The effects of counter-aggression strategies on married couples resulting from use of the Taylor interactive paradigm were investigated. Married persons (N=52) competed in a complex reaction time task and set durations of 100 decibel punitive noise for either their spouse or an opposite-sex stranger. During pretrials (aggression escalation), males significantly increased settings when competing with their spouse but not when competing with an unfamiliar female. Women increased settings when competing with unfamiliar males but not when competing with their spouse. During experimental trials, four counteraggression reduction strategies were examined: passive withdrawal (0% counteraggression), minimum retaliation (10%), intermediate retaliation (50%), and incremental escalation (50% × 5). Men reduced punitive settings under the 10% retaliation condition only. Women reduced punitive settings under 0%, 10%, and 50% conditions. When men were confronted with a passive strategy by a woman, a decrease in aggression was followed by an increase. Women did not show the same pattern. The relationship between these findings and others concerning wives' difficulties in reducing husbands' hostility is discussed. (Author)
Anger between Intimates:
An Experimental Study of Aggression Reduction Strategies
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Interactive Hostility between Intimate and Unacquainted Mixed-sex Dyads

Until recently, the literature on family relationships has displayed what Gelles (12) and Steinmetz and Straus (24) refer to as "selective inattention" to the reality of anger and violent aggression among intimate persons. Steinmetz and Straus (24) point out that authors tend to conceptualize the family as "an arena for love and gentleness rather than as a place for violence" (p. 3); "that there is a tendency not to perceive or attend to the actual level of conflict and violence which occurs within the family" (p. 47).

Yet, it has recently been brought to the attention of the professional and lay communities that conflict is inherent in all close relationships, that it occurs in families with greater frequency than has previously been acknowledged, that it occurs regardless of family member's race, socioeconomic status, or position in the community (24), and that without adaptive conflict resolution skills, it can lead to the premature dissolution of the relationship or to extremes of violence between partners (12, 18, 20, 24).

This understanding has led to a wide array of programs and approaches aimed at reducing conflict and increasing "bonding" among family members; most notably among spousal partners. These approaches emerge from numerous theoretical orientations including rational-emotive directives advocating acknowledgment and renunciation of the "irrational demands" of anger (7, 19), behaviorally oriented approaches aimed at
training conflict negotiation skills (14, 27), and ventilationist tactics advocating open, direct, and often purposely exaggerated expressions of anger (22).

While some of these approaches are empirically based in that they attempt to evaluate their effectiveness once they are devised and operationalized, many are not empirical in the sense of being derived from a systematically organized body of research. The danger inherent in this is exemplified by the catharsis-induction approach which has attracted a substantial clinical following despite emerging evidence that such an approach may not only be inadequate in reducing marital aggression (17) but may actually be counterproductive in a number of cases (25). With such examples, it would appear sound practice to develop a data base prior to a program's implementation, rather than following it.

In this regard, it should be noted that social psychological theory has a small, somewhat inconsistent, yet growing body of literature on strategies of aggression reduction. Studies by Epstein and Taylor (8), Pisanò and Taylor (23), Denigrink and Bertilson (4), Kimble, Fitz, and Onorad (16), and Fitz, Kimble, and Heidenfelder (10) have investigated the differential effects of strategies such as passivity, proportional retaliation, and punitive escalation on aggression reduction. These studies concur in finding that unconditionally punitive responses cause increases in hostility, and differ concerning which lower intensity strategies are most effective in reducing aggression. While these studies suggest strategies for dealing with aggression among competing strangers, there is no evidence concerning their generalization to intimate couples.
As Kimble, et al., (16) point out, "The situation encountered here involved persons with no previous history of aggressive exchanges; equal, limited aggressive resources; and no strong motivation for extreme anger (p. 277)." These conditions are quite different from those governing close relationships such as marriage. However, the finding by Kimble, et al. (16) and Fitz, et al. (10) that, while pacifism significantly lowered aggression, proportional retaliation was the most consistently effective strategy, is reminiscent of Bach and Wyden's (1) hypothesis that satisfactory intimate relationships are more likely to result from structured conflict than from passive withdrawal.

