

Husbands' and Wives' Marital Adjustment, Verbal Aggression, and Physical Aggression as Longitudinal Predictors of Physical Aggression in Early Marriage

Julie A. Schumacher and Kenneth E. Leonard
University at Buffalo, State University of New York

Marital adjustment, verbal aggression, and physical aggression have long been associated in the marital literature, but the nature of their associations remains unclear. In this study, the authors examined these 3 constructs as risk factors for physical aggression during the first 2 years of marriage in 634 couples recruited as they applied for marriage licenses. Couples completed assessments at the time of marriage and at their 1st and 2nd anniversaries. Results of path analyses suggest that prior verbal aggression and physical aggression by both partners are important longitudinal predictors of physical aggression but do not support the role of marital adjustment as a unique predictor of subsequent physical aggression. Contrary to prior research, results also failed to support physical aggression as a unique predictor of marital adjustment.

Nationally representative surveys indicate that in a given year approximately 15%–20% of married and cohabiting couples in the United States experience at least one incident of physical partner aggression (e.g., Schafer, Caetano, & Clark, 1998; Straus & Gelles, 1990), and several studies of newly married couples indicate the prevalence of intimate partner violence (IPV) is substantially higher among younger, more recently married couples (e.g., Leonard & Senchak, 1996; O'Leary et al., 1989; Sutor, Pillemer, & Straus, 1990). Moreover, there is evidence that if a pattern of relationship violence is established in a couple, it is likely to persist (O'Leary, 1999). Because of the negative personal and societal costs associated with IPV, significant research attention has been devoted to the identification of risk factors for IPV (for a review, see Schumacher, Feldbau-Kohn, Slep, & Heyman, 2001). To fully understand violent relationships, particularly those observed in community samples, it is important to examine not only the personal characteristics of each partner involved in the relationship but also the dynamics of the relationship and how these may change over time. Marital adjustment, psychological aggression, and prior physical aggression in the relationship are among the relationship factors studied as risk factors for IPV.

Julie A. Schumacher, Research Institute on Addictions, University at Buffalo, State University of New York; Kenneth E. Leonard, Research Institute on Addictions and Department of Psychiatry, School of Medicine, University at Buffalo, State University of New York.

The findings of this research were presented at the 37th Annual Convention of the Association for Advancement of Behavior Therapy, Boston, November 2003. This work was supported by National Institute on Alcohol Abuse and Alcoholism Grants R01-AA09922 (awarded to Kenneth E. Leonard) and T32-AA07583 (awarded to Gerard J. Connors).

Correspondence concerning this article should be addressed to Julie A. Schumacher, who is now at the Department of Psychiatry and Human Behavior, University of Mississippi Medical Center, 2500 North State Street, Jackson, MS 39216. E-mail: jschumacher@psychiatry.umsmed.edu

Marital Adjustment

Poor marital adjustment has been described and studied as a risk factor for partner physical aggression in cross-sectional research (e.g., Byrne & Arias, 1997; Leonard & Senchak, 1993; Pan, Neidig, & O'Leary, 1994; Sagrestano, Christensen, & Heavey, 1999). In such research, marital distress is often implicitly assumed to precede IPV. Unfortunately, few longitudinal studies have addressed this assumption (Murphy & O'Leary, 1989; O'Leary et al., 1989; O'Leary, Malone, & Tyree, 1994), and existing longitudinal findings are mixed.

Murphy and O'Leary (1989) examined whether marital adjustment was longitudinally predictive of the initial occurrence of physical aggression in marriage among couples reporting no premarital violence. They found that although there were significant cross-sectional associations between these variables, marital adjustment was not longitudinally predictive of IPV. Given the limited longitudinal research, affirmative conclusions are difficult to draw. Moreover, there is mounting evidence that IPV may, in fact, precede or precipitate declines in marital adjustment (Arias, Lyons, & Street, 1997; Heyman, O'Leary, & Jouriles, 1995; Lawrence & Bradbury, 2001; O'Leary et al., 1989; Rogge & Bradbury, 1999; Testa & Leonard, 2001).

Verbal Aggression

Existing research suggests partner verbal and psychological aggression often occur in relationships characterized by physical partner violence. For example, in a cross-sectional study, Sabourin, Infante, and Rudd (1993) found that distressed, violent couples evidenced greater reciprocity of verbal aggression than distressed nonviolent couples. In much of the theoretical and research literature addressing this issue, verbal aggression is viewed not only as a correlate but also as an antecedent or cause of physical violence in relationships. For example, O'Leary (1993) has argued that there is a continuum of aggressive relationship behaviors that develops as follows: verbal aggression to physical

aggression to severe physical aggression to spousal homicide. In a longitudinal analysis of this issue, Murphy and O'Leary (1989) found that both engaging in and being a recipient of psychological aggression (defined as verbal aggression and passive aggression) were longitudinally predictive of the first instance of physical aggression in a relationship, particularly across the first 18 months of marriage.

Research using other methodologies suggests an important link between verbal aggression and physical aggression as well. Jacobson et al. (1994) coded transcripts of couples' descriptions of physically violent conflicts to determine the sequence of events in such conflicts, and in particular what types of behaviors were associated with cessation or continuation of husband physical violence. According to husbands, they continued their own violence in response to wife violence and emotional abuse, and likewise, their wives continued their violence in response to husband violence and emotional abuse. It is important to note that wife descriptions did not support the association between emotional abuse and continued violence for either partner.

Marital interaction research, in which the conflictual discussions of couples are observed and coded, provides another source of information about the association between verbal aggression and physical aggression. Margolin, John, and Gleberman (1988) examined whether couple interaction patterns in a laboratory setting could distinguish couples with a history of partner physical aggression from nonaggressive couples. Margolin et al. found that physically aggressive husbands exhibited more negative voice and more overtly negative behaviors during an interaction than maritally distressed, nonviolent husbands. Similarly, Leonard and Roberts (1998a) reported that maritally aggressive couples engaged in more negativity in interactions than did nonaggressive couples, an association that remained after controlling for marital satisfaction. Taken as a whole, past research provides some evidence for verbal aggression as a predictor of physical aggression in relationships, but a more systematic inquiry is necessary.

