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Sex Differences in Aggression Between Heterosexual Partners: A Meta-Analytic Review

John Archer
University of Central Lancashire

Meta-analyses of sex differences in physical aggression to heterosexual partners and in its physical consequences are reported. Women were slightly more likely ($d = -.05$) than men to use one or more act of physical aggression and to use such acts more frequently. Men were more likely ($d = .15$) to inflict an injury, and overall, 62% of those injured by a partner were women. The findings partially support previous claims that different methods of measurement produce conflicting results, but there was also evidence that the sample was an important moderator of effect size. Continuous models showed that younger aged dating samples and a lower proportion of physically aggressive males predicted effect sizes in the female direction. Analyses were limited by the available database, which is biased toward young dating samples in the United States. Wider variations are discussed in terms of two conflicting norms about physical aggression to partners that operate to different degrees in different cultures.

There are two conflicting viewpoints about partner violence, either that it involves a considerable degree of mutual combat or that it generally involves male perpetrators and female victims. The first view is associated with family conflict researchers, such as Straus (1990) and Straus and Gelles (1988b), and the second (although not exclusively) with feminist writers, such as Pagelow (1984) and Walker (1989, 1990). Data supporting the feminist position[1] are largely derived from female victims' reports (see, e.g., Mooney, 1994), from male perpetrators identified by law enforcement agencies (see, e.g., Claes & Rosenthal, 1990), or from crime surveys (see, e.g., R. E. Dobash & Dobash, 1977–1978; Gaquin, 1977–1978; M. D. Schwartz, 1987). Data supporting the family conflict researchers' position are derived from asking samples not selected for their high level of violence about the ways they solve relationship conflicts (see, e.g., Magdol et al., 1997; Morse, 1995; Straus & Gelles, 1988a).

The theoretical underpinnings of these two positions are very different. The feminist view regards partner violence as a consequence of patriarchy (see, e.g., R. E. Dobash & Dobash, 1980), and it therefore follows that it largely involves male perpetrators. Evolutionary analyses also tend to agree that male coercive power is at the root of partner conflict, although here the emphasis is on control over women's reproductive life (see, e.g., Burgess & Draper, 1989; Shackleford & Buss, 1997; Smuts, 1995; Wilson & Daly, 1992a, 1993). In contrast, the family conflict and social psychological perspectives typically emphasize causal influences that are common to both men and women (see, e.g., Berkowitz, 1993; Frude, 1994; Holtzworth-Munroe & Stuart, 1994).

Although there have been several attempts to argue that one or other position is correct (see, e.g., Bograd, 1990; McNeely & Mann, 1990; Mills, 1990; Mould, 1990; Straus, 1990; Walker, 1990), there are only two clearly stated hypotheses that might account for the conflicting opinions. One is by R. P. Dobash, Dobash, Wilson, and Daly (1992), who argued that the act-based measures used by family interaction researchers, notably the Conflict Tactics Scales (CTS; Straus, 1979; Herzberger, 1991), consider such acts out of context and neglect their consequences (see also Dutton, 1994; Nazroo, 1995; Rhodes, 1992; Romkens, 1997). R. P. Dobash et al. claimed that if the consequences of physical aggression are considered – in the form of injuries – nearly all the victims would be women. They illustrated this by citing a study that involved both measures: Acts of physical aggression were reported as often by women as by men, yet a much higher proportion of women than men reported being injured by their partner.

M. P. Johnson (1995) concentrated not on the measures used but on the samples selected by the two sets of researchers. Family conflict researchers typically study representative samples of married, cohabiting, or dating couples, whereas feminist researchers typically study samples selected for high levels of partner violence by men, such as women from refuges or violent men on treatment programs. M. P. Johnson argued that the two types of research involve nonoverlapping populations. He characterized the community samples used in family conflict research as involving "common couple violence," that is, occasional lapses of control by either partner. In contrast, samples from refuges or treatment programs involved the systematic use of force as a method of

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Correspondence concerning this article should be addressed to John Archer, Department of Psychology, University of Central Lancashire, Preston, PR1 2HE, Lancashire, United Kingdom. Electronic mail may be sent to j.archer@uclan.ac.uk.

[1] Some feminist commentators (e.g., White & Kowalski, 1994) adopt a position that emphasizes female aggression and are therefore less critical of the family interaction position.

control by men of their partners. Johnson termed this "patriarchal terrorism." A similar argument, emphasizing that different conclusions are derived from studying different samples, was advanced by Straus (1997, 1999).

These two views provide a starting point for seeking to reconcile the conflicting data and opinions about physical aggression toward partners, but in both cases, they involve only partial assessments of the literature. Because quantitative syntheses require more careful attention to the variables and samples involved, I undertook a meta-analytic review of data on sex differences in aggression and its consequences within heterosexual relationships to assess the two hypotheses and to put the subject onto a more empirically based footing. The present review concerns evidence on the extent to which the sexes differ in the use of physical aggression toward their partners and in the impact of this aggression, assessed in terms of injuries sustained by the recipients. Because the focus of this article is aggression between men and women, aggression between homosexual partners is not considered: For discussions of this topic see Dutton (1994), Letellier (1994), and Waldner-Haugrud, Gratch, and Magruder (1997).

Sources of Evidence

Most of the information on acts of physical aggression between partners is derived from the physical aggression scale of the CTS devised by Straus (1979) or modifications of this (for discussions of measurement issues, see Archer, 1999; Barling, O'Leary, Jouriles, Vivian, & MacEwan, 1987; Moffitt et al., 1997; Pan, Neidig, & O'Leary, 1994; Schafer, 1996; Straus, 1990, 1999). Data are generally in the form of the proportions of men and women reporting one or more acts of physical aggression (Table 1) to a partner, although in some studies, continuous scores have been calculated from the frequency or severity of acts. Measures of injuries are in the form of numbers of men and women who received an injury or a visible injury and of those that requested medical treatment as a result of their injuries.

There have been many discussions of the limitations of the CTS, one of which (neglect of consequences) is covered by the analysis of injuries. Another is the limited number of acts included in the CTS (Marshall, 1994) and in particular the omission of those involving sexual aggression. Although sexual aggression toward partners has typically been investigated independently from nonsexual forms (see, e.g., Koss, Gidycz, & Wisniewski, 1987) and generally only in terms of male perpetrators and female victims, there are two studies that have examined both types of aggression in the same sample of men and women. Straus, Hamby, Boney-McCoy, and Sugarman (1996) used the CTS extensively revised to take account of limitations of the earlier version, and Ryan (1998) used the original CTS and the Sexual Experiences Survey of Koss et al. (1987). In both cases, data for sexual and nonsexual aggression were presented separately. Sexual aggression occurred less frequently and showed effect sizes of around $g = .4$ in the male direction. Straus et al. found that sexual aggression and nonsexual physical aggression were very highly correlated among men, but not among women. At present, there are insufficient reports like these to enable sexual aggression to be included in the meta-analysis. There is also some dissociation between sexual and nonsexual aggression in terms of antecedents and perpetrators (Dean & Malamuth, 1997; Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Ryan, 1998). It therefore seemed advisable to obtain, at least initially, separate estimates of effect sizes for sexual aggression when sufficient studies become available and also to investigate the degree to which sexual aggression coincides with particular acts of physical aggression.

Table 1
Typical Items on the Physical Aggression Scale of the Conflict Tactics Scales (Straus, 1979)

(1) Threw something at the other one.
(2) Pushed, grabbed, or shoved the other one.
(3) Slapped the other one.
(4) Kicked, bit or hit with a fist.
(5) Hit or tried to hit with something.
(6) Beat up the other one.
(7) Threatened with a knife or gun.
(8) Used a knife or gun.

Supplementary Evidence

To provide a fuller picture of physical victimization, I also considered two supplementary sources of data. The first consisted of studies of sublethal victimization, involving police records, accident and emergency treatment records, and crime surveys. The second consisted of homicide records. These sources of data were usually not suitable for computing effect sizes: In some cases, only victims were represented in the records, and it was impossible to tell from which population they were drawn; in others (e.g., crime surveys), the incidents of spousal assaults were so infrequent that any effect sizes would have been very small. Nevertheless, it was possible to calculate the proportion of female and male victims of spousal assaults and to compare these with similar figures obtained from the injury data used in the meta-analysis.

Caution is required when using some of these sources, notably crime surveys. They specifically ask about assaults in the context of criminal behavior, thus tending to reflect only those assaults perceived as crimes. The U.S. National Violence Against Women Survey (NVAWS; Tjaden & Thoennes, 1998) shares the demand characteristics of crime surveys, given that it emphasizes violence and threats to personal safety (Straus, 1998, 1999). The very low prevalence rates and the high proportions of those assaulted who report injuries found in such studies both suggest that only serious assaults are being reported (Straus, 1997, 1998, 1999). This is supported by a study by Mihalic and Elliott (1997), who asked young people from a national sample about their experiences of partner physical aggression, in the context of questions either about relationships or about criminal assaults. They found that questioning people in the second context led to underreporting of both partner assaults and serious partner assaults by between 40% and 83%.

Crime surveys have the additional drawbacks that they may involve interviewing both members of the couple together and that they include data on assaults by former spouses. Both the rate of assault by men and the chances of their killing a former spouse are greatly increased under these circumstances (Gaquin, 1977–1978; Sev'er, 1997; Wilson & Daly, 1993). It is therefore likely that the inclusion of such couples will greatly increase the proportion of male assaults.

Spousal homicide data involve a higher level criterion for physical damage that can be used to supplement the two measures used in the meta-analysis, injuries and receiving medical treatment. In addition, they typically rely on databases that are less subject to reporting bias than is the case for any of the studies involving sublethal assaults (Daly & Wilson, 1988).

Definitions of Physical Aggression and Violence

The meta-analyses involve both the occurrence and frequency of physical aggression and injuries sustained from partners. The term physical aggression is used in the first case to denote measures typically based on reports of acts with no reference to their consequences. The term violence is used in the second case to indicate that the measures are solely concerned with the consequences of physical aggression. This distinction (Archer, 1994) avoids the assumption that all acts of physical aggression have damaging consequences, an assumption that may have unwittingly crept into the existing literature following the use of the term violence for any act of physical aggression.

Categorical and Continuous Variables

The present meta-analyses provided an opportunity to examine the impact of moderator variables on the sex differences in partner aggression. Those used were categorical and continuous variables that were commonly reported in the available studies. The rationale for choosing them was as follows.

(1) The source of data was included to assess whether published studies were a representative sample of all available studies, in view of claims that publication of some studies finding assaults by women on their partners was suppressed (Straus, 1997).

(2) The measurement instrument was coded to enable a comparison between effect sizes from studies using the CTS and other, more rarely used measures (although in practice this was hardly possible owing to the small number of other measures).

(3) The country of origin was coded to enable a preliminary comparison across cultures (although again this was limited because most studies were from the United States).

(4) Age category was coded partly to assess whether there was a change in the sex difference with age and partly to examine whether the sex difference was more in the female direction at younger ages (see below).

(5) The sample was important to assess first, whether samples selected for male violence did show a high effect size in the male direction even when using the CTS; second, whether samples selected for family problems also showed a pronounced sex difference in the male direction compared with community samples; and third, the hypothesis that the direction of effect sizes in student dating samples would be more in the female direction (see below).

(6) This hypothesis could be more directly tested by comparing dating with married or cohabiting samples.

(7) Whether the data were derived from nominal- or interval-level data was coded to assess whether effect sizes derived from the frequency of physical aggression differed from those derived from a binary classification into physically aggressive or not. This was important because most studies provided only nominal-level measures.

(8) There was some variation in the reference period used when asking people about acts of partner aggression, and given that one should expect higher rates over longer time periods, it was important to code this variable.

(9) Sex of author was included because it was associated with effect sizes in studies of sex differences in social behavior (Eagly & Carli, 1981; Eagly & Johnson, 1990).

One potentially confounding variable in the comparison between married and dating samples is that the former typically involve couples (and therefore equal numbers of men and women), whereas studies of dating relationships involve individual respondents. As a result of men's greater reluctance to volunteer, the dating samples typically contain more women than men. If physically aggressive men were overrepresented among those declining to participate, this could bias the resulting effect sizes in the female direction. Therefore, the proportion of women in each sample was coded as a continuous variable and an analysis undertaken to address this issue.

Four variables were also used to assess a specific hypothesis. I predicted that in dating relationships, which are typically found at younger ages and in student samples, men would be more inhibited about using physical aggression toward their partners than would be the case for men in more established (married or cohabiting) relationships, which are typically found at older ages. The rationale is that women in dating relationships can terminate these more easily than they can a cohabiting or marital relationship and also can make it widely known to the peer group that the man had been violent. A study comparing rates of men-only and women-only partner physical aggression in dating, cohabiting, and marital relationships (Stets & Straus, 1989) found a much greater disparity in dating relationships. Here, women were about four times more likely than men to be the only one of the couple aggressing. In the other two cases, the proportions were similar for the two sexes.

One possible consequence of men being inhibited about using physical aggression toward a dating partner would be to make it safer for women to use acts of physical aggression. Fiebert and Gonzalez (1997) found, among a sample of female college students, that 29% admitted initiating assaults on a male partner. Of these, around half said that they had no fear of retaliation or that, because men could easily defend themselves, they regarded their own physical aggression as not a problem. This reasoning would lead to the prediction that a larger effect size in the female direction would be associated with relationships that involve a lower proportion of men who show physical aggression to a partner and that these relationships typically involve dating rather than cohabitation or marriage. Two confounds in this analysis are that dating relationships occur at younger ages than cohabiting or marital relationships and that they have typically been studied in student rather than community samples. These two variables were therefore included in the analysis, the sample being dummy coded as student or community.

Any analysis of the association between the level of male physical aggression and the effect size for the sex difference will be complicated by an expected association between the levels of male and female physical aggression. A number of studies using the CTS have found that physical aggression between partners is mutual in a large proportion of cases (see, e.g., Gray & Foshee, 1997; Langhinrichsen-Rohling, Neidig, & Thorn, 1995; Morse, 1995; Stets & Straus, 1990), and where correlations have been calculated between inflicting and sustaining physical aggression,

they have generally been high (see, e.g., Bookwala, Frieze, Smith, & Ryan, 1992; Clark, Beckett, Wells, & Dungee-Anderson, 1994; Magdol et al., 1997; White & Koss, 1991). I predicted here that although the proportion of men and women showing physical aggression would be associated, only the proportion of men showing physical aggression would predict effect sizes for the sex difference, as outlined above.

Summary of Issues Addressed

The meta-analyses involved quantitative syntheses of studies measuring physical aggression and its consequences in terms of injuries in heterosexual relationships. The main questions addressed were whether men and women differ in the occurrence and frequency of physical aggression, whether they differ in terms of the injuries sustained from their partners' physical aggression, and whether, when samples selected for male violence are concerned, the CTS is a sensitive measure of the sex difference.[2] Data from other sources not suitable for meta-analysis are also presented to compare with the meta-analytic findings.

A subsidiary issue involved the hypothesis that in dating relationships, effect sizes would be more in the female direction because men would be more inhibited about using physical aggression toward their partners than in the case of more established (married or cohabiting) relationships.

Method

Sample of Studies

Several parallel literature searches were undertaken, up to mid-1997. PsycLIT on CD-ROM was searched for the years 1976 to June 1997, using the keywords "marital or dating" and "aggression or violence" but excluding "sexual," "rape," and "pornography."[3] This search produced 571 titles, which were reduced to those containing usable information by examining the titles and abstracts. The criterion used was comparison of men and women on measures of physical aggression or its consequences in terms of injuries.

Dissertations were searched by means of DISS (Dissertation Abstracts International Online) using the same keywords as above. This produced 426 titles and abstracts from 1979 to mid-1997. These were examined according to the criterion described above, and all those fulfilling it were examined on microfiche.

Additional studies were incidentally obtained from a more general search that was part of a meta-analysis of same-sex aggression. For this, PsycINFO was searched for 1967 to 1996, using the keywords "human sex differences" (which also selected the term "gender differences") and either "aggressive behavior" or "violence." This produced 552 titles, which were examined as before.