The present study empirically investigates the effects of counter-aggression strategies on married couples by employing the Taylor (26) interactive paradigm. Married subjects were asked to compete with either their spouse or a stranger's spouse in a complex reaction time task and received prearranged ratios of aggression/counteraggression for failure to win on prespecified trials. The experiment examined the three strategies found by Kimble, et al. (16) to most effectively reduce aggression: pacifism (0% counteraggression), minimum retaliation (10% counteraggression), and intermediate retaliation (50% counteraggression). Since traditional views of punishment have maintained that aggression is inversely proportional to anticipated negative consequences (6), a fourth strategy, involving the participant receiving more aggression than (s)he delivered (50% + 5), was also used.

The authors hypothesized that reciprocity is as important for the interactive hostility of intimate partners as it is for strangers. It
was therefore predicted that pacifist and proportional reduction strategies would successfully lower aggressive settings while the proportional escalation strategy would not. In the absence of any theory or data concerning the differential effects of aggression reduction based on sex and degree of intimacy, no predictions were made for the current exploratory investigation of these variables.

**Method**

**Subjects and Experimenters**

Subjects were 52 married persons (median age = 26 yrs.); one member of each spousal couple having been recruited from undergraduate psychology classes at the University of Missouri-St. Louis. Experimenters were one female graduate student in clinical psychology and one undergraduate male with counseling experience.

**Apparatus**

The basic apparatus was a Taylor (26) reaction time device incorporating modifications used by Kimble, et al. (16). It consisted of a subject response panel located in one room and an experimenter control panel located in a second, adjacent room. The subject response panel was set up in such a way that the subject first experienced a "set" light directing him/her to set the number of seconds of 100 db noise to be administered to his/her partner should the partner lose the trial. Settings were made using an analogue dial with settings ranging from 0 to 10 seconds. Next, a "ready" light appeared alerting the subject to the pending onset of a tricolored light which would come on as either red, green, or blue. The subject was then to hit one of three telegraph keys.
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bearing corresponding color labels. A "win" or "lose" light would then appear informing the subject of her/his status on that particular trial. Under "lose" conditions, the subject received through a pair of earphones, a 100 db noise for the duration of time indicated on a second analogue dial supposedly representing the level of punishment set by his/her opponent. In actuality, the sequence of wins and losses, and opponent punishment settings for each trial was prearranged and controlled by the experimenters.

Procedure

Half of the subject couples arrived with their spouses and were instructed that they would be competing against their spouse in a reaction time experiment. The other half of the subject couples arrived with a second couple unknown to them and were scheduled in such a way that each individual was paired to compete against the opposite sexed mate of the unfamiliar couple. At the time of testing, each experimental dyad was separated with the male subject being taken to one room by the male experimenter and the female subject being taken to a different room by the female experimenter. In half of the cases, the male subject was introduced to the reaction time task first while the female subject completed a series of biographical data questionnaires. In the other half of the cases, the female subject was introduced to the reaction time task first while the male subject completed the questionnaires. In all cases, however, male and female subjects were led to believe that their partner was simultaneously engaged in the same task. Thus, each subject believed that his/her partner was simultaneously competing in the reaction time
task and simultaneously completing the written materials.