History of IPV

Past behavior as a predictor of future behavior is a central tenet of behavioral psychology with empirically demonstrated applicability to IPV and other forms of aggression (e.g., Monahan, 1981; O'Leary, 1999). IPV shows considerable stability in adolescent (O'Leary & Slep, 2003), newly married (O'Leary et al., 1989; Quigley & Leonard, 1996), and severely aggressive samples (Jacobson, Gottman, Gortner, Berns, & Shortt, 1996). Given the identified importance of dyadic factors in the prediction of IPV, marital researchers have also examined whether physical aggression by one partner predicts future aggression in the other partner, perhaps as self-defensive or retaliatory behavior. Murphy and O'Leary (1989) found some evidence for this dyadic prediction, but only 3 of 12 predicted paths were significant.

The Present Study

Although marital adjustment, verbal aggression, and physical aggression have each been explored as risk factors for future IPV, previous longitudinal research has not systematically examined these three constructs as risk factors for IPV over time within a single sample. Much of the existing longitudinal research in this

area is characterized by one or more important limitations. One such limitation is that much of the research to date has examined a few specific hypothesized models, leaving theoretically plausible alternative models unexplored. A second, related limitation is that much of this research does not include all three constructs at multiple time points. A final limitation evident in some of the existing longitudinal research on these three relationship constructs is that the effects are often examined at the individual level or the dyadic level, rather than examining how one partner's characteristics influence both his or her own future characteristics and his or her partner's future characteristics. Given the significant interrelationships among marital adjustment, verbal aggression, and physical aggression and the transactional nature of husband and wife marital behaviors over time, research examining these three constructs in both husbands and wives over multiple time periods is of critical importance.

The purpose of the present study is to provide a more comprehensive examination of the associations among these three relationship variables over time within a single sample, including potential interspousal associations. Specifically, we use a path-analytic framework to examine whether husband and wife physical aggression, verbal aggression, and marital adjustment are longitudinally predictive of each spouse's physical aggression. The analytic strategy selected allows us to examine not only whether each construct predicts IPV but also whether each construct can account for unique variance in physical aggression when entered into the model with the other dyadic constructs. In all analyses, we explore potential gender differences in the prediction of IPV in marriage. We also examine, in an exploratory fashion, relationships among constructs that are included in the models but are not the primary focus of this study (e.g., physical aggression as a longitudinal predictor of verbal aggression and marital adjustment, and verbal aggression and marital adjustment as predictors of one another). All models are evaluated within the context of a longitudinal study of newlywed couples from the community, a context that involves primarily mild to moderate, infrequent, and mutual aggression that, while important in its own right, may not be applicable to more extreme forms of violence observed in samples drawn from criminal justice or domestic violence treatment populations (Johnson, 1995).

Method

Participants

Participants in the present study were 634 couples recruited for the three-wave Adult Development Study as they applied for marriage licenses in a large city in the northeastern United States.¹ For a couple to be eligible for the present study, the marriage had to be the first for both partners, and both partners had to be 18 years or older, English-speaking, and literate. The present analyses are based on data obtained from couples at the time of marriage and their first and second anniversaries.

At the time of marriage, the mean (*SD*) ages of husbands and wives were 28.7 (6.3) and 26.8 (5.8) years old, respectively. The majority of participants identified their racial or ethnic background as European American (husbands, 59%; wives, 62%) or African American (husbands, 33%; wives, 31%). Very small percentages of individuals identified themselves as

¹ Subsequently, a fourth wave of data collection, which is still in progress, was added to the Adult Development Study.

Hispanic, Asian, or Native American. The majority of the sample reported completion of at least some college education (husbands, 61%; wives, 67%), and only 8% of the husbands and 6% of the wives reported less than a high school education. At the time of marriage, the majority of husbands (80%) and wives (57%) were employed full time, with 70% of husbands and 84% of wives reporting an annual income of less than \$30,000 per year. At the time of marriage, 38% of the husbands and 43% of the wives were parents; 10% of the wives were pregnant. Seventy percent of the couples were living together before marriage. Although the extent to which these couples lived together prior to marriage and already had children may seem unusual for first marriages, recent studies of marriage in other parts of the United States suggest these characteristics are not uncommon (e.g., Chadiha, Veroff, & Leber, 1998; Tallman, Burke, & Gecas, 1998).

Measures

Background interview. At the time they were recruited into the study, all of the couples completed a brief, joint interview, conducted by a trained research assistant. The interview included questions about basic socio-demographic factors (e.g., age, race, and education) and family and relationship factors (e.g., children, cohabitation, and length of engagement).

Marital adjustment. Couples completed the Marital Adjustment Test (MAT; Locke & Wallace, 1959), a widely used, reliable measure of overall relationship functioning that focuses on global happiness and differences in the relationship. Higher MAT scores represent greater relationship quality (range = 2–158). Scores of 100 or higher are typically interpreted as indicative of nondistressed marriages. Standardized item alphas for husbands' and wives' reports of relationship quality at the Time 1 (T1) assessment were .81 ($M = 118.1$, $SD = 20.9$) and .80 ($M = 120.5$, $SD = 20.2$), respectively. Standardized alphas at Time 2 (T2) were .87 ($M = 108.4$, $SD = 28.2$) and .88 ($M = 108.5$, $SD = 30.1$) and at Time 3 (T3) were .88 ($M = 105.7$, $SD = 30.3$) and .91 ($M = 104.7$, $SD = 33.8$), respectively.

Physical aggression. The physical assault subscale of the Conflict Tactics Scale—Revised (CTS–2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) was used to assess partner physical aggression. Respondents were asked the number of times in the past year that they and their partners engaged in a number of physically aggressive behaviors during a disagreement. A combined score representing the maximum of self-report and partner report of aggression served as the measure of physical aggression for both husbands and wives. Reliability estimates (Cronbach's alpha) for the CTS–2 ranged from .86 to .94 across husband and wife reports of their own and their partner's aggression over the three waves. With combined couple reports on the CTS–2, the prevalence of husband-to-wife physical aggression at each of the three assessments from T1 to T3 was 37%, 38%, and 37%. The prevalence of wife aggression was 48%, 45%, and 41%. These prevalence estimates are generally comparable with estimates generated in other studies of newlywed couples using in-person interview and self-report questionnaire assessments for data collection (e.g., Leonard & Roberts 1998b; O'Leary et al., 1989).