The descendency method was applied to the standard questionnaire measure used in research on relationship aggression, the CTS (Straus, 1979): Bath Information and Data Services (BIDS)[4] searches were undertaken of all subsequent studies that cited this measure, to find those containing measures for samples of men and women.

Systematic literature searches were undertaken of the following. The lists of current articles on aggression, entitled *A Guide to the Literature on Aggressive Behavior*, which appear regularly in the journal *Aggressive Behavior*, were examined, from 1987 to 1997. These lists are derived from extensive keyword searches of the ISI Science Citation Index, Social Science Citation Index, and Current Contents. Articles concerning marital or dating violence were obtained from this source, using the titles to assess whether the contents were likely to be within the scope of this review.

A further method was a hand search of journals covering relationship aggression from 1987 to 1997, notably *Aggressive Behavior*, *Family Relations*, *Journal of Family Violence*, *Journal of Interpersonal Violence*, *Journal of Marriage and the Family*, *Journal of Personality and Social Psychology*, *Journal of Social and Personal Relations*, and *Violence and Victims*. Again, titles were first examined for articles likely to concern marital or dating violence. Abstracts were checked for all possibly relevant articles.

The file drawer problem (Rosenthal, 1979) refers to the tendency of null findings not to be published and hence not to be sampled by the meta-analyst, with the result that overall effect sizes are inflated. Survey studies of relationship aggression are less likely to be prone to this problem owing to the routine involvement of both sexes in the majority of studies and the focus of attention generally being other than to document sex differences. Thus, data for men and women are likely to be reported as incidental features in the investigation of other issues. Nevertheless, unpublished data were also sought in the following ways from these sources: (a) a letter requesting this in the *Bulletin of the International Society for Research on Aggression*, (b) similar requests at two international conferences specifically devoted to aggression research in 1996, and (c) individual requests to authors of articles using CTS measures for data that had not been reported.

Effect Size Calculations

Studies were included in the meta-analyses if an effect size could be calculated for the sex difference.[5] Those involving married couples typically obtained self- and partner reports for the same sample, whereas those involving dating partners typically involved men and women who were not necessarily partners.

For each sample, one or more measures of g were calculated. This was obtained, if possible, either from the standard deviations and means, from the t values for the sex difference, or from F values[6] for the main effect of sex. However, most sources provided only the proportions (or frequencies) of men and women showing a particular form of aggression. Separate values were often provided for self- and partner reports. Where multiple measures were available from one sample, they are distinguished in the summary table (see Appendix) and various composite measures obtained (if necessary) for the analyses. All transformations of data into g values were carried out using DSTAT software (B. T. Johnson, 1989) and independently checked by a research assistant. In all cases of discrepancies, the values were recalculated.

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[2] The issue is whether the CTS is sensitive to the expected high levels of male violence in these samples. It is another matter as to whether this reflects reporting bias occurring once a woman has been publicly labeled as a victim or a man labeled as an abuser (see Discussion).

[3] As indicated in the introductory section, sexual aggression has typically been studied separately and has seldom been included in studies of physical aggression and their consequences.

[4] BIDS is a British electronic information system providing access to Institute for Scientific Information (ISI) databases.

[5] In only one case did a source indicate significance level without providing statistics from which an effect size could be calculated. This study (Tontodonato & Crew, 1992), which reported no significant sex difference, was not used in the main meta-analysis. Its inclusion (in the self-reports) would have made a difference to the mean weighted effect size of .002 in the male direction.

[6] These were approximate values because it was not possible to reconstitute the required one-way F value (B. T. Johnson, 1989). They were computed for two studies (Billingham & Sack, 1987; Efoghe, 1989). Neither was used in the meta-analysis, but they are shown in the Appendix. Inclusion of both studies in the self-reports altered the mean weighted d values by .0039, and inclusion of Billingham and Sack (1987) alone altered values by .0006 for partner reports and by .0013 for composite reports (all in the male direction).

Analyses of Effect Sizes

An overall value for the sex difference in physical aggression was calculated for each sample, using one value per sample, in the form of a mean *d*, which provides an estimate of effect size corrected for bias (Hedges & Becker, 1986). If a composite of self- and partner reports was provided, this was used; if self- and partner reports were provided, the mean of the two values was calculated; if nominal and interval data were reported, the mean was used; if only partner or self-reports were provided, neither was used for the composite measure, nor were measures of specific CTS acts or injuries in those few cases where no overall value was given. I also calculated *d* values for self- and partner reports and for nominal and interval data to compare these different sources of data. Overall *d* values were calculated for (a) injuries or visible injuries and (b) requiring medical treatment, the two most commonly used criteria for injuries.

In all these analyses, the mean *d* was weighted by the reciprocal of the variance, which gives more weight to those values that are more reliably estimated (Hedges & Olkin, 1985). In each case, the data set was tested for the homogeneity of effect sizes across all studies by calculating the homogeneity statistic Q_w, which has an approximate chi-square distribution with $k - 1$ degrees of freedom, k being the number of effect sizes. If this showed significant ($p < .05$) heterogeneity, outliers were progressively removed and the *d* value recalculated until a nonsignificant Q_w value was obtained. The outliers were put back when starting each new analysis. All calculations were carried out using DSTAT software (B. T. Johnson, 1989).

Comparisons between effect sizes from different measures (e.g., self- and partner reports; act- and injury-based measures) were undertaken using the DSTAT program, by entering the respective TWD, TWDS, and TW terms. These are, respectively, *d* multiplied by the reciprocal of the variance, d^2 multiplied by the reciprocal of the variance, and the reciprocal of the variance.

Variables Coded From Each Study

The following categorical variables were coded from each study: (a) source of data (journal article, book or book chapter, dissertation or other unpublished source), (b) measurement instrument, (c) country, (d) age category, (e) type of sample, (f) majority marital status, (g) level of measurement, (h) outcome measure (e.g., overall physical aggression, visible injury), (i) source of data (self- or partner report, or composite), (j) statistic used to calculate *g*, (k) reference period (e.g., the current or most recent relationship, over the past 6 months), and (l) sex of first author.

The following continuous characteristics were coded: (a) date of publication, (b) proportion of women in the sample (many studies of dating couples underrepresented men: see introductory section, above), (c) proportion of the sample who were married or cohabiting, (d) proportion of men in the sample showing at least one act of physical aggression in the reference period, (e) proportion of women in the sample showing at least one act of physical aggression in the reference period, (f) mean age of the sample, (g) sample size (expressed as the numbers of women in the sample), (h) level of measurement (dummy coded as 1 = nominal and 2 = interval), and (i) sample (dummy coded as 1 = student and 2 = community).

In each case, the coding was undertaken separately by two coders. Cohen's kappa was calculated for the extent of agreement for each of the categorical variables: nine were between .83 and .95, one was .71, and the other two were lower (.44 and .47). All discrepancies were investigated and corrected, and the coding systems for the two low values (outcome measure and reference period) were revised and the values recoded to produce agreement.

Correlations were calculated for the extent of interobserver agreement on the continuous variables. These were over .90 in all cases except for the proportion of men showing physical aggression, for which $r = .69$. These values were reexamined and the sources of discrepancies identified and corrected.

Categorical variables were used in categorical model analyses to investigate the sources of heterogeneity in effect sizes within the data sets. In each case, mean weighted *d* values for each class were calculated, together with the statistic Q_B for the between-classes comparisons. Where appropriate, categories were combined to enable meaningful comparisons: For example, values obtained by the CTS were compared with those from other measures, rather than comparing across several categories each containing few samples. Calculations were again carried out using DSTAT software (B. T. Johnson, 1989).

The continuous characteristics were used first, to examine correlations with effect sizes (not weighted) and second, to enable selected variables to be used for continuous (regression) model testing. As indicated above, a continuous regression model was computed with *d* values for the sex difference in physical aggression as the dependent variable and, as predictors, mean age, proportion married or cohabiting, sample (dummy coded as indicated above), and proportion of men who had been physically aggressive toward their partners. The analysis involved weighted least squares simple linear and multiple regressions, the weighting being the reciprocal of the variance of each *d* value, calculated using a program described by B. T. Johnson (1989). The regression procedures were undertaken using SPSS, and the output values were tested for significance using DSTAT, as outlined by B. T. Johnson, following the procedures described by Hedges and Olkin (1985).

Supplementary Analyses of Victimization

Data on victimization from sources other than self- or victims' reports, such as police records or accident and emergency admission records, were generally unsuitable for even a limited meta-analysis, as were homicide figures (see the introductory section, above). To enable comparison with the self-report victimization figures used in the meta-analysis, I expressed both sources of data as the proportion of the sample of victims who were women. If—as some commentators have assumed—nearly all the victims are women, this value should be around .95 to .99. If on the other hand, victimization is symmetrical, the value would be nearer to .50.

Data from the following crime surveys were also analyzed, subject to the reservations expressed in the introductory section, above, about the demand characteristics: the U.S. National Crime Survey (NCS; M. D. Schwartz, 1987), redesigned in 1992 as the National Crime Victimization Survey (NCVS; Straus, 1998, 1999), the 1996 and 1997 British Crime Surveys (Mirrlees-Black, Budd, Partridge, & Mayhew, 1998; Mirrlees-Black, Mayhew, & Percy, 1996), and the NVAWS (Tjaden & Thoennes, 1998).

Spousal homicide data were drawn from Wilson and Daly (1992b), who summarized several sources including large-scale U.S. studies carried out between 1976 and 1985 (Maxfield, 1989; Mercy & Saltzman, 1989). This evidence was supplemented by examining more recent analyses (Gauthier & Bankston, 1997; Gondolf & Shestakov, 1997).

Results

Study Characteristics

Table 2 shows the characteristics of the studies used to derive a composite value for physical aggression. The appendix lists all the studies with their accompanying effect sizes for different measures and the study characteristics. Table 2 indicates that the large majority of studies were carried out in the 1980s and 1990s, in the United States. Around half involved college or high school students in dating relationships. These statistics alone limit the generalizations that can be made from the subsequent analyses. There are, however, sufficient numbers of community samples and of

Table 2
Study Characteristics

Characteristics	Number of studies
Sources of data	
Journal article	56
Book or book chapter	4
Dissertation	15
Other unpublished source	7
Measurement	
CTS or modified CTS	76
Specific acts (e.g., cut, bruise, specific CTS items)	2
Hit the other	2
Physical abuse	2
Country	
United States	72
Canada	3
United Kingdom	4
Korea	1
Israel	1
New Zealand	1
Age category	
14–18 years	7
19–22 years	30
23–30 years	6
31–37 years	11
38–49 years	4
Wide range or not specified	24
Sample	
High school	5
College students	37
Community or from military base	27
Treatment program for marital violence or marital problems	5
Refuge for battered women	2
Homeless	3
Couples referred for treatment for husband's violence	3
Marital status	
Married or cohabiting	33
Not cohabiting	47
Mixture or separated	2
Level of measurement	
Nominal	63
Interval	19
Statistic available to calculate *g*	
Means and standard deviations	18
t	2
Frequencies or proportions	62
Reference period	
Current or most recent relationship	33
Past year	31
Present and past relationships	16
Past 2 years	1
Past 6 months	1
Sex of first author	
Male	25
Female	55
Unknown	2
Median date of publication	1990
Mean proportion of women in the samples	.55
Mean proportion of the sample who were married or cohabiting	.40
Mean proportion of men who were physically aggressive	.42
Mean proportion of women who were physically aggressive	.38
Mean age of participants	25.3
Mean number of men in each sample	373
Mean number of women in each sample	412

Note. Based on those studies used for the composite values ($k = 82$). CTS = Conflict Tactics Scales.

samples selected for marital violence to enable meaningful comparisons to be made across these categories.

Preliminary Comparisons

Before considering the overall sex differences in physical aggression and in injuries, I made two preliminary comparisons. First, the effect sizes derived from nominal- and interval-level data were compared for the act-based measure to determine whether there were variations according to the level of measurement. Nominal-level data indicate the proportion of men and women who show any act of physical aggression, whereas interval-level data are typically an aggregate of the frequencies of acts on the CTS. There was no significant difference between the weighted mean effect sizes derived from nominal- and interval-level data using composite measures, $Q_B(1) = .10$; nominal: $d = -.05$, $k = 63$; interval: $d = -.06$, $k = 25$. A comparison using nominal and interval data as categorical variables produced similar findings. Therefore, in subsequent analyses, data from either source were used (if a study enabled *g* values from both sources to be obtained, their mean was used).

The second preliminary comparison was between *g* values from self- and partner reports. Although all the mean weighted *d*s (Table 3) were relatively small from the perspective of Cohen's (1988) criteria, self-reports (i.e., those of aggressors) were clearly significantly greater than zero in the female direction, whereas partner reports (i.e., those of recipients) were on the borderline of being significantly different from zero ($p = .05$). Removal of outliers produced a larger value in the female direction in both cases but made more difference to partner reports, making them significantly different from zero in the female direction. There was a highly significant difference between self- and partner reports without the outliers removed, $Q_B(1) = 75.0$; $p < .0001$.

Therefore, according to self-reports, women are more likely than men to commit acts of physical aggression, whereas according to partner reports, their respective levels are similar, although this is attributable to the outliers. This discrepancy posed a problem of how to proceed with the meta-analysis. Several studies used composite measures, derived from both self- and partner reports, and the majority of other studies included both values. Therefore, I considered that a composite value would best reflect the overall central tendency across all studies. At the same time, so as not to ignore the discrepancy between the sources of information, I calculated separate values for self- and partner reports when carrying out the categorical model testing.

Overall Sex Differences in Act-Based Measures

Table 3 shows the overall weighted *d* value for the composite measure. This indicates a significant value in the female direction, which is very small in magnitude according to Cohen's (1988) criteria. In contrast to self- and partner reports, this value was hardly changed when outliers were removed.

Several studies involved very large samples and therefore may have dominated the analysis. Therefore, the overall weighted *d* was recalculated with a ceiling *n* for individual studies of 800. Table 3 shows this value, which is slightly greater in the female direction. Comparable values for self- and partner reports (Table 3) also indicate values slightly more in the female direction when this

Table 3
Meta-Analyses of Studies Summarized to Show Sex Differences in Physical Aggression, for Composite, Self-, and Partner Reports, in Injuries, and in Injuries Requiring Medical Treatment

Study	*d*	CI	*p*	*k*	Q_w	*p*	*N* men	*N* women
Composite								
All studies	−.05	−.07/−.04	< .0001	82	183.1	< .0001	30,434	34,053
Outliers removed[a]	−.05	−.07/−.04	< .0001	75	99.0	.05	29,251	32,605
All studies, with ceiling $N = 800$[b]	−.07	−.09/−.05	< .0001	82	157.4	< .0001	12,708	14,715
Self								
All studies	−.12	−.14/−.10	< .0001	81	278.4	< .0001	24,635	28,358
Outliers removed[c]	−.14	−.17/−.12	< .0001	67	88.9	.06	18,079	21,511
All studies with ceiling $N = 800$[b]	−.16	−.18/−.13	< .0001	81	206.0	< .0001	12,793	16,344
Partner								
All studies	−.016	−.03/.00	.05	75	311.3	< .0001	27,396	30,574
Outliers removed[d]	−.09	−.11/−.07	< .0001	61	78.2	.11	12,450	14,712
All studies with ceiling $N = 800$[b]	−.04	−.07/−.02	< .0001	75	217.6	< .0001	11,910	14,595
Injury								
All studies[e]	.15	.12/.18	< .0001	17	107.1	< .0001	7,011	7,531
Outliers removed[f]	.08	.04/.11	< .0001	13	19.3	.08	5,487	5,787
All studies with ceiling $N = 800$[b]	.17	.12/.22	< .0001	17	88.7	< .0001	2,984	3,349
Medical treatment								
All studies	.08	.04/.12	< .0001	14	64.8	< .0001	4,936	6,323
Outliers removed[g]	.05	.01/.09	< .01	10	16.7	.05	4,204	5,528
All studies with ceiling $N = 800$[b]	.11	.05/.16	< .0001	14	62.2	< .0001	2,440	2,925

Note. Effect sizes are positive if in the male direction and negative if in the female direction. *d* = mean effect size, weighted by the reciprocal of the variance; CI = confidence interval; *k* = number of samples included in the analysis; Q_w = homogeneity of effect sizes.