Each subject, when confronted with the reaction time apparatus, was instructed that he/she was competing against the assigned spousal or nonspousal partner. The sequencing of lights, keys, and dials was then explained. This was followed by four pretrials in which "opponent" settings appeared as 5, 6.5, 8, and 9 seconds of 100 db noise (escalating aggression) respectively, with the sequence of wins and loses prearranged so that the subject won Pretrials 1 and 4 but lost, and was subjected to punishing noise, on Pretrials 2 and 3. Pretrials were followed by four blocks of six experimental trials, each block representing one of four aggression reduction strategies. Each experimental block was preceded by opponent settings of 8 and 9 seconds, sequentially. For the three conditional strategies (10%, 50%, 50% + 5), the subject's setting determined the opponents setting for the following trials according to the percentage dictated by the aggression reduction strategy. In the non-conditional 0% strategy, the opponent setting remained zero for all trials regardless of the subject's setting. Half of the subjects received strategies in the following order: 50%, 0%, 50% + 5, and 10%. For the other half, this sequence was reversed. It was prearranged for subjects to win 50% of the trials within each experimental block.

Prior to beginning the experimental procedure, all subjects completed a consent form and a confidential drug information form certifying that they had not used any drugs during the past 12 hours that could impair reaction time performance. Following the experimental procedures, all subjects were thoroughly debriefed concerning major experimental
hypotheses and reasons for the required deceptions. No subject reported undue stress or appeared upset by the experimental procedures.

Results

Pretrials

Participants' initial responses to their partners were contrasted with a 2 x 2 x 3 (Participant Sex x Relationship to Opponent x Trials) analysis of variance. The 3 trials used were the participant's first setting (made in the absence of any cues from the opponent) and the two settings made in response to the opponent's settings prior to the introduction of the first experimental block.

No main effects occurred for participant sex or for relationship to opponent, F's < 1.0. A main effect for trials, F(2, 44) = 4.23, p < .03, resulted from subjects increasing settings significantly from Pretrial 1 (M = 3.44) to Pretrial 3 (M = 4.15). No two way interactions were significant, F's < 1.0. A tendency toward a three way interaction, F(2, 44) = 2.34, p < .11, however, suggested that the increase may not have been constant for all groups. Internal analyses revealed that women escalated their settings (Ms = 2.77 and 4.41 for pretrials 1 and 3) when paired with an unknown male, F(1, 44) = 11.45, p < .005, but showed no significant change (Ms = 3.33, 3.70) when paired with their husbands, F < 1.0. Men displayed the opposite pattern. They showed no significant change (Ms = 3.73, 4.01) when paired with an unknown female, F < 1.0, but increased their settings (Ms = 3.58, 4.48) when paired with their wives, F(1, 44) = 3.64, p < .10.
Counteraggression strategies

Since order effects did not exceed chance expectations, data for

Order effects were tested in a $2 \times 2 \times 2 \times 4 \times 4$ analysis of variance contrasting relationship to opponent, order of strategy presentation, sex of participant, strategy, and trials. The main effect for order was not significant, $F < 1.0$. Two of the 15 possible interactions were significant at the $p < .10$ level. The authors felt that combinations across orders was justified for the following reasons: first, there were no a priori reasons to believe that a particular order for any ratio would make it more or less effective; second, in contrast to analyses for order, analyses for Strategies, Trials, and Strategies x Trials showed strong effects in the predicted directions, $F's = 5.84, 16.57, 3.91$, respectively, $p's < .001$; and, third, a similar design by Fitz, et al. (10) using various strategies, also failed to show order effects exceeding chance expectations.

both orders were combined. Separate $2 \times 2 \times 4$ analyses of variance (Participant Sex x Relationship to Opponent x Trial Combinations) were performed for each counteraggression strategy. Trial combinations refer to combining Trials 1 and 2, 3 and 4, 5 and 6, 7 and 8 in order to compensate for the "see-saw" effect characteristic of experiments involving delayed feedback. These trial combinations will be referred to as T12, T34, T56 and T78, respectively. T12 was the participant's response to his/her partner's provocative settings immediately prior to the introduction
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of the strategy and the other three refer to participants' responses to the strategy.