Verbal aggression. Partners completed the Test of Negative Social Exchange (Ruehlman & Karoly, 1991), an 18-item scale assessing the frequency of unpleasant social interactions over the past month, including items such as "making fun of me," "took me for granted," "lost his or her temper with me," "nagged me," and "yelled at me." These items, which are normally rated with respect to "how often the people in their lives" engaged in the behaviors, were modified for the present study to refer to the frequency with which the spouse engaged in these behaviors over the past month (i.e., husbands and wives provided reports of how often their partner engaged in each form of verbal aggression) using a 5-point scale ranging from 1 = *not at all* to 5 = *about every day*. The scale was highly reliable, with alpha coefficients ranging from .92 to .95 across the three waves. At each assessment, fewer than 5% of participants indicated their partners had not engaged in any of the verbally aggressive behaviors.

Procedure

As described more fully in Leonard and Mudar (2003), over a 3-year period, first-time marriage applicants were approached after they applied for their marriage license and were invited to participate in a brief, paid interview (\$10 per couple). Less than 8.0% of the first-time marriage applicants who were approached declined to participate in the brief interview. In total, 970 eligible couples were interviewed. After the interview, 900 couples agreed to participate in the longitudinal study; however, 14 couples subsequently did not marry. There were no significant differences in most sociodemographic attributes between those who refused and those who agreed to participate. Women in couples that agreed were, however, more likely to have children than those in couples that refused ($p < .01$). Also, couples that agreed had lower incomes ($p < .01$) than couples that declined.

Each member of a couple that agreed to participate in the study was given a questionnaire packet at the time of marriage (T1) and mailed the same questionnaire packet at the first (T2) and second anniversaries (T3). Each partner was compensated \$40 for each completed assessment. The assessment packets comprised questionnaires on a variety of aspects of psychosocial functioning (e.g., alcohol use, peer networks, personality) within which the relationship measures were embedded. To reduce the risk that participants' responses would be influenced or observed by their spouses, we mailed husbands' and wives' assessment packets separately, each accompanied by written instructions directing them to complete packets independently and not discuss the questionnaires with their spouses until after they had been returned.

Attrition

T1 data were collected from both husband and wife for 71.6% ($N = 634$) of the 886 eligible couples. Statistical comparisons revealed a greater percentage of respondent couples were living together prior to marriage than nonrespondent couples (70% vs. 62%, respectively, $p < .05$). T2 and/or T3 data were collected from one or both partners in 592 (93.2%) of couples in which both spouses responded at T1. In couples that did not participate at the second and third assessment ($n = 43$), wives were slightly younger ($p < .05$) and somewhat less well educated ($p < .05$), and husbands were more likely to report their race/ethnicity as non-European American ($p < .05$) than wives and husbands in participating couples. With respect to the variables of interest in the present study, couples lost to follow-up after the first assessment did not differ significantly with regard to T1 reports of marital adjustment or verbal aggression. However, these couples reported significantly more husband-to-wife ($p < .05$) and wife-to-husband ($p < .05$) physical aggression.

Results

To examine each of the dyadic constructs as a predictor of IPV in early marriage, we used a path-analytic framework, including husband and wife physical aggression, verbal aggression, and marital adjustment. The correlation matrix is presented in Table 1. Values for missing data on any one of the variables in this study were imputed using the expectation-maximization (EM) algorithm of SPSS10 and were based on available data from all other measures of interest.² Because our primary interest involved tests of the longitudinal hypotheses regarding antecedents of physical aggression, we constructed a full model (Model 1) that included stability and cross-sectional relationships. It also included longi-

² Models were also analyzed using full information maximum likelihood rather than the EM strategy for missing data, and results were comparable.

Table 1
Intercorrelations of Husband and Wife Physical Aggression, Verbal Aggression, and Marital Satisfaction at Time 1 to Time 3

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Physical aggression																		
1. Husband T1	—																	
2. Wife T1	.79	—																
3. Husband T2	.57	.52	—															
4. Wife T2	.50	.57	.79	—														
5. Husband T3	.53	.50	.68	.57	—													
6. Wife T3	.48	.54	.62	.63	.78	—												
Verbal aggression																		
7. Husband T1	.46	.43	.38	.35	.38	.33	—											
8. Wife T1	.40	.42	.37	.43	.33	.33	.50	—										
9. Husband T2	.34	.34	.46	.42	.41	.37	.58	.40	—									
10. Wife T2	.34	.36	.42	.47	.39	.43	.35	.62	.54	—								
11. Husband T3	.33	.34	.44	.41	.50	.49	.50	.38	.66	.44	—							
12. Wife T3	.36	.36	.39	.38	.45	.52	.41	.52	.45	.68	.54	—						
Marital satisfaction																		
13. Husband T1	-.32	-.36	-.28	-.30	-.22	-.19	-.36	-.53	-.31	-.40	-.25	-.37	—					
14. Wife T1	-.39	-.41	-.32	-.29	-.29	-.28	-.57	-.40	-.43	-.33	-.35	-.35	.45	—				
15. Husband T2	-.29	-.30	-.39	-.38	-.30	-.31	-.29	-.41	-.50	-.70	-.39	-.53	.49	.44	—			
16. Wife T2	-.31	-.34	-.46	-.44	-.38	-.36	-.43	-.33	-.73	-.51	-.50	-.44	.35	.52	.61	—		
17. Husband T3	-.30	-.33	-.42	-.39	-.44	-.41	-.34	-.37	-.48	-.55	-.50	-.69	.45	.46	.71	.60	—	
18. Wife T3	-.29	-.34	-.43	-.43	-.42	-.45	-.39	-.32	-.58	-.41	-.70	-.46	.33	.39	.49	.74	.66	—

Note. All correlations significant at $p = .001$. T1 = time of marriage; T2 = first anniversary; T3 = second anniversary.

tudinal paths not focused on the outcome of husband or wife physical aggression (i.e., paths reflecting the prediction of verbal aggression and marital adjustment). Because many of these non-hypothesized paths were not significant, we sequentially dropped nonsignificant paths. Finally, all of the longitudinal paths predicting husband or wife physical aggression were included. Hence, Model 1 included all of the stability and cross-sectional associations, any significant longitudinal paths reflecting the prediction of marital adjustment or verbal aggression, and the paths representing the hypothesized antecedents of physical aggression. This model provided a very good fit to the data, $\chi^2(58, N = 634) = 102.94$, Tucker–Lewis index = .986, comparative fit index = .995, root-mean-square error of approximation = .035 (.024–.046). A partial depiction of Model 1 is presented in Figure 1.