[a] The following outliers were removed (in reverse order of removal): Magdol et al. (1997), Giles-Sims (1983), Pease (1996, Study 1), Schartz (1995), Langhinrichsen-Rohling et al. (1995), Shin (1996), and Browning and Dutton (1986).

[b] Studies with overall $N > 800$ were assigned an overall $N = 800$ and the meta-analysis recomputed.

[c] The following outliers were removed (in reverse order of removal): Cascardi et al. (1992), Nisonoff and Bitman (1979), Bohannon et al. (1995), Lejeune and Folette (1994), Moller (1991), Magdol et al. (1997), Stith et al. (1992), Greening (1996), O'Leary et al. (1989), M. Schwartz et al. (1997), Browning and Dutton (1986), Sorenson et al. (1996), White and Koss (1991), and Schartz (1995).

[d] The following outliers were removed (in reverse order of removal): O'Keefe (1997), Stets and Pirog-Good (1987), Straus et al. (1996), Marshall (1987a, Study 2); Stets and Pirog-Good (1989), Carrado et al. (1996), Arias et al. (1987), M. L. Bernard and Bernard (1983), Follingstad et al. (1991), Sorenson et al. (1996), Neff et al. (1995), Browning and Dutton (1986), Kim and Cho (1992), and Brush (1990).

[e] With the large scale study of Sorenson et al. (1996) removed, $d = .20$ (CI .15/.24).

[f] The following outliers were removed (in reverse order of removal): Stacey et al. (1994), Makepeace (1986), Langhinrichsen-Rohling et al. (1995), and Cantos et al. (1994).

[g] The following outliers were removed (in reverse order of removal): Cascardi et al. (1992), Breen (1985), Langhinrichsen-Rohling et al. (1995), and Cantos et al. (1994).

adjustment has been made. Self- and partner reports are still significantly different, although to a smaller extent, $Q_B(1) = 75.0$; $p < .0001$.

Overall Sex Differences in Injury Measures

Table 3 also shows the mean weighted *d* values for the sex difference in injuries, and injuries requiring medical treatment, sustained from a partner. The studies used in these analyses are summarized in Table 4. Both measures indicate that significantly more women than men were injured by their partners. Removal of outliers reduced the overall effect size considerably in the case of injuries but not so much for receiving medical care. Recalculation of the overall weighted *d*s with a ceiling *n* for individual studies of 800 slightly increased values to .17 for injuries and .11 for medical care (Table 4). Although in the reverse direction from those involving act-based measures, these effect sizes were again small according to Cohen's (1988) criteria.

Far fewer studies were available for the analyses of injuries than for the act-based physical aggression measures. Bearing this in mind, I compared the weighted *d* values for the sex differences in injuries with the weighted *d* values for the sex differences in the composite act-based physical aggression measure. There was a highly significant difference both in the case of injuries, $Q_B(1) = 120.9$, $p < .0001$; and in receiving medical care, $Q_B(1) = 39.8$, $p < .0001$, indicating that injury measures were higher in the male direction. Because the values for injuries were obtained from the

Table 4
Comparisons of Injuries Inflicted by Men and Women on Their Partners, for Injuries and Those Receiving Medical Treatment

Study	*N* men	*N* women	*g* (injuries)	*g* (treatment)
Breen (1985)	260	323	−.07	−.16[a]
Cantos, Neidig, & O'Leary (1994)	180	180	.70[d]	.53[d]
Cascardi, Langhinrichsen, & Vivian (1992)	93	93	.18[d]	.42[dh]
Foshee (1996)	700	698	.01[e]	−.01[g]
Irwin (1980)	55	70	.38 (.05)	
Laner (1985)	138	271		.09
Langhinrichsen-Rohling, Neidig, & Thorn (1995)	199	199	.67[de]	.48[di]
Makepeace (1986)	1,059	1,279	.32	
Masterson (1987)	60	91		.28
Morse (1995)[c]	321	402	.03[e] (.23)	.07 (.17)
	453	506	.14[e] (.06)	.06 (.06)
	490	511	.10[e] (.03)	.02 (.03)
Nazroo (1995)	96	96	.19[e]	.38[f]
Rouse (1988)	104	124	−.22	−.13
Rouse, Breen, & Howell (1988)–1	48	82	.17	−.37
Rouse, Breen, & Howell (1988)–2	58	72	−.12	.07
Shin (1996)	99	99	.24	.20
Sorenson, Upchurch, & Shen (1996)	3,383	3,396	.10 (−.04)	
Stacey, Hazelwood, & Shupe (1994)	86	86	.51[dh]	
Stets & Straus (1990)	2,480	3,522		.06
Straus, Hamby, Boney-McCoy, & Sugarman (1996)	113	204	−.06[j] (.19)	
Vivian & Langhinrichsen-Rohling (1994)	57	57	.25[de]	

Note. Unless indicated otherwise, effect sizes were calculated from proportions of men and women that have been injured, according to victims' reports (self-reports, if available, are indicated in parentheses). The criteria, unless otherwise stated, are visible injuries or requiring medical treatment. The sample sizes represent the respondents from which the values were obtained, namely, women in the case of men inflicting injuries and men in the case of women inflicting injuries. Sample sizes are also for the whole sample. Many authors present their figures as proportions of those that have received any form of physical aggression: This usually has the effect of increasing the effect size for victimization in the female direction. However, expressing the numbers injured as a proportion of the whole samples of women and men respondents is more consistent with the Conflict Tactics Scales data and is therefore a fairer basis on which to make comparisons. Full study characteristics are shown in the Appendix. *g* = effect size, a positive value indicating higher frequency or severity of injuries inflicted by men than women; *N* = number of individuals in the study.

[a] This is based on a combined figure for requiring first aid and requiring a doctor.
[b] The mean of the *g* values for 10 categories of injury (bruise, multiple bruising, scratch, cut, cuts requiring stitches, burn, black eye, split lip, broken bones, and other).
[c] From a longitudinal study: Data are at ages 21–27, 24–30, and 27–33 years. The mean of the three values was used in the analysis.
[d] The sample was selected for marital problems or for marital violence.
[e] Defined as "any injuries" or "ever injured" or "physical injury."
[f] Defined as "severe injury."
[g] Defined as requiring the emergency room.
[h] Defined as broken bones.
[i] Defined as outpatient treatment or hospitalization.
[j] From an injury scale included in the revised Conflict Tactics Scales.

injured, a fairer comparison would be with the partners' reports for acts of physical aggression. Again, there were highly significant differences for injuries, Q_B (1) = 79.6, $p < .0001$; and for receiving medical care, Q_B (1) = 20.2, $p < .0001$.

In some cases, act-based and injury measures were available from the same samples. Comparison of the mean weighted *d* values for sex differences in the two measures across these eight studies[7] indicated a considerable difference between them, Q_B (1) = 27.0, $p < .0001$; acts: $d = .01$; injuries: $d = .16$. When the large-sample study of Sorenson et al. (1996) was removed, both values increased in the male direction, Q_B (1) = 16.1, $p < .0001$; acts: $d = .11$; injuries: $d = .39$. This subgroup was not typical of the 82 samples used to derive the composite (Table 3) because act-based measures were slightly in the male direction. Nevertheless, it shows that in the same studies, there is a significantly larger effect size in the male direction for injuries than for acts of physical aggression.

Sex Differences in the Proportion of Those Injured by a Partner

One possible reason for the small overall effect sizes for injury measures is their derivation from events that were infrequent in both sexes for most samples (compared with the act-based measures, which were typically more common). Therefore, injury measures were also expressed as the numbers of each sex showing injuries and requiring medical treatment. For each study, the proportion of those injured who were female was calculated (Table 5). Because some studies involved fewer men than women, the figures from these samples provide an underestimate of the injury rate for men. Table 5 also indicates (in brackets) the proportion of women injured when a correction is made for the unequal sample sizes (by dividing the numbers of each sex who were injured by their respective sample size prior to calculating the proportion). This made little difference in the case of overall injuries, but it tended to decrease the proportion of women receiving medical treatment.

The aggregate numbers of injuries sustained by men and women are also shown in Table 5, and an overall value for the proportion of women injured is presented: .65 of 1,113 reports of injuries caused by partners involved the woman as the recipient. This changed very little if samples selected for marital problems or marital violence were removed (Table 5). There were fewer cases of partners receiving medical treatment ($n = 215$), and the overall proportion of women was .71. In this case, removal of those samples selected for marital problems or marital violence did make a difference, reducing the value to .61. In the selected samples, the proportion of those injured who were women was higher (.83). These values were all reduced when corrected for unequal sample sizes, the overall proportion being .62.

Although the proportion measure is easy to understand, it does not take account of the absolute frequency of the event in the population (as the *g* value does). A high *g* value indicates both a high overall frequency and a pronounced sex difference. A high proportion measure indicates only the second of these.

[7] Irwin (1980); Masterson (1987); Stets and Straus (1989); Cascardi, Langhinrichsen, and Vivian (1992); Cantos, Neidig and O'Leary (1994); Langhinrichsen-Rohling et al. (1995); Shin (1996); Sorenson, Upchurch, and Shen (1996).

Tests of Categorical Models for Act-Based Measures

Table 6 shows the results of categorical model analyses for composite, self- and partner reported physical aggression. In most cases, multiple classes have been merged so as to produce meaningful comparisons. For the type of sample, several different classes are shown because these directly concern one of the hypotheses being tested.

Two differences were found across composite, self- and partner reports. There were significantly higher effect sizes in the female direction for unpublished than published sources. Single rather than married or cohabiting people showed significantly higher effect sizes in the female direction.

Other significant differences were not consistent across the three measurements. Effect sizes were significantly higher in the female direction for studies using the CTS than in the minority using other measures, but only according to partner reports. Values were higher in the female direction in studies from other western nations than from the United States for composite and partner reports. Values were in the female direction for younger ages (14–22 years) and in the male direction for the older category (23–49 years), but only for the composite measure. This comparison was limited by the large number of samples involving a large age range or not specifying age. Effect sizes were higher in the female direction when all relationships rather than recent ones were used, according to self-reports. Values were also more in the female direction when the first author was male, for self- and partner reports.

When the types of sample were compared, *d* values were significantly higher in the female direction for the (majority) student category than for community, marital treatment, and refuge samples, using composite reports. Refuge samples showed large *d* values in the male direction (although only two small samples were involved). Couples undergoing treatment for marital problems, including marital violence, also showed an effect size in the in the male direction ($d = .14$), but much smaller than for refuge samples.

Tests of Categorical Models for Injury Measures

Table 7 shows the results of categorical analyses of studies involving measures of injuries. These were limited by the small number of samples, but there are three differences between categories. The first is between age categories. Samples aged 14–22 years showed values near to zero for both measures, whereas those from older ages showed significantly higher values in the male direction, the highest being for the 23–30 years category.

Samples of couples receiving treatment or counseling for marital problems showed substantial effect sizes in the male direction, whereas those for community and student samples were much lower, for both measures. This difference was not found in the proportion measure (Table 5), reflecting the different nature of the two measures. Measures of receiving medical care that were based on recent relationships produced an effect size in the male direction, whereas those based on all relationships were near to zero.

Correlations

Weighted least squares regressions were calculated to test a model predicting higher *d* values for sex differences in physical aggression in the female direction among younger dating samples and where fewer males showed physical aggression to their partners (see the introductory section, above). Simple correlations (i.e., unweighted by sample size or variance) were first calculated to assess the following: whether any of the variables were highly correlated (thus raising the problem of colinearity), the association between men's and women's level of physical aggression, and to obtain a preliminary indication of whether the three target vari-

Table 5
Numbers of Men and Women Injured as a Result of Partner Aggression and Proportion of Those Injured Who Were Female for the Samples Shown in Table 4

	Injuries			Medical treatment		
Study	*N* men	*N* women	Proportion of injured who were women[a]	*N* men	*N* women	Proportion of injured who were women[a]
Breen (1985)	17	16	.48 (.43)	18	11	.43 (.33)
Cantos, Neidig, & O'Leary (1994)	49	108	.69[b]	7	38	.84[b]
Cascardi, Langhinrichsen, & Vivian (1992)	29	37	.56[b]	1	10	.91[b]
Foshee (1996)	63	65	.51 (.51)	9	8	.47 (.47)
Irwin (1980)	3	12	.80 (.76)			
Laner (1985)				1	5	.91 (.72)
Langhinrichsen-Rohling, Neidig, & Thorn (1995)	66	129	.66[b]	9	39	.81[b]
Makepeace (1986)	16	110	.87 (.85)			
Masterson (1987)	3	12	.80 (.73)			
Morse (1995)[c]	28	38	.58	1	5	.80
	19	38	.67 (.64)	2	5	.71 (.69)
	21	34	.62	3	4	.57
Nazroo (1995)	13	20	.61	1	9	.90
Rouse (1988)	11	6	.35 (.31)	5	3	.42 (.37)
Rouse, Breen, & Howell (1988)	2	7	.78 (.67)	4	1	.30 (.13)
	6	5	.45 (.40)	1	2	.72 (.67)
Shin (1996)	1	5	.83	0	2	1.0
Sorenson, Upchurch, & Shen (1996)	10	37	.79 (.79)			
Stacey, Hazelwood, & Shupe (1994)	41	70	.63[b]			
Stets & Straus (1990)				1	10	.93 (.86)
Straus, Hamby, Boney-McCoy, & Sugarman (1996)	18	29	.62 (.47)			
Vivian & Langhinrichsen-Rohling (1994)	25	32	.56[b]			
Total	392	738	.65 (.62)	63	152	.71 (.65)
Total without selected samples ([b])	182	362	.67 (.63)	47	75	.61 (.55)
Total for selected samples ([b])	210	376	.64 (.64)	16	77	.83 (.83)

[a] The first figure is uncorrected for sample size; the value following in parentheses is corrected for unequal sample size by dividing the numbers of each sex who were injured by their respective sample size prior to calculating the proportion measure.
[b] The sample was selected for marital problems or for marital violence.
[c] From a longitudinal study: Data are at ages 21–27, 24–30, and 27–33 years. The middle age range was used in this analysis.

