). Among women who reported recurrence and incidence of FMPV, the mean number of drinks consumed per week is 3.5 (SE = 1) and 1.1 (SE = 0.2), respectively. These mean figures are not different from those reported by women in the no violence group (1.7, SE = 0.3).

Recurrence and Incidence of MFPV and FMPV by Alcohol Problems

The rate of recurrence of both MFPV and FMPV is larger among perpetrators with alcohol problems than among those without problems (Table 2). The result for MFPV reaches statistical significance. Although the result for FMPV is not significant, it is worth noticing that the rate of recurrence of FMPV is approximately four times higher among women with alcohol problems than among women without alcohol problems. Differences in incidence

rates between those with and without alcohol problems are significant only for FMPV. However, the direction of the relationship is unexpected: the incidence rate is higher among women without problems.

Predictors of Incidence and Recurrence of MFPV and FMPV

Some of the drinking-related variables, especially alcohol-related problems, have odds ratios (ORs) >1 in the analysis of recurrence and incidence of MFPV (Table 3). However, none shows a statistically significant association with the outcomes examined in Table 3. MFPV is more likely to recur among black couples than among whites, among couples in which the man is unemployed, and among couples in which either the man or the woman reports experiencing severe childhood abuse. MFPV incidence is more likely among Hispanic couples, cohabiting couples, couples in which the man reports observing actual violence between parents, and couples in which the man scores high in impulsivity.

Female alcohol volume and male alcohol volume are associated with an increased likelihood of recurrence and incidence of FMPV, respectively. In addition, FMPV is more likely to recur in black couples and in couples in which the man is unemployed or in the “retired/other” employment status category. Finally, incidence of FMPV is more likely among couples in which the man is unemployed and among couples in which the man observed violence between parents.

DISCUSSION

Association Between MFPV and FMPV Recurrence, Incidence, and Drinking and Alcohol Problems

None of the bivariate associations between recurrence and incidence of MFPV and all MFPV and overall frequency of drinking are statistically significant. However, the overall perpetration of MFPV, without distinction of whether these are incident or recurrent cases, increases significantly with the frequency of drinking five or more drinks on occasion. Recurrence and all FMPV is statistically (positively) associated with women’s (the perpetrators) frequency of drinking five or more drinks on an occasion. The literature shows consistent associations between drinking and intimate partner violence (Brecklin and Ullman, 2002; Caetano et al., 2000; Lipsey et al., 1997; Quigley and Leonard, 1999, 2000; Reider et al., 1988). The results here are more consistent for the frequency of drinking five or more on an occasion, present both among men and women, than for the overall frequency of drinking. One potential explanation for the discrepancy between results herein and previous research regarding the overall frequency of drinking and its link to partner violence is that the previous findings do not apply to the association between drinking and recurrence and incidence of MFPV and FMPV. It is also possible that the current results are associated with the representation of the drinking variables in the analysis. That is, in general population samples, most drinkers tend to be grouped at lower levels of consumptions, and very heavy drinkers are relatively rare. The highest category in the variable representing overall frequency of drinking is “three or more times a week.” This is not a high cutoff point, and its use may have made it impossible to detect effects of drinking on violence at higher levels of drinking. Also, despite these relatively low cutoff points for frequency of drinking and frequency of drinking five or more drinks on an occasion, some of the groups in the analyses are small, which may have resulted in lack of power to detect existing differences. Therefore, the conclusions that can be drawn regarding the relationship of these various forms of violence with volume of drinking are limited.

The analysis of the association between recurrence and incidence and alcohol problems shows statistically significant associations between problems and recurrence of MFPV and all MFPV. There also is a statistically significant

association between incidence of FMPV and absence of alcohol problems. This is, of course, unexpected. As reported before in cross-sectional analysis of this data set using the 1995 survey (Cunradi et al., 1999), rates of alcohol problems for men, women, or both are higher among couples who reported MFPV or FMPV than among those who reported no violence. Again, here the analysis is focused on recurrent and incident cases and alcohol problems, which makes it difficult to compare these results with others in the literature, which focus on cross-sectional cases. Cross-sectional cases are a combination of incident, continuing, and recurrent cases.