To provide a preliminary examination of each of the dyadic constructs as a predictor of physical aggression, we compared Model 1 with a series of three models. Each model excluded the paths associated with one of the constructs of interest (physical aggression, verbal aggression, and marital adjustment). We were interested in whether exclusion of a set of paths corresponding to a particular construct would result in a significant decrement in the fit of the model, which would indicate the construct provided an improvement in the model independent of the other supported predictors. The results of this series of analyses are displayed in Table 2. Deleting the paths from one partner's physical aggression to the other partner's subsequent physical aggression (Model 2) resulted in a significant reduction in the fit of the model, $\Delta\chi^2(4) = 40.57, p < .01$. Similarly, the exclusion of the paths from verbal aggression (both one's own and partner's verbal aggression) to subsequent physical aggression (Model 3) resulted in a significant reduction in the fit of the model, $\Delta\chi^2(8) = 62.73, p < .01$. However, the exclusion of paths from marital adjustment to subsequent physical aggression (Model 4) did not significantly change the fit indices, $\Delta\chi^2(8) = 10$. This suggested Model 4 was the most

appropriate model. Model R^2 s for prediction of physical aggression in this final model were as follows: husband aggression T2 = .35, T3 = .48; wife aggression T2 = .35, T3 = .44. Examination of the changes in the R^2 values with the addition of the verbal aggression and spouse physical aggression paths to the stability and cross-sectional paths revealed that these paths accounted for between 9% and 12% of unique variance in prediction of subsequent aggression.

Table 3 presents the unstandardized path coefficients corresponding to physical aggression and verbal aggression as predictors of physical aggression. The stability coefficients for physical aggression for both husbands and wives in the final model ranged from .29 to .44, and all were significant. The path corresponding to wife physical aggression at T1 as a predictor of husband physical aggression at T2 was significant, and the parameter for husband physical aggression to wife physical aggression during the same time lag was marginally significant ($p < .10$). It is interesting to note that from T2 to T3, husband physical aggression was predictive of wife physical aggression, but the reverse was not true. We conducted tests for gender equality by constraining the paths for husband physical aggression (HPA) \rightarrow wife physical aggression (WPA) and WPA \rightarrow HPA aggression to be equal to each other. For the parameters for T1 to T2, this constraint did not lead to a significant decrement in model fit: $\Delta\chi^2(1)$ from the unconstrained model = .01, *ns*. However, constraining HPA \rightarrow WPA to equal WPA \rightarrow HPA from T2 to T3 led to a significantly reduced model fit, indicating that the path for HPA \rightarrow WPA was significantly larger than the path from WPA \rightarrow HPA, $\Delta\chi^2(1) = 5.01, p < .05$.

Most of the paths with respect to verbal aggression as an antecedent of physical aggression were significant. However, husband verbal aggression was not predictive of wife physical aggression, either from T1 to T2 or from T2 to T3. In contrast, wife verbal aggression was significantly predictive of husband physical aggression from T1 to T2 and marginally predictive from T2 to T3.

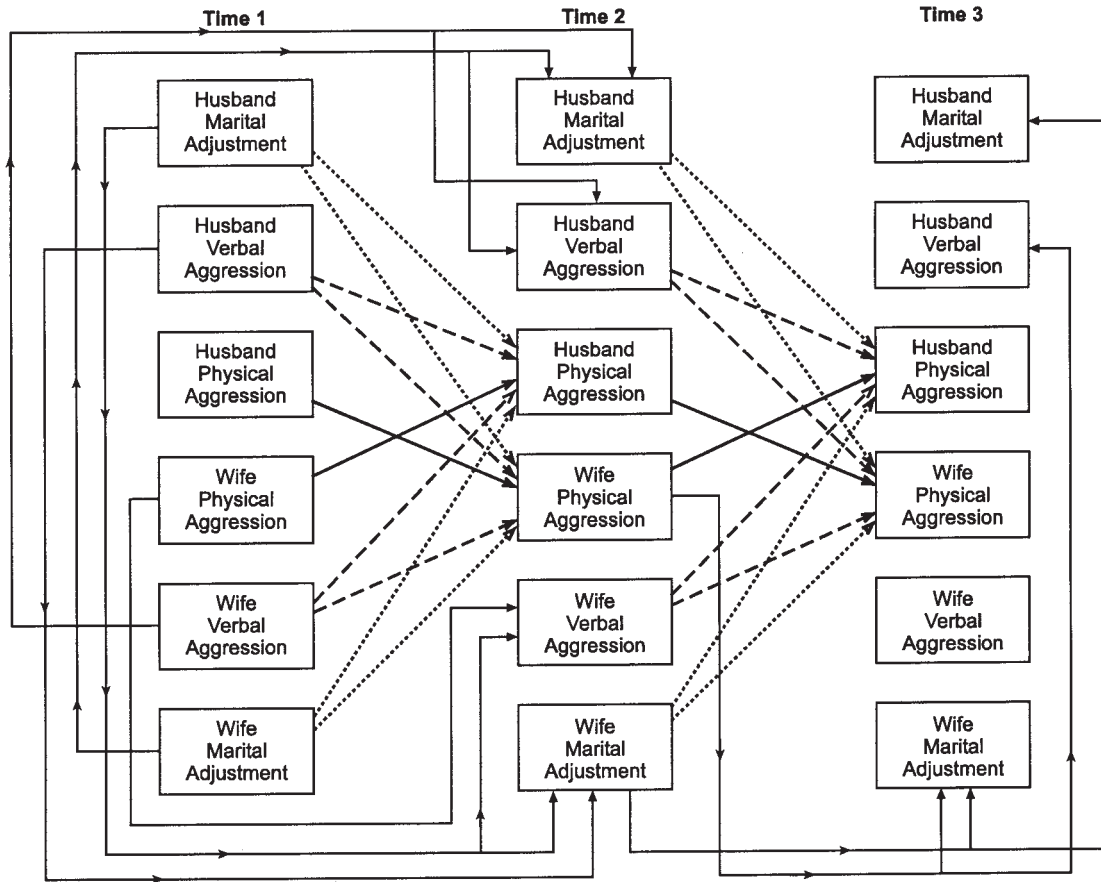


Figure 1. Depiction of the full model (Model 1), including all longitudinal paths predicting husband and wife physical aggression and significant longitudinal paths predicting husband and wife verbal aggression and marital adjustment. Solid arrows reflect significant paths predicting marital adjustment and verbal aggression. Bold arrows reflect hypothesized longitudinal paths from one partner's physical aggression to the other partner's physical aggression. Dashed paths reflect hypothesized longitudinal paths from verbal aggression to physical aggression. Dotted paths reflect hypothesized longitudinal paths from marital adjustment to physical aggression. Cross-sectional and stability paths were excluded from depiction to enhance readability. The final model (Model 4) excluded the dotted paths reflecting marital adjustment as a predictor of physical aggression.