Table 6
Categorical Model Analysis of Measures of Physical Aggression

Variable	Composite			Self		Partner	
	d (CI)	Q_w	*k*	*d* (CI)	*k*	*d* (CI)	*k*
Published	−.05 (−.06/−.03)	122.5***	60	−.10 (−.12/−.08)	61	−.01 (−.03/.01)	55
Unpublished	−14 (−.20/−.08)	50.4***	22	−.28 (−.33/−.23)	20	−.09 (−.14/−.03)	20
Q_B (1)	10.22***			44.26***		6.98**	
CTS	−.06 (−.08/−.04)	172.0***	76	−.13 (−.15/−.11)	73	−.06 (−.09/−.04)	66
Other measures[a]	−.03 (−.06/.004)	8.3	6	−.10 (−.13/−.08)	8	.04 (.04/.01)	9
Q_B (1)	2.84			2.21		36.83***	
North America	−.05 (−.07/−.03)	134.3***	72	−.12 (−.13/−.10)	71	−.02 (−.03/.00)	66
Canada, United Kingdom, & New Zealand	−.13 (−.20/−.06)	30.1***	8	−.17 (−.22/−.12)	10	−.19 (−.26/.11)	7
Q_B (1)	6.67**			4.17		18.77***	
14–22 years	−.12 (−.14/−.09)	43.4	37	−.15 (−.18/−.12)	40	−.09 (−.12/−.06)	39
23–49 years	.12 (.05/.19)	51.7***	21	−.15 (−.23/−.07)	16	−.02 (−.12/.09)	12
Q_B (1)	37.16***			0.00		1.60	
Students[b]	−.10 (−.13/−.08)	47.4	42	−.14 (−.16/−.11)	47	−.07 (−.10/−.04)	45
Community[c]	−.03 (−.05/−.01)	56.6***	27	−.11 (−.13/−.09)	26	.02 (−.01/.04)	23
Refuges[e]	.86 (.45/1.27)	.6	2				
Marital treatment[d]	.14 (.04/.25)	28.4***	7	−.15 (−.29/−.02)	6	.12 (−.04/.28)	5
Homeless	−.24 (−.60/.12)	.5	3	.01 (−.40/.43)	2	−.46 (−.88/−.04)	2
Q_B (3/4)	49.54***			3.00		31.75***	
Single	−.10 (−.13/−.08)	55.6	47	−.15 (−.18/−.13)	52	−.07 (−.09/−.04)	49
Cohabiting	−.02 (−.04/.00)	91.9***	33	−.09 (−.12/−.07)	28	.02 (−.00/.04)	25
Q_B (1)	24.52***			12.37***		24.50***	
Nominal data	−.05 (−.07/−.04)	139.8***	63	−.12 (−.14/−.10)	60	−.02 (−.03/.00)	58
Interval data[f]	−.07 (−.13/.01)	43.1***	19	−.15 (−.21/−.10)	21	−.03 (−.10/.04)	17
Q_B (1)	.25			1.47		.15	
Recent	−.04 (−.06/−.03)	155.8***	64	−.10 (−.12/−.08)	63	−.01 (−.03/.00)	56
All relationships	−.09 (−.13/−.05)	22.4	16	−.19 (−.23/−.16)	18	−.03 (−.07/.01)	19
Q_B (1)	3.92			21.34***		.08	
Male author	−.07 (−.09/−.05)	108.0***	25	−.16 (−.20/−.13)	27	−.07 (−.11/−.03)	19
Female author	−.04 (−.06/−.02)	56.5***	55	−.11 (−.13/−.09)	53	−.02 (−.03/.00)	54
Q_B (1)	3.17			7.95**		6.57**	

Note. Effect sizes are positive if in the male direction. *d* = mean effect size weighed by sample size; CI = confidence interval; *k* = number of samples included in the analysis; Q_w = homogeneity of effect sizes; Q_B = difference between contrasted categories; CTS = Conflict Tactics Scales.

[a] Hitting the other or physical aggression, but not using the CTS.

[b] School and college students combined. For the composite measure, these samples showed significantly different values from the community (Z^2 = 16.0), the refuge (Z^2 = 21.2), and the marital treatment samples (Z^2 = 19.0). For partner reports, these samples showed significantly different values from the community category (Z^2 = 27.1).

[c] Community samples and a minority of samples from army bases. For the composite measure, these samples showed significantly different values from the refuge (Z^2 = 18.3), marital treatment (Z^2 = 10.2), and student samples (see Footnote b). For partner reports, these samples showed significantly different values from the student category (see Footnote b).

[d] Treatment for marital problems, including marital violence. For the composite measure, these samples showed significantly different values from the student (see Footnote b), community (see Footnote c), and the refuge category (Z^2 = 11.1).

[e] For the composite measure, refuge samples showed significantly different values from the student (see Footnote b), homeless (Z^2 = 15.6), community (see Footnote c), and the marital treatment samples (see Footnote d). These comparisons were based on two small-samples studies (Giles-Sims, 1983; Pease, 1996, Study 1) for which there were no separate data for self- and partner resports.

[f] Or combined values derived from interval and nominal data.

** $p < .01$. *** $p < .001$.

ables were more closely associated with the unweighted effect sizes than were other variables.

Table 8 shows the correlations. The proportions of men and women who physically aggressed were highly correlated (and a least squares regression weighted by the reciprocal of the variance indicated an even higher association of R = .94). These associations would be expected on the basis of the finding that physical aggression between partners tends to be reciprocal. Despite the high correlation, only the proportion of physically aggressive men was significantly (positively) correlated with the effect size for the sex difference, the proportion of physically aggressive women being unrelated to it. A least squares regression weighted by the reciprocal of the variance also indicated no significant association between these two variables (R = .10). This supports the prediction (see the introductory section, above) that it is the level of men's aggression that is associated with the variation in sex differences obtained in different studies.

The second set of high intercorrelations involved mean age, sample, and the proportion who were married or cohabiting. This raised a potential problem for the multiple regression because these were the variables specified in the model to be tested (and all are significantly correlated with effect size). Using all three, or even two of them, in the regression could influence the values of

Table 7
Categorical Model Analysis of Measures of Inflicting Injury

Variable	Injuries				Medical care			
	d	CI	Q_w	*k*	*d*	CI	Q_w	*k*
Published	.16	.12/.19	98.1***	14	.09	.05/.13	54.3***	11
Unpublished	.06	−.07/.19	7.1	3	−.01	−.14/.12	8.4	3
Q_B (1)		2.2				2.1		
14–22 years[a]	−.02	−.10/.06	.78	3	−.03	−.12/.05	6.0	3
23–30 years[b]	.68	.54/.83	.04	2	.50	.36/.65	.11	2
31–49 years	.27	.13/.40	3.1	5	.33	.17/.50	1.3	3
Wide age range[c]	.14	.10/.18	32.9***	7	.05	.00/.09	7.3	6
Q_B (3)		70.3***				50.2***		
Students[d]	.13	.07/.18	42.9***	7	−.03	−.11/.04	11.6	7
Community[e]	.11	.07/.15	3.5	5	.07	.02/.12	5.5	4
Treatment[f]	.54	.42/.65	12.2	5	.49	.36/.62	.4	3
Q_B (2)		48.5***				47.3***		
Single	.12	.07/.17	43.1***	7	−.00	−.07/.06	8.9	7
Cohabiting	.17	.13/.21	61.9***	10	.12	.07/.17	46.9***	7
Q_B (1)		2.1				9.1**		
Recent	.14	.10/.17	80.9***	13	.09	.05/.13	54.2***	10
All relationships	.19	.13/.25	24.1***	4	−.01	−.10/.09	7.0	4
Q_B (1)		2.2				3.7		

Note. Effect sizes are positive if in the male direction. *d* = mean effect size weighed by sample size; CI = confidence interval; *k* = number of samples included in the analysis; Q_w = homogeneity of effect sizes; Q_B = difference between contrasted categories.

[a] For both measures, this category showed significantly different values (in the female direction) from the 23–30 year category (Z^2 = 67.1 and 38.8), the 31–49 year category (Z^2 = 12.8 and 14.6), and the wide age range category for injuries only (Z^2 = 12.0), using post hoc contrasts (3 *df*).

[b] For both measures, this category showed significantly different values (in the male direction) from the 14–22 year category (see Footnote a), the wide age range category (Z^2 = 49.2 and 34.6), and the 31–49 year category for injuries only (Z^2 = 16.7), using post hoc contrasts (3 *df*).

[c] The wide age range category showed significantly different values (in the female direction) from the 14–22 year category (see Footnote a), the 23–30 year category (see Footnote b), and the 31–49 year category for medical treatment only (Z^2 = 10.5), using post hoc contrasts (3 *df*).

[d] School and college students combined. For both measures, this category showed significantly different values (in the female direction) from the marital treatment category (Z^2 = 40.1 and 47.1), but not from the community category (Z^2 = .30 and 5.6), using post hoc contrasts (3 *df*).

[e] Community samples. For both measures, this category showed significantly different values (in the female direction) from the marital treatment category (Z^2 = 47.5 and 34.9), but not from the students category (see Footnote d), using post hoc contrasts (3 *df*).

[f] Treatment for marital problems, including marital violence. See Footnotes d and e for contrasts with other categories.

** $p < .01$. *** $p < .001$.

the regression coefficients and increase their standard errors (Hedges, 1994).

Sample, age, and marital status would be expected to be highly correlated, but there is no obvious reason (apart from the hypothesis being investigated) to expect age and the proportion of men who physically aggress to be positively correlated, as they are (r = .47). In fact, from previous findings (e.g., Archer & Haigh, 1997; Arms & Russell, 1997; Campbell, 1995; Daly & Wilson, 1988, 1990; M. B. Harris, 1996) that younger ages are associated with a greater likelihood of physical aggression generally, this positive correlation would be unexpected.

Continuous Models

Of the eight variables shown in Table 8, four showed significant correlations with the unweighted *g* values. These were the ones specified in the model: first, the associated variables of age, proportion cohabiting, and sample; and second, the proportion of physically aggressive males. The others—date of publication, proportion of women, proportion of physically aggressive women, sample size, and level of measurement—were not significantly correlated with effect size.

The proportion of women in the sample could be a potential confound if unwillingness of males to volunteer is associated with being aggression-prone (see the introductory section, above). However, the correlation between the proportion of women in the sample and unweighted effect sizes was low and nonsignificant (Table 8). A least squares simple regression, weighted by the reciprocal of the variance, also showed that the proportion of women in the sample did not predict the *d* values (b_u = −.06; b = −.10; p = .24). A similar low correlation was found when those studies involving equal numbers of men and women (k = 34) were removed from the analysis.

Table 9 shows the results of weighted regression analyses undertaken to test the model. In a simple linear regression, the

Table 8
Correlations Between the Study Characteristics and Effect Sizes (All Unweighted)

Variable	1	2	3	4	5	6	7	8	9
1. Date of publication	—								
2. Proportion of women	−.02	—							
3. Proportion married or cohabiting[b]	−.11	−.39***	—						
4. Proportion of physically aggressive men	.10	−.15	.29*	—					
5. Proportion of physically aggressive women	.10	.03	.04	.81***	—				
6. Mean age	−.12	−.33*	.85***	.47***	.10	—			
7. Number of females[c]	.07	−.05	.14	−.32**	−.33**	−.32*	—		
8. Level of measurement[d]	−.06	−.10	.17	.58***	.06	.33*	−.16	—	
9. Sample[e]	−.14	−.40***	.80***	−.22	−.34**	.76***	.21	.04	—
10. Unweighted *g*	−.15	−.17	.28*	.37**	.06	.39**	−.04	.18	.27*

Note. $k = 82$, except where there are missing values.
[a] 1 = *male;* 2 = *female.*
[b] The correlation between this variable and the dichotomous measure of marital status was .97.
[c] Correlations for the number of males was almost identical and has been omitted: this variable is therefore equivalent to the overall sample size.
[d] 1 = *nominal;* 2 = *interval.*
[e] 1 = *students;* 2 = *community* (other samples coded as missing values).
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

proportion cohabiting, sample, and age all predicted effect sizes (for sex differences in aggression) in the male direction. The value for the proportion of men who physically aggressed was nonsignificant (despite the unweighted values being correlated). Entering all four variables into a weighted least squares multiple regression showed that age, sample, and the proportion of men who physically aggressed had a significant influence on effect sizes for sex differences in aggression (Table 9). In view of the problems of multicolinearity outlined above, I undertook further multiple regressions retaining only one of the three highly correlated variables (together with the other variable, the proportion of aggressive men). The results of two of these analyses are shown in Table 9; the third, involving the sample, produced a smaller multiple R and is omitted for this reason. Both age and proportion cohabiting produced similar multiple R values, which were very little different from the model using all three related variables. In both cases, the two predictors showed significant coefficients in the direction of higher effect sizes in the male direction.

Q_E values were significant for all three multiple regressions in Table 9, indicating that the models were not correctly specified, that is, they left a considerable proportion of the variance in the weighted d values unaccounted for. Nevertheless, with a multiple R value of around .50, the models involving two variables can be regarded as reasonably successful in predicting effect size values.

Supplementary Analyses of Victimization

Supplementary studies involving victimization rates for women and men enabled calculation of the same proportion measure that was used for injuries (Table 5). The varied sources are summarized in Table 10. Two studies involving incident reports of spouse assaults—from the police in Atlanta, Georgia, for 1984 (Saltzman et al., 1990) and from the Family Advocacy Program of the U.S. Air Force (Mollerstrom & Patchner, 1992)—produced figures of .75 and .72, respectively, for the proportion of victims who were women. Two studies of people attending accident and emergency services in Australia each yielded figures of around .70 (deVries, Robbe, March, Vinen, Horner, & Roberts, 1996; Roberts, O'Toole, Raphael, Lawrence, & Ashby, 1996). A further study in Detroit

Table 9
Regression Models on Specified Study Characteristics

	Simple linear regression		Multiple regression	
Predictor	b_u	b	b_u	b
Proportion cohabiting[a]	.075***	.316	−.007	−.021
Mean ages[b]	.008***	.342	.012***	.621
Sample[c]	.066***	.351	−.075*	−.275
Proportion of physically aggressive men[d]	.050	.090	.299***	.274
Multiple R[e]			.52**	
Standard error			1.23	
Q_E[h]			55.29**	
Mean ages			.006**	.262
Proportion of physically aggressive men			.316***	.377
Multiple R[f]			.51***	
Standard error			1.43	
Q_E[h]			90.0***	
Proportion cohabiting			.119***	.533
Proportion of physically aggressive men			.199***	.359
Multiple R[g]			.49***	
Standard error			1.29	
Q_E[h]			106.5***	

Note. Models are weighted least squares simple and multiple regressions with weights being the reciprocal of the variance. The predictors were entered simultaneously in the multiple regression. b_u = unstandardized regression coefficient; b = standardized regression coefficient. Coefficients are positive if in the male direction.
[a] $n = 81$. [b] $n = 56$. [c] $n = 70$. [d] $n = 68$. [e] $n = 35$. [f] $n = 47$. [g] $n = 67$ (unequal sample sizes because of missing values). [h] Significance indicates that the model was not completely specified.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

produced the lower figure of .62, whereas an English study produced the higher value of .83.

Crime surveys from the United States and the United Kingdom, as well as the NVAWS, found higher proportions of victims who were women, but again, there was variability, from .71 to .94 (Table 10). There are demand characteristics that make these surveys likely to be unreliable (see the introductory section, above). For all the sources listed in Table 10, it is impossible to tell the nature of selection process that led to the sample of victims from which the proportions were calculated.

Table 10
Summary of Additional Information on Sublethal Victimization, Indicating the Proportion of Victims of Spousal Violence Who Were Women

Study	Numbers of victims	Proportion who were women	Sample characteristic variables 1	2	3	4
deVries Robbe, March, Vinen, Horner, & Roberts (1996)[b]	140	.71	2	3	3	3
Fyfe, Klinger, & Flavin (1997)	109	.75	1	1	1	1
Goldberg & Tomlanovich (1984)	492	.62	1	3	3	1
Mirrlees-Black, Budd, Partridge, & Mayhew (1998)	816	.71	3	5	1	1
Mirrlees-Black, Mayhew, & Percy (1996)		.65	3	5	1	3
		.77	3	5	1	5
Mollerstrom & Patchner (1992)[c]	895	.72	1	2	2	1
Rachman (1994)		.93	1	4	1	6
Roberts, O'Toole, Raphael, Lawrence, & Ashby (1996)	189	.70	2	3	3	1
Saltzman et al. (1990)[a]	1,633	.75	1	1	1	3
M. D. Schwartz (1987)[d]	1,235	.94	1	4	1	2
S. Smith, Baker, Buchan, & Bodiwala (1992)	297	.83	3	3	3	1
Tjaden & Thoennes (1998)	2,360	.75[e]	1	6	1	4
	837	.87[e]	1	6	3	4

Note. Sample characteristics: Variable 1: country (1 = *United States;* 2 = *Australia;* 3 = *United Kingdom*); Variable 2: source of data (1 = *Police incident reports;* 2 = *Family Advocacy Program of the U.S. Air Force;* 3 = *Accident and emergency department records;* 4 = *U.S. National Crime Survey 1973–1982* or *1987–1991;* 5 = *British Crime Survey 1998* or *1996;* 6 = *National Violence Against Women Survey*); Variable 3: measure (1 = *Assaults or attacks;* 2 = *Referrals for spouse abuse (mostly physical);* 3 = *Injuries*); Variable 4: sample (1 = *Spouses only;* 2 = *Spouse or ex-spouse;* 3 = *Family violence, mainly spouses or ex-spouses but a minority of other relatives;* 4 = *Partner;* 5 = *Partner or ex-partner;* 6 = *Mean from spouse, ex-spouse, and boyfriend/girlfriend).*

[a] In about a quarter of these cases, the victim was not a spouse or ex-spouse.