Pacifist strategy. Results for the 0% counteraggression strategy showed the least consistent pattern of the four strategies (Figure 1). A main effect for trials demonstrated that, overall, the strategy reduced subjects' settings, $F(3, 66) = 7.54, p < .001$. Differential reduction patterns were suggested by a tendency toward a Relationship to Opponent x Trials Combination interaction, $F(3, 66) = 2.04, p < .12$, and a tendency toward a Participant Sex x Relationship to Opponent x Trials Combination interaction, $F(3, 66) = 1.91, p < .14$. Reduction patterns were examined by internal analyses contrasting settings for T12 and T78. Whereas pacifism lowered the hostility of women interacting with both an unknown male, $F(1, 66) = 7.13, p < .01$, and with a spouse, $F(1, 66) = 2.33, p < .15$, pacifism lowered the hostility of men interacting with an unknown female, $F(1, 66) = 3.55, p < .10$, but did not lower the hostility of men interacting with their spouse, $F < 1.0$. This last effect was at least partly due to the fact that repeated pacifism from their wives resulted in men's increasing their settings from T56 to T78, $F(1, 60) = 3.50, p < .10$, while no other group significantly changed their settings from T56 to T78, $Fs < 1.0$.

Figure 1 near here

No other main effects or interactions for the pacifist strategy were significant, $Fs < 1.0$. 
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Minimum retaliation. As illustrated in Figure 1, 10% counteraggression consistently reduced the settings of all groups, resulting in a highly significant trials effect, $F(3, 66) = 21.20, p < .001$. No other main effects or interactions for the strategy were significant.

Intermediate retaliation. Regarding 50% counteraggression, a main effect for trials was obtained, $F(3, 66) = 7.56, p < .001$, suggesting an overall decrease in settings across Trials. However, a Trials x Participant Sex interaction, $F(3, 66) = 3.75, p < .02$, indicates that this effect was not the same for women and men (see Figure 1). Intermediate retaliation successfully reduced the settings of women, whether they were interacting with a stranger or husband, $F'(3, 66) = 14.27, 9.97, p's < .001, .005$ (T12 vs. T78 comparisons) but intermediate retaliation did not reduce the settings of men, regardless of their relationship to opponent, $F's < 1.2$. No other main effects or interactions were significant, $F's < 1.2$.

Escalation strategy. The strategy of 50% + 5 counteraggression did not increase or decrease settings across trials ($M's = 7.74, 8.76, 7.85, 7.47$ for T12, T34, T56, T78, respectively), $F(3, 66) = 1.17, p > .30$. Women ($M = 9.39$) gave higher settings than men ($M = 6.52$), $F(1, 22) = 10.91, p < .005$. No other main effects or interactions were significant, $F's < 1.0$.

Discussion

Participants' responses during the pretrials confirmed the hypothesis that initial increased aggression by an opponent leads to escalation of hostilities. However, the lack of uniformity in that pattern indicates
that the degree of intimacy with the opponent is an important determinant of one's reaction to another's provocative behavior. Men escalate more rapidly to their wives' hostility than women do to their husbands. But when confronted by an opposite sex stranger showing the identical pattern, it is men who are slower to anger. Apparently, chivalry does not generalize to marriage.

While escalation of aggression by women and by men differed according to the degree of intimacy with their opponent, this overall pattern did not occur for deescalation. Men and women displayed distinct patterns for deescalation and these patterns were usually identical for spousal opponents and opposite sex stranger opponents. Clearly, de-escalation is not a mirror image of escalation. Provocation and initial escalation of aggression appear more susceptible to control by social norms (for example, men maintaining lower levels of aggression to unfamiliar women than to their spouse) whereas deescalation seems to occur with less self reflection. Consequently, norms concerning degree of anger expressed appear to be less prominent for aggression reduction.

The finding that women gave significantly higher settings during the escalation strategy appears inconsistent with the almost universally accepted view that men are more aggressive (11). However, since the settings for this strategy remained constant across trials, it is possible that the main effect for sex was due to a chance fluctuation on the first trial that was simply maintained for the duration of the strategy.