For husbands and wives, one's own verbal aggression at one time period was predictive of one's own physical aggression at the subsequent time period for both time lags. Tests to evaluate gender differences were uniformly nonsignificant. Results of all gender equality analyses are presented in Table 4.

Table 5 contains the unstandardized path coefficients for the other paths in the final model (i.e., prediction of verbal aggression and marital adjustment), excluding stability coefficients. Cursory examination of Table 5 reveals that a majority of paths were nonsignificant and were trimmed during model development. Ex-

Table 2
Individual Tests of Each Construct Against the Full Model (Model 1)

Model	Model description	χ^2	df	$\Delta\chi^2$ from Model 1
1	Stability, cross-sectional, significant nonhypothesized paths, and paths representing all three antecedent hypotheses	102.94	58	
2	Test of spouse physical → physical aggression	143.51	62	40.57**
3	Test of verbal aggression → physical aggression	165.67	66	62.73**
4	Test of marital adjustment → physical aggression	113.55	66	10.61

** $p < .01$.

Table 3
Evaluation of Specific Paths Associated With Physical Aggression and Verbal Aggression as Antecedents of Physical Aggression in the Final Model (Model 4)

Path	T1→T2		T2→T3	
	Unstandardized coefficient	z	Unstandardized coefficient	z
Physical aggression				
Husband PA → husband PA	.36	7.35***	.44	10.02***
Wife PA → wife PA	.36	7.30***	.29	6.54***
Husband PA → wife PA	.09	1.71†	.20	4.38***
Wife PA → husband PA	.10	2.10*	.04	0.90
Verbal aggression				
Husband VA → wife PA	.16	1.29	.09	1.01
Wife VA → husband PA	.31	3.08**	.14	1.74†
Husband VA → husband PA	.36	3.04**	.20	2.21*
Wife VA → wife PA	.61	5.70***	.24	2.86**

Note. T1 = time of marriage; T2 = first anniversary; T3 = second anniversary; PA = physical aggression; VA = verbal aggression.
 † $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

amination of remaining paths suggests wife marital adjustment is generally a significant predictor of her partner’s marital adjustment and both partners’ verbal aggression in early marriage, whereas husband marital adjustment is only a significant predictor of wife marital adjustment during the first time lag. Partner verbal aggression is a significant predictor of declines in marital adjustment for both husbands and wives during the first year of marriage but not the second year of marriage. All other paths from verbal aggression were nonsignificant, as were the majority of paths from physical aggression.

Discussion

The results of the present series of analyses help to unify and clarify our understanding of physical aggression, verbal aggression,

and marital adjustment as longitudinal predictors of physical aggression in early marriage, including interspousal effects. In our analyses, both verbal aggression and physical aggression by both spouses were identified as fairly robust longitudinal predictors of subsequent IPV by both spouses. In contrast, marital adjustment did not appear to be independently predictive of physical aggression.

With regard to physical aggression, as in previous research, there was evidence of both continuity (i.e., past behavior predicting future behavior) and reciprocity in physical aggression (i.e., aggression by one’s spouse at one time point predicted one’s own aggression at a subsequent time point). The specific patterns of findings with regard to reciprocity of physical aggression in marriage may have important intervention implications. Consistent

Table 4
Tests of Gender Equality in the Final Model (Model 4)

Model description	χ^2	df	$\Delta\chi^2$ from Model 4
Stability, cross-sectional, significant nonhypothesized paths, spouse physical → physical aggression, and verbal aggression → physical aggression (Model 4)	113.55	66	
Physical aggression			
Constraining paths from spouse physical → physical aggression to equality for husbands and wives at T1→T2.	113.56	67	0.01
Constraining paths from spouse physical → physical aggression to equality for husbands and wives at T2→T3.	118.56	67	5.01*
Verbal aggression			
Constraining paths from spouse verbal → physical aggression to equality for husbands and wives at T1→T2.	114.30	67	0.75
Constraining paths from spouse verbal → physical aggression to equality for husbands and wives at T2→T3.	113.68	67	0.13
Constraining paths from self verbal → physical aggression to equality for husbands and wives at T1→T2.	115.63	67	2.08
Constraining paths from self verbal → physical aggression to equality for husbands and wives at T2→T3.	113.65	67	0.10

Note. T1 = time of marriage; T2 = first anniversary; T3 = second anniversary.
 * $p < .05$.

Table 5
Evaluation of Longitudinal Paths Predicting Verbal Aggression and Marital Adjustment in the Final Model (Model 4)

Path	T1→T2		T2→T3	
	Unstandardized coefficient	z	Unstandardized coefficient	z
Marital adjustment → marital adjustment				
Husband MA → wife MA	.129	3.21**	<i>ns</i>	—
Wife MA → husband MA	.279	7.09***	.258	8.60***
Verbal aggression → verbal aggression				
Husband VA → wife VA	<i>ns</i>	—	<i>ns</i>	—
Wife VA → husband VA	.108	3.46***	<i>ns</i>	—
Own verbal aggression → own marital adjustment				
Husband VA → husband MA	<i>ns</i>	—	<i>ns</i>	—
Wife VA → wife MA	<i>ns</i>	—	<i>ns</i>	—
Verbal aggression → partner marital adjustment				
Husband VA → wife MA	-9.056	-5.63***	<i>ns</i>	—
Wife VA → husband MA	-5.742	-4.28***	<i>ns</i>	—
Own marital adjustment → own verbal aggression				
Husband MA → husband VA	<i>ns</i>	—	<i>ns</i>	—
Wife MA → wife VA	-.004	-2.84**	-.003	-3.59***
Own marital adjustment → partner verbal aggression				
Husband MA → wife VA	<i>ns</i>	—	<i>ns</i>	—
Wife MA → husband VA	-.004	-4.62***	<i>ns</i>	—
Physical aggression → marital adjustment				
Husband PA → wife MA	<i>ns</i>	—	<i>ns</i>	—
Husband PA → husband MA	<i>ns</i>	—	<i>ns</i>	—
Wife PA → wife MA	<i>ns</i>	—	-1.403	-3.53***
Wife PA → husband MA	<i>ns</i>	—	<i>ns</i>	—
Physical aggression → verbal aggression				
Husband PA → wife VA	<i>ns</i>	—	<i>ns</i>	—
Husband PA → husband VA	<i>ns</i>	—	<i>ns</i>	—
Wife PA → wife VA	.027	2.79**	<i>ns</i>	—
Wife PA → husband VA	<i>ns</i>	—	.052	4.78***