[b] This study conflated different sorts of family violence, and in about 16% of cases, the abuser was a parent.

[c] In this case, the definition of violence included being afraid of being physically hurt as well as being hurt, although 93% of cases involved physical attack.

[d] Very similar figures were obtained by Gaquin (1977–1978), for an analysis of National Crime Survey figures for 1973–1975.

[e] Based on lifetime figures. For the previous year, the assault rate was more similar (proportion of women among those injured was .59).

Supplementary Analyses of Homicide

Daly and Wilson (1988) have argued that homicide data are more reliable than figures for sublethal assaults because they are less subject to reporting bias. Wilson and Daly (1992b) examined spousal homicide data from large sample U.S. studies carried out between 1976 and 1985 (Maxfield, 1989; Mercy & Saltzman, 1989) and from smaller scale studies from elsewhere in the world. They found that the sex ratio was much nearer to equality for these types of killings in the U.S. than elsewhere. For example, Maxfield's data indicated that for every 100 men who killed their wives, there were 75 women who killed their husbands (the figure is very similar in Mercy & Saltzman's analysis). More women than men killers were found in smaller scale studies located in Detroit and Chicago. This pattern contrasts with findings from Australia, Canada, Britain, and Denmark, where the ratio was between 17 and 40 women killers for every 100 males. In other parts of the world, an even smaller proportion of spousal homicides were perpetrated by women.

Although the higher proportion of wives killing their husbands in the United States is still unexplained (Wilson & Daly, 1992b) and could be specific to homicide, it may be useful to compare the sex ratios found in studies of spousal homicide with those obtained from the present analysis of physical injuries. The figures in Table 1 of Wilson and Daly (1992b) were aggregated across the major geographical groupings (the United States, other Anglo-European nations, and "others," i.e., small samples from Africa and India). Instead of using Wilson and Daly's statistic, the ratio of female to male killers, the proportion of women victims of spousal homicides was calculated, to produce a measure comparable to that used for injuries in Table 5 and sublethal victimization in Table 10. The results of this analysis are shown in Table 11, which also includes some more recent data (Gauthier & Bankston, 1997; Gondolf & Shestakov, 1997) from the United States (for 1988–1992 and 1992) and from Russia for 1991.

In the United States, for the period up to 1989, the overall proportion of female victims was .56, that is, lower than the proportion of those injured who were women when injuries were considered (Table 5). Most of the data was from Maxfield's (1989) large-scale analysis of U.S. homicides from 1976 to 1985, which by itself produced a value of .57. Although smaller scale studies from other U.S. cities produced even lower proportions of those killed who were women,[8] these had little impact on the aggregate proportion figure of .56. This figure shows a marked contrast with values from Canada, Britain, Australia, and Denmark (.79); from Russia in 1991 (.86); and from small-scale studies in other parts of the world (.91). However, the two subsequent sets of U.S. figures (for 1988–1992 and 1992) provide conflicting findings: The larger scale analysis of homicides in 191 U.S. cities indicated a value a little higher than Wilson and Daly's (1992b) aggregate (.62 vs. .56). The analysis of the single year 1992 produced the higher figure of .70, which is much higher than in any of the individual U.S. studies reviewed by Wilson and Daly. To summarize, in all large-scale studies, spousal homicide figures show that the majority of the killers are men, but the proportion varies considerably

[8] For example, .49 for Chicago, .46 and .33 for Detroit, .42 for Houston, and .53 for Philadelphia.

Table 11
Numbers of Men and Women Killed by Their Spouses and the Proportion of Those Killed Who Were Female

Location of sample	*N* men	*N* women	Proportion of women killed
United States 1948–1989	8,942	11,532	.56
Other Anglo-European nations	622	2,291	.79
Africa and India	10	104	.91
Russia 1991	340	2,060	.86
United States 1992	623	1,432	.70
United States 1988–1992	1,351	2,178	.62

Note. The first three data sets are from Table 1 of Wilson and Daly (1992b) and have been aggregated within the three major groupings shown in that table—the US, other Anglo-European nations, and others (Africa and India); the next two data sets are from Table 1 of Gondolf and Shestakov (1997). Those for the Russian sample sizes are approximate. The last data set is from Gauthier and Bankston (1997).

(from .56 to .86). The lower value indicates the substantial number of female killers found in the United States up to the late 1980s.

Discussion

Sex Differences in Physical Aggression and Violence to Partners

When measures were based on specific acts, women were significantly more likely than men to have used physical aggression toward their partners and to have used it more frequently, although the effect size was very small ($d = -.05$). When measures were based on the physical consequences of aggression (visible injuries or injuries requiring medical treatment), men were more likely than women to have injured their partners, but again, effect sizes were relatively small ($d = .15$ and .08).

These findings broadly support the view (see the introductory section, above) that measures based on acts and consequences produce different results (see, e.g., R. P. Dobash et al., 1992; Nazroo, 1995). Analysis of a subgroup of studies deriving both measures from the same samples also supported this conclusion, with the effect size being significantly higher in the male direction for inflicting visible injuries than for acts of physical aggression. Nazroo (1995) found a similar difference in direction for sex differences derived from act-based measures and from categories defined in terms of meaning, such as *undefendable*, *intimidating*, and *injurious* aggression (i.e., aggression from which partners could not defend themselves, that which was used to frighten, and that which had a high probability of causing injury, respectively). Another category was *dangerous* (undefendable aggression that was either intimidating or injurious). Act-based measures showed an effect size in the female direction ($g = -.36$; confidence interval [CI] -.64/-.07), whereas meaning-based measures were all more common among men than women (undefendable: $g = .47$, CI .18/.76; intimidating: $g = .30$, CI .02/.59; injurious: $g = .17$, CI $-.11$/.46; dangerous: $g = .41$, CI .12/.69).

There was also support for the view that different findings were associated with different types of sample (M. P. Johnson, 1995). The two small-scale studies that obtained CTS measures from women's refuges (Giles-Sims, 1983; Pease, 1996, Study 1) produced very high effect sizes in the male direction, the composite of which was substantially and significantly higher than for other samples. Giles-Sims's study produced g values exceeding 1.0 for a number of items, with a value of around 2.0 for *beat up* (Archer, 2000). These values are not the consequence of total passivity by the women. Rather, they result from very high levels of male physical aggression and some physical aggression by the women. Therefore, they cannot be attributed to refuge women defining their spouses as the sole aggressors on entering the refuge. Pease compared the refuge sample with homeless women, and found similar frequencies of self-reported CTS acts over the past year but vastly different levels attributed to their male partners.

There is a source of bias associated with refuge figures. The two studies obtained data for both partners from the women, so that partner reports for the men are being compared with self-reports for the women. A meta-analysis of reporting agreements (Archer, 1999) found that self-reports tend to be lower than partner reports. This would produce lower values for the women (self) and higher values for men (partners), that is, it would inflate the effect size in the male direction. A study of couples referred to a treatment program for assaultive husbands (Browning & Dutton, 1986) also yielded very high effect sizes ($g = .89$ for self- and 1.28 for partner reports). Again, the figures show that wives admitted to physical aggression, albeit at a much lower level than that of their husbands. This study provided data for both sexes from self- and partner reports. An effect size computed from the wife's ratings (for self and partner) showed a value of $g = 1.78$, larger than those from either self- or partner reports, supporting the view that effect sizes derived from women's refuge samples are likely to be inflated.

These limited findings are consistent with M. P. Johnson's (1995) view that physical aggression is generally mutual in community samples, whereas it is much more in the male direction in samples selected for severe victimization. Nevertheless, the finding that two opposing conclusions can be drawn from different measures in the same sample or samples strongly indicates that this cannot be the only explanation. Thus, although the CTS is sensitive to high frequencies and severities of acts of violence by men to women, this occurs despite its not taking into consideration consequences and meaning (R. P. Dobash et al., 1992; Dutton, 1994; Nazroo, 1995; Rhodes, 1992; Romkens, 1997).

It has often been claimed that the reason CTS studies have found as many women as men to be physically aggressive is because women are defending themselves against attack. A number of studies have addressed this issue and found that when asked, more women than men report initiating an attack (Bland & Orn, 1986; DeMaris, 1992; Gryl & Bird, 1989, cited in Straus, 1997) or that the proportions are equivalent in the two sexes (Straus, 1997). Two large-scale studies found that a substantial proportion of both women and men reported using physical aggression when the partner did not (Brush, 1990; Straus & Gelles, 1988b). This evidence does not support the view that the CTS is only measuring women's self-defense.

Qualifications

Some qualifications need to be made about the database underlying these conclusions. The first concerns the discrepancy between d values derived from self- and from partner reports. A mean weighted d value near to zero was derived from recipients of

aggression (partners), whereas aggressors' (self-)reports produced an effect size in the female direction, albeit a very small one. Separate meta-analyses (Archer, 1999) indicated systematic underreporting by perpetrators of both sexes, which is greater for men than for women. However, for deciding whether physical aggression in relationships is mutual or is only perpetrated by men, these discrepancies do not matter: The lower value still indicates a similar rate of physical aggression for women and men.

A second qualification concerns the findings for inflicting injuries. The effect sizes (in the male direction) were not large. Because this may have arisen from injuries being infrequent for both sexes, another statistic, the proportion of women among those injured, was calculated. This confirmed that the majority of those injured were women, but the values of .62 and .65 indicated that a substantial minority of men were injured by a partner. It is therefore not the case (cf. Pagelow, 1984) that women's violence toward men severe enough to cause physical injury is negligible or nonexistent.

A third qualification concerns the data used for the meta-analyses. The act-based measures were derived from a larger sample of studies nearly all of which were undertaken in the United States, many involving college or high school students in dating relationships. As Table 2 indicates, there are practically no studies comparing men's and women's physical aggression toward their partners outside industrial western democracies where the impact of feminism is strongest. The conclusions drawn here may not apply in countries with substantially different cultures. This issue is discussed in a later section.

Victimization

Supplementary evidence not suitable for meta-analysis was also reviewed. Reports of spousal violence from police and armed forces records and several studies of accident and emergency departments in different countries indicated agreement with the findings from the analysis of injuries, in that women were the most common victims, but a substantial minority of men were also injured by their partners.

As outlined in the introductory section, there were problems with the selection criteria in the additional data sources. This was particularly the case for large sample crime surveys, which involved several crucial methodological differences from other sources of evidence on spousal aggression. Criminal acts were emphasized in the survey interview, data were collected in the presence of both partners (Straus, 1997, 1999), and assaults by ex-spouses after separation were included. All three would be expected to reduce greatly the number of reported aggressive incidents (Mihalic & Elliott, 1997; Straus, 1997), particularly those involving a current partner. The first and the third might well bias the findings toward greater female victimization: Men may be more reluctant to label a physically aggressive act by a woman partner as a criminal assault, and there is a much higher female victimization rate following separation and divorce (Gaquin, 1977–1978; Wilson & Daly, 1993).

Analyses of NCS and NCVS data (Gaquin, 1977–1978; Rachman, 1994; M. D. Schwartz, 1987) showed higher female victimization rates than is found in other sources. It is therefore reasonable to assume that their figures are misleading. Other crime surveys show figures nearer to injury data but with a higher proportion of women among the victims (.70 to .75). However, the overall infrequent nature of the assaults recorded in these studies indicates that they have only located a fraction of the incidents picked up by other studies. This was confirmed by Mihalic and Elliott (1997) who found that partner victimization was substantially reduced when figures were derived from an interview about criminal assaults compared with one about relationships (see the introductory section, above).

The evidence from spousal homicides was more difficult to interpret. Figures from the United States up to 1989 showed a higher proportion of male victims than was found in the meta-analyses of injuries. The overall proportion of homicide victims who were women was .56, compared with .64 for sublethal injuries. More recent data produced slightly higher proportions, more in line with sublethal injuries. Wilson and Daly (1992b) argued that the relatively large proportion of women perpetrators of spousal homicides in the United States must be due to influences specific to that country and that the background to spousal homicides is typically very different for the two sexes.

Their first point was well supported by the cross-national data they reviewed (see Results, above). Wilson and Daly (1992a, 1992b, 1993) argued that men's homicides arose from proprietary motives, often as a result of infidelity or abandonment, or situations perceived as likely to lead to these, whereas women's were responses to a prolonged pattern of abuse by their husbands and were motivated by fear, a view shared by others (e.g., Browne, 1987; R. E. Dobash & Dobash, 1977–1978; Mercy & Saltzman, 1989). This is supported by several U.S. studies of the motives behind spousal homicides (Cazenave & Zahn, 1992; Felson & Messner, 1998; Rosenfeld, 1997; P. H. Smith, Moracco, & Butts, 1998). For example, Felson and Messner (1998) analyzed murder cases in 33 large urban areas in the United States and found that among those involving heterosexual couples, self-defense or victim physical attack accounted for 56% of female perpetrators and 12% of male perpetrators. Further analysis showed this pattern to be part of a general characteristic of women homicide offenders rather than being specific to women who killed male partners. These findings indicate that more women than men perpetrators are responding to being victims of violence, but they do not show that all women perpetrators are doing so. In a smaller scale study, P. H. Smith et al. (1998) found that in nearly all cases where the background to a spousal homicide could be established, there had been habitual male aggression. This important issue merits further investigation.

The reason for the high proportion of wives killing their husbands in the United States is still unexplained, although Wilson and Daly (1992b) tentatively offered three possible explanations: high rates of male coercion producing a more drastic female response, greater ability of women to retaliate where there are matrilineal kinship networks, and defense of children from previous and current unions. Each is based on some research evidence but requires further testing.

One question raised by comparing sublethal injury and homicide data is whether the higher than expected proportion of men who are injured is also restricted to the United States. The single study of injuries from outside the United States (Nazroo, 1995) suggests that it is not, but the sample of injuries in that study was small. Further evidence is needed from other countries to resolve this issue. The view that most cases of women killing their husbands

are motivated by fear would not lead one to predict a high proportion of male victims of sublethal assault because fear motivates extreme acts of violence associated with homicide.

Moderators of the Effect Size

Analyses of moderators of effect sizes were limited by the study characteristics. Most investigations were from the United States and involved the CTS. Age was concentrated around young adulthood through the frequent use of student samples, and in other cases, a wide age range precluded its investigation. Age, type of sample, and cohabiting status were linked together.

Straus (1997) claimed that several data sets finding high rates of female aggression toward partners had been deliberately suppressed in the earlier years of this research. In the present study, effect sizes from unpublished sources were higher in the female direction than those from published sources. There was a smaller trend for higher effect sizes in the female direction to be associated with a male rather than a female first author. It is difficult to say whether these patterns indicate hidden publication bias. Findings that are in the female direction have been published many times since the early 1980s, often by women investigators. The present differences could easily be due to a confounding variable, such as the greater prevalence of student samples among unpublished studies, which in this case included mainly dissertations.

The limited data from other western nations indicate that the pattern of more women than men showing physical aggression was not restricted to the United States. Indeed, the effect size was significantly higher for three other western nations than for the United States. The single study from Korea (Kim & Cho, 1992; see Appendix) showed a moderate g value in the male direction. Further studies from nonwestern cultures are required to establish whether the higher female frequency is restricted to developed western societies (see the section on cultural context, below).

Comparing samples that were older or younger than 22 years of age showed an effect size in the male direction for the older ages and in the female direction for the younger ones. A comparable difference was found for married (or cohabiting) versus single samples. Similarly, the d values from community samples were more in the male direction than those from student samples (Table 6). These differences indicate an effect size in the female direction for younger, dating, student samples and in the male direction or no sex difference for older, married (or cohabiting), and community samples. All three variables are of course closely linked in the present data sources.

As indicated above, two studies involving refuge samples yielded very high effect sizes in the male direction. Aggregating seven studies of couples undergoing treatment or counseling for marital difficulties, including the husband being assaultive, the husband being alcoholic, and marital violence, yielded a low overall d value in the male direction. This value was significantly lower than in the refuge samples, and it suggests that these samples did not involve the imbalance in physical aggression apparent from refuge data.