Empirical evidence for greater masculine aggressivity is based overwhelmingly on the use of electric shock, which presumably represents
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physical aggression. It is interesting that the only study finding women receiving more hostility is a study which measured aggression with an auditory stimulus (5). Likewise, the only study finding women behaving more aggressively used a measure of verbal hostility (13). The present results are consistent with hypotheses that women's aggression may equal or even exceed men's, but only when the mode of aggression is auditory.

Reactions to the three deescalating aggression reduction strategies (0%, 10%, 50%) were most interesting. Previous work (with predominantly unmarried persons) using these strategies showed minimum retaliation (10%) to be the most effective strategy for reducing aggression in both male-male (16) and female-female (10) dyads. The current research shows that, while all three strategies are successful in lowering aggression in women, only minimum retaliation is consistently successful in lowering aggression in men. Men fail to reduce their settings when confronted with intermediate retaliation and actually increased their settings toward the end of the trial blocks when confronted by a wife using a passive strategy. It is noteworthy that this response of husbands to their wives' passivity was the only condition in the experiment where such an increase approached significance. This suggests that husbands often require some response from their wives and may conceptualize no response as an expression of hostility.

This finding is consistent with a dilemma posed by Gelles (12) in trying to propose a successful counteraggression strategy for wives who are beaten:

Although there is a general belief on the part of the wives who do
not hit back that this will diminish the conflict and lessen the chances of their being hit further, there are indications that the effect of not hitting back works in the reverse -- that is, an individual who does not hit back is more likely to be hit repeatedly. Kaplan (15) comments that aggression is more likely if the other person (the victim) is perceived of as unwilling or unable to retaliate. Indeed, our respondents who did not fight back were still the recipients of repetitive aggression from their husbands. On the other hand, the respondents who did fight back were also hit often, so we are left with no real answer as to what posture by the victim reduces the occurrence of beatings. (pp. 81-82).

The current research and that noted by Gelles (12) suggests that husbands are responsive to a much narrower range of aggression reduction strategies than are wives. For wives, a strategy analogous to minimum retaliation (10% counteraggression) may be the only way to reduce husband's aggressive responses. Passivity (0%) or showing as much as half the aggression (50%) shown by their husband does not appear to be effective in lowering husband's hostility.

The greatest limitation of the current findings is the "artifici-ality" of the laboratory setting. While laboratory research has often been criticized as eliciting "socially desirable" responses (21), it is important to keep in mind that this is no less of a problem with research based on interviews (3), which is the more typical method of investigating marital relationships.

Two aspects of the research design probably reduced the artificiality
problem. First, use of the Taylor (26) interaction paradigm meant participants were dynamically affecting each other's behavior rather than the one-way aggression flow of a "teacher" shocking a "learner" in the more frequently used Buss (2) paradigm. Second, the use of sound rather than shock utilized a form of aggression with which people are much more familiar.

The use of persons intimately acquainted with each other is vitally important in studying the dynamics of anger interactions. In an interview study of naturally occurring anger expression, Fitz and Gerstenzang (9) found that over 70% of all anger occurred with an opponent known longer than a year and that screaming arguments and physical violence most typically occurred with an opponent known over five years. Yet those authors reported that virtually all laboratory studies of aggression use dyads who have never previously met. The current authors hope that future research on aggression will more often analyze behavior of persons related by marriage or blood.

A potentially valuable line of research would address whether minimum retaliation is useful in controlling extreme rage. This degree of anger obviously would not be intentionally created by an experimenter. But, experimental investigations of milder anger between acquainted persons appears to be a very promising method of supplementing clinical reports and interview research so that a comprehensive approach toward constructively dealing with anger can be developed.
References


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Figure 1

Mean noise settings for three retaliation strategies by trials, sex of subject, and relationship to opponent.

Note. "T12" refers to the sum of Trials 1 and 2. "T34", "T56", and "T78" refer to the sums of Trials 3 and 4, Trials 5 and 6, and Trials 7 and 8, respectively. These were *a priori* combinations made to reduce single-trial fluctuations.