Note. Dashes indicate nonsignificant paths that were trimmed during model development; coefficients and z scores are not presented. T1 = time of marriage; T2 = first anniversary; T3 = second anniversary; PA = physical aggression; VA = verbal aggression; MA = marital adjustment; *ns* = nonsignificant. ** $p < .01$. *** $p < .001$.

with findings by Murphy and O'Leary (1989), both husbands' and wives' aggression in the year prior to marriage predicted aggression by their partner during the first year of marriage. These findings suggest that over the transition to marriage, physical aggression by one partner may precipitate the initiation of the other partner's physical aggression in the relationship. An interesting finding was that wives' physical aggression during the first year of marriage was not a significant predictor of husbands' physical aggression during the second year of marriage, but husbands' physical aggression during the first year of marriage did predict wives' physical aggression in the second year of marriage. This pattern may suggest that after husband physical aggression has been introduced into the relationship, wives' aggression may be largely self-defensive.

Our analyses also revealed both husbands' and wives' verbal aggression longitudinally predicted their own physical aggression. This suggests that physical aggression in marriage may also be an outgrowth of some spouses' aggressive personality styles. With regard to the dyadic impact of verbal aggression, wives' verbal aggression predicted husbands' physical aggression, but husbands' verbal aggression did not predict wives' physical aggression. There are several important aspects of this finding to consider.

First, wives' verbal aggression reflected their husbands' report of her use of a series of verbally aggressive behaviors. Hence, a more precise description of this association is that a husband's perception of his wife as verbally aggressive was predictive of his subsequent physical aggression toward her. Second, the association of wife verbal aggression and husband physical aggression does not, in any sense, justify the husband's physical aggression. It may be the case that the aggressive men view wife verbal aggression as a justification or an excuse for their own aggression. However, these findings may also reflect deficits in husbands' coping with anger-evoking situations and suggest the possibility that interventions for these couples might focus on anger management skills for men and interventions to reduce verbal aggression in the relationship.

In our analyses, marital adjustment was not a significant longitudinal predictor of physical aggression in early marriage. This finding is consistent with results from a small number of longitudinal studies. Most of the support for marital discord as a precipitant of physical aggression has been based on cross-sectional research. The present study also found support for a cross-sectional association but failed to support marital adjustment as an independent longitudinal predictor of marital aggression. Moreover, and

contrary to previous research suggesting that physical aggression predicts declines in marital quality and divorce (e.g., Lawrence & Bradbury, 2001), we found that with one exception (wives' own aggression at T2 as a predictor of their own marital adjustment at T3), physical aggression was not associated with declines in marital adjustment. One interpretation of these findings is that verbal aggression, which has been largely omitted from previous models examining the impact of physical aggression on marital adjustment, may represent an unmeasured, third variable that accounts for the association between physical aggression and adjustment. In other words, for the purposes of understanding how and why marital quality declines for many couples in the early years of marriage, physical aggression in the marriage may be best conceptualized as a marker for destructive verbal and psychological aggression also occurring in the marriage.

This interpretation is consistent with findings of cross-sectional correlations between verbal and physical aggression, and is also consistent with our findings about the association between verbal aggression and marital adjustment in the early years of marriage. Both husbands' and wives' verbal aggression at the time of marriage were predictive of self-reported declines in marital adjustment for their partner at the first anniversary. Moreover, wives' self-reported marital adjustment was longitudinally predictive of their own verbal aggression, suggesting the potential for a downward spiraling relationship between verbal aggression and marital adjustment across early marriage. Our speculation about the role of verbal aggression in the association between physical aggression and marital adjustment in early marriage is also consistent with the finding that couples seeking marital therapy tend to view communication as a greater problem in their marriage than physical aggression (O'Leary, Vivian, & Malone, 1992). One explanation for this finding might be that verbally aggressive behaviors tend to occur in a relationship with much greater frequency than physical aggression.

Limitations

The findings of this study help advance our understanding of associations among physical aggression, verbal aggression, and marital adjustment in early marriage. However, there are also some important limitations to this work that must be noted. First, the measures used in the present study were all self-reports, and this shared method may have influenced the strength of some of the results. In particular, the associations between one's own marital satisfaction and the verbal aggression of one's partner may be inflated by this shared method variance. This possibility is, however, minimized by our focus on longitudinal associations that contribute over and above the cross-sectional associations. An additional concern with the use of self-report measures of behavior relates to accuracy of reporting. Combined husband and wife reports of physical aggression were used in the present study and are generally considered to yield more accurate estimates of this behavior (Heyman & Schlee, 1997), but it is nonetheless important to keep in mind that any self-report reflects an estimate of behavior rather than actual behavior. Finally, although mailing surveys to couples probably contributed to the low attrition rate in this study, this methodology may have compounded the typical limitations of self-report measurement, because it introduced greater potential for participant responses to be biased by the presence of a spouse.

However, as noted in the Method section of this article, prevalence estimates in the present sample were generally comparable with estimates generated in other studies of newlywed couples, which used face-to-face assessments.

A second set of limitations relates to the time lag between assessments. The findings of the present study provide an idea of how various dyadic processes interact on a global level over the first years of marriage to produce physical aggression. The findings cannot, however, be generalized to shorter time lags or specific interactions within the relationship. In other words, establishing declines in a wife's marital adjustment as predictors of verbal aggression cannot be interpreted as evidence that, prior to each individual act of verbal aggression in the relationship, her satisfaction with the relationship declined. Although such interpretations extend beyond the data, it is worth noting that the findings of this study, particularly the findings about verbal aggression, are somewhat consistent with retrospective reports of couples about the sequence of events within a single violent conflict (Jacobson et al., 1994).