Test of the Continuous Model

It was suggested that effect sizes in the female direction are predicted by a combination of two related sets of influences: first, relationships where women perceive greater control and view physical aggression as less risky owing to a lack of retaliation, notably ones from younger, dating, student samples; and second, relationships that involve a lower incidence of partner physical aggression by men, again where women perceive greater control but also where men's attitudes lead them to inhibit physical aggression.

Using unweighted values, younger mean ages, dating rather than cohabiting, a student rather than a community sample, and a low proportion of physically aggressive males (but not females), all correlated with effect sizes in the female direction. The weighted multiple regression was complicated by the high correlations between age, the proportion cohabiting, and sample, so that a model involving one of these variables (either age or proportion cohabiting) together with the proportion of physically aggressive males was regarded as most appropriate. In both cases, the two variables together accounted for a considerable proportion of the variance in the effect size for sex differences (multiple R = .49 and .51), although the significant Q_E value indicates that there was statistically reliable unexplained variance. Thus, the impact of these two variables on the direction and magnitude of the effect size is consistent with the hypothesis outlined at the beginning of this section.

Cohabiting and married relationships were combined in this analysis to represent a variable that reflects greater degree of length and commitment to the relationship. Previous studies based on the National Violence Surveys (Straus, 1977–1978; Straus & Gelles, 1988a) found higher frequencies of physical aggression among cohabiting than married samples (Yllo & Straus, 1981; Stets, 1991a; Stets & Straus, 1989). However, when social and demographic factors, such as age, race, and social ties with groups and organizations, were taken into account, this difference disappeared (Stets, 1991a).

Norms About Physical Aggression to Partners

R. E. Dobash and Dobash (1977–1978, 1980), as well as other feminist commentators, have emphasized the long history of acceptance and encouragement of wife-beating, stemming from patriarchal values, whose legacy is with us today. Accordingly, contemporary men who injure their spouses are viewed as having internalized these values and as having a need to control their wives' activities, by force if necessary. According to M. P. Johnson (1995), this analysis omits the many instances when either member of a couple loses control in a heated argument and lashes out physically. Men's greater physical size and strength would account for the greater proportion of injuries sustained by women. According to this view, only a minority of men aggress physically as a result of internalized patriarchal values.

In modern western societies such as the United States, there is a second set of values relevant to physical aggression by men toward their partners. These involve the belief that men should restrain themselves from physically aggressing toward women. It represents a social norm existing side by side with the patriarchal belief that men were entitled to control their wives' behavior. A number of studies have found that both sexes view acts of physical aggression toward a partner more negatively when the aggressor is a man (Arias & Johnson, 1989; Ayers, 1992; Bethke & DeJoy,

1993; M. B. Harris, 1994; R. J. Harris & Cook, 1994; Koski & Mangold, 1988; Straus, Kantor, & Moore, 1997).

Other studies indicate that men's acceptance of physical aggression toward women is a predictor of wife assault. For example, M. D. Smith (1991) found that women who reported that their husbands had physically aggressed toward them were also likely to say that their husbands' male friends approved of men "slapping" their wives. A limited meta-analysis by Sugarman and Frankel (1996) found that more positive attitudes to the use of violence were a strong predictor of men's spousal assault, more so than were gender attitudes and schema.

Although, in the present analysis, the rates of men's and women's aggression in the same sample were highly correlated, it was only the rate of male physical aggression—along with age and the proportion married—that predicted the effect size for the sex difference: A lower level of male aggression predicted a difference in the female direction. A study of women college students who said they had initiated partner assaults (Fiebert & Gonzalez, 1997; see the introductory section, above) found that many of these felt no fear of retaliation or said that men could easily defend themselves so that the women's physical aggression did not matter. Miller and Simpson (1991) also found that students of both sexes tended to trivialize females' physical aggression, and men perceived greater risks of sanctions for physical aggression to a partner than women did. It seems likely that a strong norm of men not hitting women enables women to engage in physical aggression that might not otherwise have occurred. This would, of course, have to operate alongside an overall tendency for men's and women's aggression to be reciprocal, as a consequence of the loss of control identified by M. P. Johnson (1995).

The Cultural Context of Studies Involving Physical Aggression Between Partners

A considerable limitation of the current database is that the large majority of studies have been carried out in the United States and most others in culturally similar western nations. The generality of the conclusions must therefore be qualified by the geographical location and culture involved. Cultural and historical analyses (R. E. Dobash & Dobash, 1980) have indicated widespread encouragement of men hitting their wives, associated with patriarchal values. It was argued that the impact of these values is diminished in modern U.S. samples, owing to a norm involving disapproval of men hitting women. Although this is likely to have resulted mainly from contemporary awareness of violence against women as a social problem, it is probably not exclusively modern in origin (see, e.g., Peterson, 1992).

There is little evidence from other cultures, but what there is indicates pronounced differences in the acceptance of the two sets of values relating to violence toward women partners. Schlegal (1972) surveyed 45 matrilineal societies and found that the majority (34) showed tolerance of extreme violence by a husband toward his wife. There is evidence for similar tolerance in a diverse sample from rural Papua New Guinea (Morley, 1994) and from a small urban Australian aboriginal population (Kahn & The Behavioral Health Technician Staff, 1980).

Cross-cultural surveys of the incidence of marital violence tend to concentrate on the more serious forms of violent acts. There are very few studies of community samples comparable with those carried out in western cultures. Where these have been undertaken—by Efoghe (1989) in Nigeria (see Footnote 6) and Kim and Cho (1992) in Korea—effect sizes in the male direction were found (see Appendix). Kumagai and Straus (1983) used children's reports of parents' physical aggression and found higher male than female frequencies in both Japanese and Indian samples but no appreciable difference in a U.S. sample (Japan: g = .19; India: g = .16; United States: g = .02; from means and standard deviations).

Using severity of impact as a criterion, Levinson (1989) studied 90 representative societies from the Human Relations Area Files and found that serious assaults by husbands on their wives were widespread. Other studies, from East and Central Africa and from Papua New Guinea (Morley, 1994; Mushanga, 1977–1978), have found that a high proportion of men hit their wives, although there were no figures for women hitting men in these studies. Kahn and the Behavioral Health Technician Staff (1980) reported that wife-battering was a routine occurrence for women in a northern Australian aboriginal community. A study from Bangladesh (Schuler, Hashemi, Riley, & Akhter, 1996) found that between 19% and 38% of women respondents had been beaten by their husbands during the previous year. Severe violence and homicide by husbands toward their wives is associated with the dowry system in Bangladesh and India (Shamim, 1992).

These scattered reports suggest that men's physical aggression toward their partners may be much greater, and women's may be greatly curtailed, where traditions inhibiting men from hitting women are absent and where patriarchal values are foremost. It is therefore important to locate future investigations in different cultural traditions to test the generalizations obtained from the mainly western samples used so far and also to assess the relative strengths of the two sets of values concerning men's assaults on women.

Implications for Explanations

Aggression results from conflict, and analyses of the conflict behind partner aggression have ranged from consideration of proximal influences such as individual characteristics of the perpetrators (see, e.g., Holtzworth-Munroe & Stuart, 1994) or the frustrations relationships involve (see, e.g. Frude, 1994; M. P. Johnson, 1995) to the long-term historical background, notably, patriarchy (R. E. Dobash & Dobash, 1980) and the ultimate evolutionary conflict of interests between male and female reproductive strategies (Smuts, 1992). The last two have been synthesized in the argument that patriarchy arose from male attempts to control the reproductive choices of females (Hrdy, 1997; Smuts, 1995). Overt aggression would result from cases where the perceived effectiveness of this power is challenged.

Such single-factor explanations have been criticized by Dutton (1994, 1995) as being unable to account for individual variations in assaultive behavior. Instead, he proposed a nested ecological theory, in which there is an interaction between different levels from the macrosystem (i.e., broader culture) through the family to the individual. Obviously, emphasis on a single level, such as patriarchal values or the ultimate reproductive conflict of interest, can provide only the first step in such an analysis. However, they provide an important first step because they indicate the expected overall pattern of physical aggression among men and women.

However, as Dutton (1994) indicated, they do not inform us why some men and not others are assaultive toward their wives. Nor do they account for women's physical aggression toward their husbands.

One may ask whether it is possible to explain the considerable number of women using physical aggression toward their partners from the background of coercive male power, which is crucial to both feminist and evolutionary explanations. It is certainly a finding that is predicted by neither approach and at first sight is more consistent with gender-free explanations emphasizing individual differences and relationship problems (Berkowitz, 1993; Dutton, 1994, 1995; George, 1994; M. P. Johnson, 1995). However, as indicated above, women's aggression can be explained in terms of two sets of beliefs about how men should treat their wives or partners. In western nations, there will be a greater impact of the norm of disapproval of men's physical aggression toward women and a lesser impact of patriarchal values. The pattern of physical aggression observed will be more influenced by individual and relationship variables and less by patriarchal power.

This perspective would predict greater male than female physical aggression wherever there is the unhindered influence of patriarchal values. Ultimately, this is a consequence of the reproductive conflict of interests between the sexes, and it represents a form of default value that should be expected whenever men are able to control the reproductive interests of women. There will be a number of circumstances in which this pattern is overridden, with the result that female aggression increases. One is where there are modern secular liberal values together with economic and familial emancipation of women: Most of the studies finding frequent female physical aggression were located in such conditions. These values will have greatest impact in a relationship that can be ended by the woman at little cost and where the rate of male aggression is low. These may represent specific instances of a more general set of circumstances entailing a relative change in the balance of power between men and women.

Cross-culturally, these circumstances will occur when women are not subject to the coercive power of their husbands' families, they have allies, and they are economically independent of men. The ethnographic record fits this analysis by indicating that aggression by men toward women (in both its sexual and physically injurious forms) is more common when female alliances are weak and where women lack the support of natal kin (see, e.g., Glazer, 1992; Kuschel, 1992; Schuster, 1983, 1985). It is accentuated by stronger male alliances, where women are dependent on men for resources (see, e.g., Glazer, 1992; Hines & Fry, 1994; Schuler et al., 1996), and where there are pronounced inequalities between men, so that a few powerful men can control women's sexuality.

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(Appendix follows)

Appendix

Studies Used in the Meta-Analyses, Together With Study Characteristics, and Effect Sizes for Sex Differences in Measures of Physical Aggression Toward Spouses or Nonmarital Partners, and Its Consequences, Calculated From the Authors' Data

Study	N[a]	Pw[b]	Age[c]	Pmar[d]	Male[e]	g	Sample characteristic variables											
							1	2	3	4	5	6	7	8	9	10	11	12
Archer & Ray (1989)	23/23	.50	22	0	.65	−.74	1	1	3	2	2	2	1	1	1	1	1	1
						−.35	1	1	3	2	2	2	1	1	2	1	1	1
						−.68	1	1	3	2	2	2	2	2	1	4	1	1
						−.32	1	1	3	2	2	2	2	3	2	4	1	1
Arias & Beach (1987)	82/90	.52	37	1.0	.34	−.15	1	1	1	4	3	1	1	1	1	1	2	2
						0	1	1	1	4	3	1	1	1	2	1	2	2
Arias & Johnson (1989)	103/99	.49	20	0	.20	.15	1	1	1	2	2	2	1	1	1	1	1	2
						0	1	1	1	2	2	2	1	1	2	1	1	2
						−.03	1	1	1	2	2	2	1	1	1	1	4	2
						−.04	1	1	1	2	2	2	1	1	2	1	4	2
Arias, Samios, & O'Leary (1987)	95/175	.65	18	0	.30	−.04	1	1	1	1	2	2	1	1	1	1	1	2
						−.50	1	1	1	1	2	2	1	1	2	1	1	2
						0	1	1	1	1	2	2	1	3	1	1	1	2
						−.70	1	1	1	1	2	2	1	3	2	1	1	2
						−.39	1	1	1	1	2	2	1	1	1	1	3	2
						−.24	1	1	1	1	2	2	1	1	2	1	3	2
						−.25	1	1	1	1	2	2	1	3	1	1	3	2
						−.55	1	1	1	1	2	2	1	3	2	1	3	2
M. L. Bernard & Bernard (1983)	168/293	.64	99	0	.30	−.14	1	3	1	9	2	2	1	1	1	1	3	9
						.26	1	3	1	9	2	2	1	1	2	1	3	9
Billingham & Notebaert (1993)	456/834	.65	99	0	9	−.08	1	1	1	2	2	2	2	1	1	5	5	1
	448/831	.65				−.08	1	1	1	2	2	2	2	1	2	5	5	1
Billingham & Sack (1986)	167/359	.68	21	0	.25	−.16	1	1	1	2	2	2	1	1	1	1	1	1
						−.01	1	1	1	2	2	2	1	1	2	1	1	1
Billingham & Sack (1987)	232/458	.66	21	.06	9	.04	1	1	1	2	2	2	2	1	1	3	3	1
						.12	1	1	1	2	2	2	2	1	2	3	3	1
Bland & Orn (1986)	355/616	.63	99	.54	.15	−.20	1	5	2	9	3	1	1	2	1	1	3	1
Bohannon, Dosser, & Lindley (1995)	94/94	.50	29	1.0	.40	.21	1	1	1	3	3	1	1	1	1	1	2	2
						−.13	1	1	1	3	3	1	1	1	2	1	2	2
Bookwala, Frieze, Smith, & Ryan (1992)	78/227	.74	99	0	.55	−.08	1	1	1	2	2	2	1	1	1	1	1	2
						−.13	1	1	1	2	2	2	1	1	2	1	1	2
Breen (1985)	260/323	.55	20	0	.99	−.27	3	4	1	2	2	2	1	1	2	1	1	2
					.93	−.11	3	4	1	2	2	2	1	3	2	1	1	2
						−.07	3	9	1	2	2	2	1	4	2	1	1	2
						−.16	3	9	1	2	2	2	1	5	2	1	1	2
Brennan (1990)	23/23	.50	21	0	.43	0	4	1	3	2	2	2	2	1	1	4	1	2
						.36	4	1	3	2	2	2	2	1	2	4	1	2
Breslin, Riggs, O'Leary, & Arias (1990)[h]	125/280	.69	19	0	.18	−.33	1	1	1	2	2	2	1	1	1	1	2	1
Brinkerhoff & Lupri (1988)	562/562	.50	99	1.0	.25	−.07	1	1	2	9	3	1	1	1	1	1	2	1
						−.17	1	1	2	9	3	1	1	3	1	1	2	1
Browning & Dutton (1986)	30/30	.50	34	1.0	1.0	.89	1	1	2	4	6	1	2	1	1	5	2	1
						1.28	1	1	2	4	6	1	2	1	2	5	2	1
Brush (1990)	5,474/5,474	.50	99	1.0	9	.11	1	6	1	9	3	1	1	4	2	1	1	2
Brutz & Ingoldsby (1984)/Brutz & Allen (1986)	130/155	.54	99	1.0	.15	−.02	1	1	1	9	5	1	1	2	1	1	2	2
Burke, Stets, & Pirog-Good (1988)	207/298	.59	99	0	.14	−.11	1	1	1	9	2	2	1	1	1	1	2	1
						.13	1	1	1	9	2	2	1	1	2	1	2	1
						−.11	1	1	1	9	2	2	2	1	1	5	2	1
						.01	1	1	1	9	2	2	2	1	2	5	2	1
Cantos, Neidig, & O'Leary (1994)	180/180	.50	25	1.0	.91	.16	1	1	1	3	6	1	1	1	3	1	1	1
						.70	1	9	1	3	6	1	1	4	2	1	1	1
						.53	1	9	1	3	6	1	1	5	2	1	1	1
Capaldi & Crosby (1997)	118/118	.50	19	.30	.21	−.12	1	7	1	1	3	2	1	1	1	1	1	2
						−.05	1	7	1	1	3	2	1	1	2	1	1	2

Appendix (*continued*)