Predictors of Recurrence and Incidence

First, regarding the drinking-related variables and alcohol problems, the results from the multivariate analysis show that the only statistically significant ORs are those for the association between volume of drinking and recurrence and incidence of FMPV. The relationship between drinking and IPV and drinking and alcohol problems has been well established in the literature (Leonard and Jacob, 1988; Roizen, 1997). In addition, several of the ORs for the associations between alcohol problems and recurrence and incidence of MFPV, and drinking five or more and recurrence and incidence of FMPV are >1 , but their 95% CIs include 1. It is possible that, as stated above, this lack of statistical significance is due to lack of power. Also, the results can be interpreted as suggesting that alcohol problems and the pattern of consumption (five or more drinks on an occasion) are important risk factors for the outcomes in question as much as the overall volume of consumption. There has been a renewed interest in patterns of drinking and their relationship with problems in alcohol epidemiology (Babor et al., 2003). Drinking five or more drinks per occasion adds to the risk of developing a number of problems above and beyond that associated with volume of drinking (Caetano et al., 1997; Midanik et al., 1996).

Predictors of the recurrence of MFPV and FMPV are similar. Blacks are more likely than whites to report recurrence of both MFPV and FMPV. This result is in accordance with a previous analysis focusing on cross-ethnic difference in IPV (Caetano et al., 2004) but somewhat in contrast with Jasinski’s finding of a higher remission for MFPV among blacks than whites (Jasinski, 2001). A potential reason for this discrepancy is the difference in definition of male-perpetrated violence between this study and that of Jasinski. This author defined IPV as male perpetrated only, and data were collected from one member of the couple only, not from both, as in the current study. Couples in which the man is unemployed are also more likely to report recurrence of MFPV and FMPV. The effect of unemployment is probably due to an increased level of stress associated with this difficult event. A difference between the predictors of MFPV and FMPV is that couples of mixed ethnicity are approximately two times more likely

than white couples to report recurrence of FMPV. However, although this OR is elevated, it is not statistically significant. It is possible that because of their mixed ethnic status, these couples are subjected to increased stress within and outside the household and thus are more likely to be in relationships in which violence occurs.

Couples in which men or women report severe childhood physical abuse are also more likely to report recurrence of MFPV. The long-lasting effect of childhood physical abuse in perpetuating the "cycle of violence" in intimate relationships has been discussed in the literature (Dutton, 1998; Margolin and John, 1997; Widom, 1989). The woman's younger age is also associated with the occurrence of FMPV. This is because older age may bring potential decline in physical strength or increased conformity with society's mores (Caetano et al., 2000; Cunradi et al., 2000; Sutor et al., 1995)

The factors of risk for incidence of MFPV are Hispanic ethnicity, cohabitation, male observation of parental violence during childhood, and male impulsivity. Factors of risk for the incidence of FMPV other than the volume of drinking discussed above include male observation of parental violence. These predictors therefore are specific to each of these two types of violence, underlining the difficulty in making general statements about predictors of IPV in the general population. The associations of incidence with observation of parental violence and childhood physical abuse show once again the importance of these variables in the "cycle of violence," which appears through links with recurrence of IPV or incidence. The association of Hispanic ethnicity and incidence of MFPV is interesting because it indicates the appearance of this type of violence at a later time in Hispanic couples' relationships. This is because the appearance of these incident cases happens 5 years after the initial 1995 cross-sectional survey of the project being reported herein.

In conclusion, although the course of MFPV and FMPV in the community seems to be similar, predictors of some of its main characteristics such as remission and incidence vary. That the recurrence of both MFPV and FMPV is higher among blacks than whites and that the incidence of MFPV is higher among Hispanics than whites identify IPV as an important area of health disparity between these two minority ethnic groups and whites. This disparity should be addressed by renewed prevention efforts aimed at the primary and secondary prevention of IPV among black and Hispanic couples.

Strengths and Limitations

This study has several strengths. It collected information on IPV from both partners, which enhances the probability of identification of spousal violence (Stets and Straus, 1995; Szinovacz and Egley, 1995). Bilingual interviews were conducted, and oversampling of blacks and Hispanics allowed for ethnic group-specific analyses. The longitudinal design

allows for the assessment of incidence and recurrence of violence. Limitations are that data collection took place at two points in time and covered the 12 months before the survey interview. Thus, life-course or information pertaining to the entire 5-year interval between baseline and follow-up are not available. Other limitations of the study are that 15% of the eligible couples at baseline refused to participate. At follow-up, the proportion of originally eligible couples who were not interviewed was 28%. Selection biases may be present if in 1995 or 2000 nonparticipating couples were more likely to have experienced IPV. Also, the analyses did not consider the frequency of assaults and psychological violence and did not differentiate couples with reciprocal violence from those in which the violence was perpetrated by men or women only. Finally, analysis of MFPV and FMPV on the basis of a sample of intact couples may underestimate this violence in the general population because couples who separated as a result of IPV are not included in the analysis.

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