A final limitation of the present study relates to the generalizability of these findings. O'Leary (1993) noted that although severe relationship violence is almost always preceded by mild or moderate acts of relationship violence, evidence is mounting that these two forms of IPV have different predictors. Johnson (1995) built on the discussion of heterogeneity, drawing a firm distinction between patriarchal terrorism, which is a very severe pattern of abusive relationship behaviors often described by women seeking shelter or services at agencies for battered women, and common couple violence, which is mild to moderate, infrequent, mutual relationship aggression typically described by respondents to community surveys. The frequency, severity, and reciprocity of violence reported by participants in the present study suggest that the findings are likely generalizable to other community samples and perhaps to samples of couples seeking marital therapy, but may not be generalizable to clinical samples of men receiving batterer treatment or women seeking services at agencies for battered women. The pattern of attrition in the present study further supports caution in generalizing beyond common couple violence. Although attrition was quite low (<7%), couples lost to follow-up reported greater physical aggression at the first assessment than couples who went on to complete additional assessments.

Clinical and Research Implications

The findings of the present study have potentially important clinical and public health implications. Perhaps one of the most significant findings to emerge from this study is the importance of verbal aggression as an intervention target. In the present study, verbal aggression predicted both physical aggression and declines in marital adjustment. This suggests that assessments of verbal aggression may help to identify couples at risk for IPV who report no relationship distress or prior physical aggression. The findings of the present study also suggest that primary and secondary prevention of IPV may be best accomplished through strategies likely to reach couples that are not experiencing relationship distress, such as premarital counseling and public education campaigns. Providing couples with education about the role of verbal and physical aggression as risk factors for further aggression in the relationship and declines in relationship quality may help couples

recognize these behaviors as problematic despite potentially high levels of marital adjustment.

These findings also provide some evidence to support the use of couples-based interventions for mild to moderate IPV, as intervention with one partner may be insufficient to address important dyadic risk factors for IPV (i.e., verbal aggression by the other partner). Couples-based approaches, which have been advocated by some in the field (O'Leary, 2002) and have demonstrated some efficacy in reducing IPV in partner violence treatment samples (O'Leary, Heyman, & Neidig, 1999) and substance abuse treatment samples (Fals-Stewart, Kashdan, O'Farrell, & Birchler, 2002), remain controversial. Future research is necessary to determine whether an important mechanism of effectiveness in these interventions is reductions in verbal aggression.

Although the findings of the present study address several central questions about relationship dynamics in early marriage, the study also introduces new questions and future directions for research. Although many of the findings with regard to the temporal ordering of verbal and physical aggression in a relationship are consistent with findings about the ordering of these factors within a single violent conflict (Jacobson et al., 1994), additional research must explore the escalation of physically violent conflict more directly. Relatively recent innovations in the measurement of IPV using daily diaries and timeline followback interviews (Fals-Stewart, Birchler, & Kelley, 2003) might be easily adapted to allow researchers to measure more precisely the unfolding of conflict processes. Similarly, although marital adjustment is often conceptualized in research as a relatively stable construct, partners may experience brief highs and lows in adjustment during conflicts or celebrations and then return to their baseline level of adjustment. Capturing day-to-day fluctuations in these dyadic processes over an extended period of time requires a much finer level of measurement than longitudinal couples research currently uses.

References

- Arias, I., Lyons, C. M., & Street, A. E. (1997). Individual and marital consequences of victimization: Moderating effects of relationship efficacy and spouse support. *Journal of Family Violence, 12*, 193–210.
- Byrne, C. A., & Arias, I. (1997). Marital satisfaction and marital violence: Moderating effects of attributional processes. *Journal of Family Psychology, 11*, 188–195.
- Chadiha, L. A., Veroff, J., & Leber, D. (1998). Newlywed's narrative themes: Meaning in the first year of marriage for African American and White couples. *Journal of Comparative Family Studies, 29*, 115–130.
- Fals-Stewart, W., Birchler, G. R., & Kelley, M. L. (2003). The timeline followback spousal violence interview to assess physical aggression between intimate partners: Reliability and validity. *Journal of Family Violence, 18*, 131–142.
- Fals-Stewart, W., Kashdan, T. B., O'Farrell, T. J., & Birchler, G. R. (2002). Behavioral couples therapy for drug-abusing patients: Effects on partner violence. *Journal of Substance Abuse Treatment, 22*, 87–96.
- Heyman, R. E., O'Leary, K. D., & Jouriles, E. N. (1995). Alcohol and aggressive personality styles: Potentiators of serious physical aggression against wives? *Journal of Family Psychology, 9*, 44–57.
- Heyman, R. E., & Schlee, K. A. (1997). Toward a better estimate of the prevalence of partner abuse: Adjusting rates based on the sensitivity of the Conflict Tactics Scale. *Journal of Family Psychology, 11*, 332–338.
- Jacobson, N. S., Gottman, J. M., Gortner, E., Berns, S., & Shortt, J. W. (1996). Psychological factors in the longitudinal course of battering: When do couples split up? When does the abuse decrease? *Violence and Victims, 11*, 371–392.
- Jacobson, N. S., Gottman, J. M., Waltz, J., Rushe, R., Babcock, J., & Holtzworth-Munroe, A. (1994). Affect, verbal content, and psychophysiology in the arguments of couples with a violent husband. *Journal of Consulting and Clinical Psychology, 62*, 982–988.
- Johnson, M. P. (1995). Patriarchal terrorism and common couple violence: Two forms of violence against women. *Journal of Marriage and the Family, 57*, 283–294.
- Lawrence, E., & Bradbury, T. N. (2001). Physical aggression and marital dysfunction: A longitudinal analysis. *Journal of Family Psychology, 15*, 135–154.
- Leonard, K. E., & Mudar, P. (2003). Peer and partner drinking and the transition to marriage: A longitudinal examination of selection and influence processes. *Psychology of Addictive Behaviors, 17*, 115–125.
- Leonard, K. E., & Roberts, L. J. (1998a). The effects of alcohol on the marital interactions of aggressive and nonaggressive husbands and their wives. *Journal of Abnormal Psychology, 107*, 602–615.
- Leonard, K. E., & Roberts, L. J. (1998b). Marital aggression, quality, and stability in the first year of marriage: Findings from the Buffalo Newlywed Study. In T. N. Bradbury (Ed.), *The developmental course of marital dysfunction* (pp. 44–73). New York: Cambridge University Press.
- Leonard, K. E., & Senchak, M. (1993). Alcohol and premarital aggression among newlywed couples. *Journal of Studies on Alcohol, 11*(Suppl.), 96–108.
- Leonard, K. E., & Senchak, M. (1996). Prospective prediction of husband marital aggression within newlywed couples. *Journal of Abnormal Psychology, 105*, 369–380.
- Locke, H. J., & Wallace, K. M. (1959). Short marital adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living, 21*, 251–255.
- Margolin, G., John, R. S., & Gleberman, L. (1988). Affective responses to conflictual discussions in violent and nonviolent couples. *Journal of Consulting and Clinical Psychology, 56*, 24–33.
- Monahan, J. (1981). *Predicting violent behavior: An assessment of clinical techniques*. Beverly Hills, CA: Sage.
- Murphy, C. M., & O'Leary, K. D. (1989). Psychological aggression predicts physical aggression in early marriage. *Journal of Consulting and Clinical Psychology, 57*, 579–582.
- O'Leary, K. D. (1993). Through a psychological lens: Personality traits, personality disorders, and levels of violence. In R. J. Gelles & D. R. Loseke (Eds.), *Current controversies on family violence* (pp. 7–30). Newbury Park, CA: Sage.
- O'Leary, K. D. (1999). Developmental and affective issues in assessing and treating partner aggression. *Clinical Psychology: Science and Practice, 6*, 400–414.
- O'Leary, K. D. (2002). Conjoint therapy for partners who engage in physically aggressive behavior: Rationale and research. *Journal of Aggression, Maltreatment, and Trauma, 5*, 145–164.
- O'Leary, K. D., Barling, J., Arias, I., Rosenbaum, A., Malone, J., & Tyree, A. (1989). Prevalence and stability of physical aggression between spouses: A longitudinal analysis. *Journal of Consulting and Clinical Psychology, 57*, 263–268.
- O'Leary, K. D., Heyman, R. E., & Neidig, P. H. (1999). Treatment of wife abuse: A comparison of gender-specific and conjoint approaches. *Behavior Therapy, 30*, 475–505.
- O'Leary, K. D., Malone, J., & Tyree, A. (1994). Physical aggression in early marriage: Prerelationship and relationship effects. *Journal of Consulting and Clinical Psychology, 62*, 594–602.
- O'Leary, K. D., & Slep, A. M. S. (2003). A dyadic longitudinal model of adolescent dating aggression. *Journal of Clinical Child and Adolescent Psychology, 32*, 314–327.
- O'Leary, K. D., Vivian, D., & Malone, J. (1992). Assessment of physical aggression against women: The need for multimodal assessment. *Behavioral Assessment, 14*, 5–14.