Study	N[a]	Pw[b]	Age[c]	Pmar[d]	Male[e]	g	Sample characteristic variables											
							1	2	3	4	5	6	7	8	9	10	11	12
						−.23	1	7	1	1	3	2	2	1	1	5	1	2
						.06	1	7	1	1	3	2	2	1	2	5	1	2
						−.32	1	7	1	1	3	2	2	1	5	5	1	2
Carrado, George, Loxam, Jones, & Templar (1996)	707/774	.52	99	1.0	.11	−.25	1	1	3	9	3	1	1	1	2	1	1	2
	894/971	.52	99	1.0	.18	−.05	1	1	3	9	3	1	1	1	1	1	3	2
						−.11	1	1	3	9	3	1	1	1	2	1	3	2
Cascardi, Langhinrichsen, & Vivian (1992)	93/93	.50	37	1.0	.55	.19	1	1	1	4	6	1	1	1	1	1	2	2
						−.04	1	1	1	4	6	1	1	1	2	1	2	2
						.18	1	9	1	4	6	1	1	4	2	1	2	2
						.42	1	9	1	4	6	1	1	5	2	1	2	2
Cate, Henton, Koval, Christopher, & Lloyd (1982)	355/355	.50	20	0	.17	−.07	1	1	1	2	2	2	1	1	3	1	3	1
Clark, Beckett, Wells, & Dungee-Anderson (1994)	76/235	.76	20	0	.35	−.24	1	1	1	2	2	2	1	1	1	1	2	2
						−.17	1	1	1	2	2	2	1	1	2	1	2	2
						−.26	1	1	1	2	2	2	2	1	1	5	2	2
						−.26	1	1	1	2	2	2	2	1	2	5	2	2
Deal & Wampler (1986)	109/287	.72	20	0	.23	−.05	1	1	1	2	2	2	1	1	1	1	1	1
						−.22	1	1	1	2	2	2	1	1	2	1	1	1
DeMaris (1987)	207/277	.57	20	0	.24	−.17	1	1	1	2	2	2	1	1	1	1	1	1
						−.14	1	1	1	2	2	2	1	1	2	1	1	1
Efoghe (1989)[g]	150/150	.50	99	1.0	9	.23	1	8	4	9	3	1	2	1	1	3	1	9
Follette & Alexander (1992)	100/100	.50	22	0	9	−.23	1	1	1	2	2	2	2	1	1	5	1	2
						−.26	1	1	1	2	2	2	2	1	2	5	1	2
Follingstad, Wright, Lloyd, & Sebastian (1991)	207/288	.58	20	0	.28	−.24	1	1	1	2	2	2	1	1	1	1	3	2
						.30	1	1	1	2	2	2	1	1	2	1	3	2
Foo & Margolin (1995)	111/179	.62	19	0	.24	−.30	1	1	1	2	2	2	1	1	1	1	9	2
Foshee (1996)	686/694	.50	14	0	.37	−.32	1	3	1	1	1	2	1	1	1	1	3	2
	700/698					−.06	1	3	1	1	1	2	1	1	2	1	3	2
	686/694					−.16	1	3	1	1	1	2	2	1	1	4	3	2
	686/694					.07	1	3	1	1	1	2	2	1	2	4	3	2
	686/694					−.40	1	3	1	1	1	2	2	1	1	1	3	2
	686/694					−.26	1	3	1	1	1	2	1	3	1	1	3	2
	700/698					−.09	1	3	1	1	1	2	1	2	2	1	3	2
	700/698					.02	1	3	1	1	1	2	1	3	2	1	3	2
	700/698					.01	1	9	1	1	1	2	1	4	2	1	3	2
	700/698					−.01	1	9	1	1	1	2	1	5	2	1	3	2
Gagne & Lavoie (1995)	56/45	.45	16	0	.16	−.60	1	1	2	1	1	2	1	1	1	1	2	2
						−.10	1	1	2	1	1	2	1	1	2	1	2	2
						−.66	1	1	2	1	1	2	1	2	1	1	2	2
						−.23	1	1	2	1	1	2	1	2	2	1	2	2
						−.53	1	1	2	1	1	2	1	3	1	1	2	2
						.04	1	1	2	1	1	2	1	3	2	1	2	2
Gelles (1972)	80/80	.50	36	.78	.47	.31	2	2	1	4	3	1	1	1	3	1	1	1
Giles-Sims (1983)	30/31	.51	31	1.0	1.0	.74	2	1	1	4	4	1	1	1	5	1	2	2
						1.02	2	1	1	4	4	1	1	3	5	1	5	2
Greening (1996)	80/80	.50	32	1.0	1.0	−.73	3	1	1	4	6	1	2	1	1	5	2	2
						−.10	3	1	1	4	6	1	2	1	2	5	2	2
Gryl, Stith, & Bird (1991)	124/156	.56	19	0	.28	−.14	1	1	1	2	2	2	1	1	1	1	1	2
						−.24	1	1	1	2	2	2	1	1	2	1	1	2
Henton, Cate, Koval, Lloyd, & Christopher (1983)	351/293	.45	17	0	.20	−.11	1	1	1	1	1	2	1	1	1	1	3	2
						−.02	1	1	1	1	1	2	1	1	2	1	3	2
Howell (1993)	84/188	.69	21	0	.29	−.30	3	1	1	2	2	2	1	1	1	1	2	1
						−.27	3	1	1	2	2	2	1	1	2	1	2	1
Irwin (1980)	55/70	.56	99	.82	9	−.27	3	1	1	9	3	1	2	1	1	4	1	2
						.17	3	1	1	9	3	1	2	1	2	4	1	2
						.05	3	9	1	9	3	1	1	4	1	1	1	2
						.38	3	9	1	9	3	1	1	4	2	1	1	2
Jacobson, Gottman, Gortner, Berns, & Shortt (1996): 1	28/28	.50	35	1.0	1.0	.03	1	1	1	4	9	1	2	1	1	5	1	1

(*Appendix continues*)

Appendix (*continued*)

Study	N^a	Pw[b]	Age[c]	Pmar[d]	Male[e]	g	Sample characteristic variables											
							1	2	3	4	5	6	7	8	9	10	11	12
						−.73	1	1	1	4	9	1	2	1	2	5	1	1
Jacobson et al. (1996): 2	17/17	.50	35	0	1.0	−.01	1	1	1	4	9	2	2	1	1	5	1	1
						−.06	1	1	1	4	9	2	2	1	2	5	1	1
Jezl, Molidor, & Wright (1996)	114/118	.51	99	0	.51	−.34	1	1	1	1	1	2	1	1	2	1	3	1
						−.50	1	1	1	1	1	2	1	2	2	1	3	1
						−.17	1	1	1	1	1	2	1	3	2	1	3	1
						−.19	1	1	1	1	1	2	2	3	2	4	3	1
Kim & Cho (1992)	609/707	.54	99	1.0	.38	.31	1	1	5	9	3	1	1	1	2	1	2	9
						.32	1	1	5	9	3	1	1	3	2	1	2	9
Lagrande (1990)	12/11	.48	31	1.0	1.0	−.29	3	1	1	4	6	1	2	1	1	5	1	2
						.81	3	1	1	4	6	1	2	1	2	5	1	2
Laner (1985)	138/271	.66	99	0	9	.09	1	9	1	9	2	2	1	5	2	1	1	2
Laner (1986)	93/75	.45	99	0	.11	.02	1	3	1	9	2	2	1	1	2	1	1	2
Langhinrichsen-Rohling, Neidig, & Thorn (1995)	199/199	.50	25	1.0	.95	.31	1	1	1	3	6	1	1	1	3	1	2	2
						.37	1	1	1	3	6	1	1	3	3	1	2	2
						.67	1	9	1	3	6	1	1	4	2	1	2	2
						.48	1	9	1	3	6	1	1	5	2	1	2	2
Langhinrichsen-Rohling & Vivian (1994)	97/97	.50	36	1.0	.61	−.11	1	1	1	4	6	1	2	1	1	5	2	2
						.08	1	1	1	4	6	1	2	1	2	5	2	2
Lejeune & Follette (1994)	271/194	.42	22	0	9	−.37	1	1	1	2	2	2	2	1	1	5	1	1
						−.10	1	1	1	2	2	2	2	1	2	5	1	1
Lockhart & White (1989)	155/155	.50	36	1.0	.36	.15	1	1	1	4	3	1	1	1	5	1	1	2
Magdol et al. (1997)	436/425	.49	21	.29	.27	−.34	1	1	6	2	3	2	1	1	1	1	2	2
	435/425					−.15	1	1	6	2	3	2	1	1	2	1	2	2
	436/425					−.31	1	1	6	2	3	2	1	2	1	1	2	2
						−.40	1	1	6	2	3	2	1	3	1	1	2	2
	435/425					−.13	1	1	6	2	3	2	1	2	2	1	2	2
						−.23	1	1	6	2	3	2	1	3	2	1	2	2
Maisel (1991)	82/82	.50	38	1.0	9	−.11	3	1	1	5	3	1	2	1	1	5	2	1
						−.17	3	1	1	5	3	1	2	1	2	5	2	1
Makepeace (1983)	97/146	.60	99	0	.14	.14	1	1	1	9	2	2	1	1	1	1	2	1
						.21	1	1	1	9	2	2	1	3	1	1	2	1
						.13	1	1	1	9	2	2	1	3	2	1	2	1
Makepeace (1986)	1,059/1,279	.55	22	0	9	.32	1	9	1	9	2	2	1	4	2	1	3	1
Margolin (1987)	103/103	.50	99	1.0	.34	.17	1	1	1	9	3	1	1	1	1	1	2	2
						.06	1	1	1	9	3	1	1	1	2	1	2	2
						−.25	1	1	1	9	3	1	1	3	1	1	2	2
						−.20	1	1	1	9	3	1	1	3	2	1	2	2
Marshall (1987a): 1	34/44	.56	99	1.0	.53	−.26	4	1	1	9	2	1	1	1	1	1	1	2
						−.21	4	1	1	9	2	1	1	1	2	1	1	2
Marshall (1987a): 2	103/155	.60	99	0	.66	.05	4	1	1	9	2	2	1	1	1	1	1	2
						−.42	4	1	1	9	2	2	1	1	2	1	1	2
Marshall (1987a): 3	98/93	.51	99	0	.60	−.23	4	1	1	9	2	2	1	1	1	1	1	2
						.16	4	1	1	9	2	2	1	1	2	1	1	2
Marshall (1987b)/Marshall & Rose (1988): 1	15/15	.50	99	1.0	.67	.41	4	1	1	9	2	1	1	1	1	1	3	2
						.12	4	1	1	9	2	1	1	1	2	1	3	2
Marshall (1987b)/Marshall & Rose (1988): 2	77/108	.58	99	0	.52	−.28	4	1	1	9	2	2	1	1	1	1	3	2
						.10	4	1	1	9	2	2	1	1	2	1	3	2
Marshall (1987b)/Marshall & Rose (1988): 3	60/33	.35	99	0	.46	−.08	4	1	1	9	2	2	1	1	1	1	3	2
						.07	4	1	1	9	2	2	1	1	2	1	3	2
Marshall & Rose (1990)	205/249	.55	22	0	.73	−.09	1	1	1	2	2	2	1	1	1	1	3	2
						.02	1	1	1	2	2	2	1	1	2	1	3	2
Mason & Blankenship (1987)	48/107	.69	22	9	9	−.10	1	1	1	2	2	9	2	1	1	5	2	2
						−.08	1	1	1	2	2	9	2	1	2	5	2	2
Masterson (1987)	60/91	.60	99	0	.30	−.04	3	4	1	2	2	2	1	1	2	1	3	2
						.10	3	4	1	2	2	2	2	1	2	4	3	2
						.28	3	4	1	2	2	2	1	5	2	1	3	2
Meredith, Abbott, & Adams (1986)	119/185	.61	37	1.0	.22	.10	1	1	1	4	3	1	1	1	1	1	2	1

Appendix (*continued*)

Study	*N*[a]	Pw[b]	Age[c]	Pmar[d]	Male[e]	*g*	Sample characteristic variables											
							1	2	3	4	5	6	7	8	9	10	11	12
Moller (1991)	755/755[i]	.50[i]	99	.61	.03	−.29	4	2	3	9	3	1	1	1	1	1	1	1
Morse (1995)	177/300	.63	21	1.0	.38	−.28	1	1	1	9	3	2	1	1	1	1	2	2[j]
						−.14	1	1	1	9	3	2	1	1	2	1	2	2
						.04	1	1	1	9	3	2	1	2	1	1	2	2
						.09	1	1	1	9	3	2	1	2	2	1	2	2
						−.41	1	1	1	9	3	2	1	3	1	1	2	2
						−.30	1	1	1	9	3	2	1	3	2	1	2	2
	321/402	.56	24	1.0	.32	−.19	1	1	1	9	3	9	1	1	1	1	2	2[j]
						−.23	1	1	1	9	3	9	1	1	2	1	2	2
						.02	1	1	1	9	3	9	1	2	1	1	2	2
						.18	1	1	1	9	3	9	1	2	2	1	2	2
						−.28	1	1	1	9	3	9	1	3	1	1	2	2
						−.47	1	1	1	9	3	9	1	3	2	1	2	2
						.23	1	9	1	9	3	2	1	4	1	1	2	2[k]
						.03	1	9	1	9	3	2	1	4	2	1	2	2
						.17	1	9	1	9	3	2	1	5	1	1	2	2
						.07	1	9	1	9	3	2	1	5	2	1	2	2
	453/506	.53	27	1.0	.28	−.11	1	1	1	9	3	9	1	1	1	1	2	2[j]
						−.21	1	1	1	9	3	9	1	1	2	1	2	2
						.10	1	1	1	9	3	9	1	2	1	1	2	2
						.06	1	1	1	9	3	9	1	2	2	1	2	2
						−.29	1	1	1	9	3	9	1	3	1	1	2	2
						−.34	1	1	1	9	3	9	1	3	2	1	2	2
						.06	1	9	1	9	3	9	1	4	1	1	2	2[k]
						.14	1	9	1	9	3	9	1	4	2	1	2	2
						.06	1	9	1	9	3	9	1	5	1	1	2	2
						.06	1	9	1	9	3	9	1	5	2	1	2	2
	490/511	.51	30	1.0	.22	−.22	1	1	1	9	3	1	1	1	1	1	2	2[j]
						−.14	1	1	1	9	3	1	1	1	2	1	2	2
						−.08	1	1	1	9	3	1	1	2	1	1	2	2
						.11	1	1	1	9	3	1	1	2	2	1	2	2
						−.25	1	1	1	9	3	1	1	3	1	1	2	2
						−.31	1	1	1	9	3	1	1	3	2	1	2	2
						.03	1	9	1	9	3	2	1	4	1	1	2	2[k]
						.10	1	9	1	9	3	2	1	4	2	1	2	2
						.03	1	9	1	9	3	2	1	5	1	1	2	2
						.02	1	9	1	9	3	2	1	5	2	1	2	2
Nazroo (1995)	96/96	.50	37	1.0	.31	.19	1	9	3	4	3	1	1	4	2	1	1	1
						.38	1	9	3	4	3	1	1	5	2	1	1	1
Neff, Holamon, & Schluter (1995)	477/506	.51	99	1.0	.19	−.04	1	1	1	9	3	1	1	1	1	1	1	1
						.04	1	1	1	9	3	1	1	1	2	1	1	1
	125/266	.68	99	0	.55	−.22	1	1	1	9	3	2	1	1	1	1	1	1
						.39	1	1	1	9	3	2	1	1	2	1	1	1
Nisonoff & Bitman (1979)	112/185	.62	99	.69	.16	.13	1	2	1	9	3	1	1	1	1	1	1	2
						−.17	1	2	1	9	3	1	1	1	2	1	1	2
O'Farrell & Choquette (1991)	29/29	.50	42	1.0	.66	−.01	1	1	1	5	7	1	1	1	3	1	2	1
						−.03	1	1	1	5	7	1	1	2	3	1	2	1
						0	1	1	1	5	7	1	1	3	3	1	2	1
						.01	1	1	1	5	8	1	1	1	3	1	2	1
						−.03	1	1	1	5	8	1	1	2	3	1	2	1
						.01	1	1	1	5	8	1	1	3	3	1	2	1
O'Keefe (1997)	385/554	.59	17	0	.39	−.09	1	1	1	1	1	2	1	1	1	1	3	2
						−.11	1	1	1	1	1	2	2	1	1	5	3	2
						.07	1	1	1	1	1	2	2	1	2	5	3	2
O'Keefe, Brockopp, & Chew (1986)	121/135	.53	99	0	.29	−.25	1	1	1	1	1	2	1	1	1	1	3	2
						.15	1	1	1	1	1	2	1	1	2	1	3	2
O'Leary et al. (1989)[f]	272/272	.50	24	0	.31	−.57	1	1	1	3	3	2	1	1	1	1	1	1[f]
			26	1.0	.27	−.44	1	1	1	3	3	1	1	1	1	1	1	1[f]
			27	1.0	.25	−.41	1	1	1	3	3	1	1	1	1	1	1	1[f]
Pease (1996): 1	20/20	.50	99	0	9	1.09	3	1	1	9	4	3	2	1	5	5	2	2
Pease (1996): 2	14/14	.50	99	0	9	−.30	3	1	1	9	9	3	2	1	5	5	2	2

(*Appendix continues*)

Appendix (*continued*)

Study	N[a]	Pw[b]	Age[c]	Pmar[d]	Male[e]	g	Sample characteristic variables 1	2	3	4	5	6	7	8	9	10	11	12
Pedersen & Thomas (1992)	50/116	.70	19	0	.25	−.39	1	1	2	2	2	2	1	1	1	1	1	2
						−.46	1	1	2	2	2	2	1	1	2	1	1	2
						−.64	1	1	2	2	2	2	1	2	2	1	1	2
						−.35	1	1	2	2	2	2	1	3	2	1	1	2
						−.49	1	1	2	2	2	2	1	2	2	1	1	2
						−.62	1	1	2	2	2	2	1	3	2	1	1	2
Polek (1990)	252/140	.36	20	.26	.57	−.07	3	1	1	2	3	2	1	1	1	1	1	2
						−.02	3	1	1	2	3	2	1	1	2	1	1	2
						−.12	3	1	1	2	3	2	1	2	1	1	1	2
						.04	3	1	1	2	3	2	1	2	2	1	1	2
						.07	3	1	1	2	3	2	1	3	1	1	1	2
						−.09	3	1	1	2	3	2	1	3	2	1	1	2
Riggs (1993)	262/391	.60	19	.03	.29	−.30	1	1	1	2	2	2	1	1	1	1	1	1
						.05	1	1	1	2	2	2	1	1	2	1	1	1
Riggs & O'Leary (1996)	113/232	.67	19	.03	.25	−.08	1	1	1	2	2	2	1	1	1	1	1	1
Riggs, O'Leary, & Breslin (1990)[h]	125/283	.70	19	0	.23	−.33	1	1	1	2	2	2	1	1	1	1	1	1
Rollins & Oheneba-Sakyi (1990)	1,471/1,471	.50	99	1.0	9	−.14	1	1	1	9	3	1	1	1	1	1	2	1
						−.16	1	1	1	9	3	1	1	1	2	1	2	1
Roscoe & Callahan (1985)	96/108	.53	18	0	.10	.14	1	1	1	1	1	2	1	1	2	1	3	1
Rouse (1988)	104/124	.54	99	0	.22	−.46	1	7	1	9	2	2	1	2	2	1	1	2
						−.22	1	9	1	9	2	2	1	4	2	1	1	2
						−.13	1	9	1	9	2	2	1	5	2	1	1	2
Rouse, Breen, & Howell (1988): 1	48/82	.63	99	1.0	.31	−.31	1	7	1	9	2	1	1	2	2	1	3	2
						.17	1	9	1	9	2	1	1	4	2	1	3	2
						−.37	1	9	1	9	2	1	1	5	2	1	3	2
Rouse et al. (1988): 2	58/72	.55	99	0	9	−.38	1	7	1	9	2	2	1	2	2	1	3	2
						−.12	1	9	1	9	2	2	1	4	2	1	3	2
						.07	1	9	1	9	2	2	1	5	2	1	3	2
Russell & Hulson (1992)	46/46	.50	40	1.0	.25	0	1	1	3	5	3	1	1	1	3	1	2	1
						−.20	1	1	3	5	3	1	1	3	3	1	2	1
Sack, Keller, & Howard (1982)	78/104	.57	21	0	9	−.01	1	1	1	2	2	2	2	1	1	5	2	1
Sawin (1991)	550/645	.54	19	0	.25	−.26	3	1	1	2	2	2	1	1	1	1	3	2
						−.07	3	1	1	2	2	2	1	1	2	1	3	2
Schartz (1995)	752/471	.61	19	0	9	−.48	3	1	1	2	2	2	1	1	1	1	3	2
						−.05	3	1	1	2	2	2	1	1	2	1	3	2
Schartz (1995): subsample	88/88	.50	19	0	9	.39	3	1	1	2	2	2	1	1	1	1	3	2
						−.22	3	1	1	2	2	2	1	1	2	1	3	2
M. Schwartz, O'Leary, & Kendziora (1997)	122/106	.46	17	0	.16	−.67	1	1	1	1	1	2	1	1	1	1	3	1
Shin (1996)	99/99	.50	39	1.0	.35	.54	3	1	5	5	3	1	1	1	4	1	2	9
						.44	3	1	5	5	3	1	2	1	4	5	2	9
						.20	3	1	5	5	3	1	1	3	4	1	2	9
						.24	3	9	5	5	3	1	1	4	4	1	2	9
						.20	3	9	5	5	3	1	1	5	4	1	2	9
Shovlin (1994)	122/225	.65	22	0	.29	−.27	3	1	1	2	2	2	1	1	1	1	1	2
						−.38	3	1	1	2	2	2	1	1	2	1	1	2
						−.21	3	1	1	2	2	2	2	1	1	4	1	2
						−.23	3	1	1	2	2	2	2	1	2	4	1	2
Sigelman, Berry, & Wiles (1984)	112/384	.77	21	0	.54	.03	1	1	1	2	2	2	1	1	1	1	3	2
						−.22	1	1	1	2	2	2	1	1	2	1	3	2
						−.23	1	1	1	2	2	2	1	3	1	1	3	2
						−.33	1	1	1	2	2	2	1	3	2	1	3	2
Sorenson & Telles (1991)	1,197/1,197[i]	.50[i]	99	1.0	9	−.19	1	5	1	9	3	1	1	2	1	1	3	2
Sorenson, Upchurch, & Shen (1996)[l]	6,250/6,142	.50	99	1.0	.06	−.05	1	6	1	9	3	1	1	1	1	1	1	2
						0	1	6	1	9	3	1	1	1	2	1	1	2
	3,383/3,396					−.04	1	6	1	9	3	1	1	4	1	1	1	2
						.10	1	6	1	9	3	1	1	4	2	1	1	2
Stacey, Hazelwood, & Shupe (1994)	86/86	.50	35	1.0	1.0	.51	2	4	1	4	6	1	1	4	1	1	1	1
Stacy, Schandel, Flannery, Conlon, & Millardo (1994)	53/106	.67	99	0	.21	−.44	1	1	1	9	2	2	1	1	1	1	1	2

Appendix (*continued*)

Study	N^a	Pw[b]	Age[c]	Pmar[d]	Male[c]	g	Sample characteristic variables											
							1	2	3	4	5	6	7	8	9	10	11	12
Stets & Henderson (1991)	146/125	.46	22	.14	.30	−.40	1	1	1	2	3	2	1	1	1	1	2	2
						−.37	1	1	1	2	3	2	1	2	1	1	2	2
						−.53	1	1	1	2	3	2	1	3	1	1	2	2
						−.06	1	1	1	2	3	2	1	1	2	1	2	2
						−.07	1	1	1	2	3	2	1	2	2	1	2	2
						−.24	1	1	1	2	3	2	1	3	2	1	2	2
Stets & Pirog-Good (1987)	126/206	.62	99	0	9	−.14	1	1	1	9	2	2	2	1	1	5	2	2
						.19	1	1	1	9	2	2	2	1	2	5	2	2
Stets & Pirog-Good (1989)	118/169	.59	21	0	.16	.24	1	1	1	2	2	2	1	1	2	1	3	2
Stets & Pirog-Good (1990)	335/448	.57	99	0	9	−.15	1	1	1	9	2	2	2	2	1	5	2	2
						−.26	1	1	1	9	2	2	2	3	1	5	2	2
	303/442	.59				−.11	1	1	1	9	2	2	2	2	2	5	2	2
						−.22	1	1	1	9	2	2	2	3	2	5	2	2
Stets & Straus (1989)	526/526	.50	99	0	9	−.16	2	1	1	2	2	2	1	1	3	1	2	2
Stickel & Ellis (1993)	97/178	.65	18	0	9	−.27	1	3	1	1	2	2	2	1	1	4	3	2
Stith, Jester, & Bird (1992)	181/298	.62	20	0	.38	.12	1	1	1	2	2	2	1	1	1	1	1	2
Straus (1977–1978)	2,143/2,143	.50	99	9	.12	.02	1	1	1	9	3	1	1	1	3	1	2	1
						−.04	1	1	1	9	3	1	1	3	3	1	2	1
Straus & Gelles (1988a)	6,002/6,002	.50	99	1.0	.116	−.02	2	1	1	9	3	1	1	1	3	1	2	1
						−.07	2	1	1	9	3	1	1	3	3	1	2	1
Stets & Straus (1990): same sample as above	2,480/3,522	.59	99	1.0	.116	.06	2	9	1	9	3	1	1	5	3	1	2	2
Straus, Hamby, Boney-McCoy, & Sugarman (1996)	113/204	.64	22	.13	.47	.25	1	1	1	2	2	2	1	1	1	1	2	1
						−.38	1	1	1	2	2	2	1	1	2	1	2	1
						−.06	1	1	1	2	2	2	1	4	2	1	2	1
						.19	1	1	1	2	2	2	1	4	1	1	2	1
Szinovacz (1983)	103/103	.50	99	1.0	.17	−.25	1	1	1	9	3	1	1	1	1	1	2	2
						.03	1	1	1	9	3	1	1	1	2	1	2	2
Thompson (1991)	167/169	.50	20	0	.30	−.09	1	1	1	2	3	2	1	1	1	1	6	1
						.05	1	1	1	2	2	2	1	1	2	1	6	1
						−.12	1	1	1	2	2	2	1	3	1	1	6	1
						−.15	1	1	1	2	2	2	1	3	2	1	6	1
						−.22	1	1	1	2	2	2	2	3	1	4	6	1
Tontodonato & Crew (1992)	347/500	.59	22	0	9	0	1	1	1	1	2	2	2	1	1	6	3	2
Vivian & Langhinrichsen-Rohling (1994)	57/57	.50	37	1.0	1.0	.25	1	9	1	4	6	1	1	4	2	1	1	2
White & Koss (1991)	2,105/2,602	.55	21	.10	.37	.03	1	1	1	2	2	2	1	1	1	1	2	2
						−.13	1	1	1	2	2	2	1	1	2	1	2	2
Winkler (1981): 1	29	.50	30	1.0	9	−.01	3	1	7	3	3	1	2	1	1	5	1	2
						0	3	1	7	3	3	1	2	1	2	5	1	2
Winkler (1981): 2	26					−.29	3	1	1	3	3	1	2	1	1	5	1	2
						−.01	3	1	1	3	3	1	2	1	2	5	1	2
Winkler (1981): 3	8					.29	3	1	1	3	3	1	2	1	1	5	1	2
						−.14	3	1	1	3	3	1	2	1	2	5	1	2
Worth, Matthews, & Coleman (1990)	31/78	.72	99	0	.21	.23	1	1	1	9	2	2	1	1	1	1	3	2
						.11	1	1	1	9	2	2	1	1	2	1	3	2

Note. Sample characteristics: Variable 1: source of data (1 = *journal article;* 2 = *book or book chapter;* 3 = *dissertation;* 4 = *other unpubished source*); Variable 2: measurement instrument (1 = *Conflict Tactics Scale [CTS] or modified or earlier version of it including the Conflict Resolution Techniques Scale [Straus, 1977–1978];* 2 = *hit the other;* 3 = *physical abuse;* 4 = *Center for Social Research Abuse Index [physical abuse subscale];* 5 = *hit or threw something at the other;* 6 = *cut, bruised or seriously injured other;* 7 = *items like those on the CTS [e.g., push, grab, or shove; strike, slap, or punch; strike with an object];* 8 = *Zaks and Walters [1959] Aggression Scale;* 9 = *measures of injury*); Variable 3: country or country of origin of participants (1 = *United States;* 2 = *Canada;* 3 = *United Kingdom;* 4 = *Nigeria;* 5 = *Korea;* 6 = *New Zealand;* 7 = *Israel*); Variable 4: age category, means (1 = *14–18;* 2 = *19–22;* 3 = *23–30;* 4 = *31–37;* 5 = *38–49;* 9 = *wider age groups or not specified*); Variable 5: type of sample (1 = *high school students;* 2 = *college students;* 3 = *community or from military base;* 4 = *women shortly after entering a shelter for abused wives;* 5 = *Quaker spouses;* 6 = *couples referred to treatment programs for assaultive husbands or marital violence or marriage counseling;* 7 = *alcoholic men and their wives before entering treatment program;* 8 = *alcoholic men and their wives a year after entering treatment program;* 9 = *shelter for the homeless*); Variable 6: majority marital status (1 = *married or cohabiting;* 2 = *unmarried and not cohabiting;* 9 = *mixture*); Variable 7: level of measurement (1 = *nominal [frequency or proportions of each sex showing one or more acts];* 2 = *interval [usually from a composite of a frequency scale applied to each act]*); Variable 8: outcome measure (1 = *overall physical aggression;* 2 = *"moderate" forms of physical aggression as defined by the CTS;* 3 = *"severe" forms of physical aggression as defined by the CTS, or frequent physical aggression;* 4 = *injury;* 5 = *injury receiving medical treatment;* 6 = *frequency of physical and emotional trauma*); Variable 9: source of data (1 = *self-report;* 2 = *partner's report;* 3 = *composite from both partners or a mixture of reports from self and partner;*

(*Appendix continues*)

Appendix (*continued*)

4 = *composite but from men's reports only;* 5 = *composite but from women's reports only*); Variable 10: statistic used to calculate *g* value (1 = *frequency or proportions;* 2 = *chi-square applied to frequencies;* 3 = *F values;* 4 = *t values;* 5 = *means and standard deviations;* 6 = *report of no significant difference*); Variable 11: reference period (1 = *current or most recent relationship;* 2 = *over the past year;* 3 = *in present and past relationships;* 4 = *in past relationships only;* 5 = *over the past 6 months;* 6 = *over the past 2 years;* 9 = *not specified*); Variable 12: sex of first author (1 = *male;* 2 = *female;* 9 = *not specified*).

[a] Sample size: the first figure is for men and the second for women.

[b] Proportion of women in the sample.

[c] Mean age in years rounded to the nearest year (99 = *wide age range or no mean given*).

[d] Proportion of the sample married or cohabiting (9 = *not specified*).

[e] Proportion of men in the sample showing physical aggression: This usually refers to the proportion of the sample who reported hitting or being hit (defined as engaging in one or more act). Where self- and partner reports are provided, the higher values were used (9 = *not specified*).

[f] These findings are from the same sample assessed 1 month prior to marriage and at 18 and 30 months after marriage.

[g] This scale is problematic in terms of its construct validity as a general measure of aggression and in terms of its specific application to partner aggression: This study is included for completeness because there are no other studies from Nigeria, or indeed from any other African country.

[h] These appear to be the same sample. Only Riggs et al. (1990) was used in the meta-analysis.

[i] In the absence of information on the exact numbers of men and women, an equal proportion was assumed.

[j] These findings are from the same sample (National Youth Survey) assessed in 1983, 1986, 1989, and 1992; the sample size increases as CTS data were collected only from those who were married or cohabiting.

[k] For each age group, the injury data is for a subsample of couples who showed one or more CTS items.

[l] The data are taken from the U.S. National Survey of Families and Households 1987–1988, which was also analyzed by Brush (1990). Although both studies are presented here, only the later analysis (involving a larger sample size) was used in the meta-analyses.

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