- Pan, H. S., Neidig, P. H., & O'Leary, K. D. (1994). Predicting mild and severe husband-to-wife physical aggression. *Journal of Consulting and Clinical Psychology, 62*, 975-981.
- Quigley, B. M., & Leonard, K. E. (1996). Desistance of husband aggression in the early years of marriage. *Violence and Victims, 11*, 355-370.
- Rogge, R. D., & Bradbury, T. N. (1999). Till violence does us part: The differing roles of communication and aggression in predicting adverse marital outcomes. *Journal of Consulting and Clinical Psychology, 67*, 340-351.
- Ruehlman, L. S., & Karoly, P. (1991). With a little flack from my friends: Development and preliminary validation of the Test of Negative Social Exchange (TENSE). *Psychological Assessment, 3*, 97-104.
- Sabourin, T. C., Infante, D. A., & Rudd, J. E. (1993). Verbal aggression in marriages: A comparison of violent, distressed but nonviolent, and nondistressed couples. *Human Communication Research, 20*, 245-267.
- Sagrestano, L. M., Christensen, A., & Heavey, C. L. (1999). Social influence techniques during marital conflict. *Personal Relationships, 5*, 75-89.
- Schafer, J., Caetano, R., & Clark, C. L. (1998). Rates of intimate partner violence in the United States. *American Journal of Public Health, 88*, 1702-1704.
- Schumacher, J. A., Feldbau-Kohn, S., Slep, A. M. S., & Heyman, R. E. (2001). Risk factors for male-to-female partner physical abuse. *Aggression and Violent Behavior, 6*, 281-352.
- Straus, M. A., & Gelles, R. J. (1990). How violent are American families? Estimates from the National Family Violence Resurvey and other studies. In M. A. Straus & R. J. Gelles (Eds.), *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families* (pp. 95-112). New Brunswick, NJ: Transaction.
- Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The revised Conflict Tactics Scale (CTS2): Development and preliminary psychometric data. *Journal of Family Issues, 17*, 283-316.
- Suitor, J. J., Pillemer, K., & Straus, M. A. (1990). Marital violence in a life course perspective. In M. A. Straus & R. J. Gelles (Eds.), *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families* (pp. 305-317). New Brunswick, NJ: Transaction.
- Tallman, I., Burke, P. J., & Gecas, V. (1998). Socialization into marital roles: Testing a contextual, developmental model of marital functioning. In T. N. Bradbury (Ed.), *The developmental course of marital dysfunction* (pp. 312-342). New York: Cambridge University Press.
- Testa, M., & Leonard, K. E. (2001). The impact of marital aggression on women's psychological and marital functioning in a newlywed sample. *Journal of Family Violence, 16*, 115-130.

Received January 29, 2004

Revision received August 27, 2004

Accepted September 2, 2004 ■

ORDER FORM

Start my 2005 subscription to the *Journal of Consulting and Clinical Psychology!* ISSN: 0022-006X

_____ \$105.00, APA MEMBER/AFFILIATE _____
 _____ \$217.00, INDIVIDUAL NONMEMBER _____
 _____ \$554.00, INSTITUTION _____
In DC add 5.75% / In MD add 5% sales tax _____
TOTAL AMOUNT ENCLOSED \$ _____

Subscription orders must be prepaid. (Subscriptions are on a calendar year basis only.) Allow 4-6 weeks for delivery of the first issue. Call for international subscription rates.



AMERICAN
PSYCHOLOGICAL
ASSOCIATION

SEND THIS ORDER FORM TO:
 American Psychological Association
 Subscriptions
 750 First Street, NE
 Washington, DC 20002-4242

Or call (800) 374-2721, fax (202) 336-5568.
 TDD/TTY (202) 336-6123.
 For subscription information, e-mail:
subscriptions@apa.org

Send me a FREE Sample Issue

Check enclosed (make payable to APA)

Charge my: VISA MasterCard American Express

Cardholder Name _____

Card No. _____ Exp. Date _____

 Signature (Required for Charge)

BILLING ADDRESS:

Street _____

City _____ State _____ Zip _____

Daytime Phone _____

E-mail _____

SHIP TO:

Name _____

Address _____

City _____ State _____ Zip _____

APA Member # _____ CCPA15