

# Warding Off the Attacker: Self-Defense in Theory and in Practice<sup>1</sup>

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Whereas men and women predict that they will have similar responses to a physical attack, women's actual self-defense behaviors are less effective than are men's. In Study 1, male and female students expected to respond equally quickly and aggressively to a hypothetical attack by a stranger. Women also considered themselves to be more knowledgeable about self-defense, more physically fit, and less likely to become assault victims than the "average woman," and both men and women underestimated their victimization risk. In Study 2, a simulated attack situation showed strong gender differences, with men defending themselves more effectively than women. These findings suggest a disparity between beliefs and abilities among young women at risk of violence.

Aggressive behavior has been one of the most widely studied issues in gender research. It seems to be, in fact, one of the most reliable and documented gender differences in behavior (Eagly & Steffen, 1986; Hyde, 1984; Maccoby & Jacklin, 1974), with men overall engaging in more aggressive behaviors than women. However, the evidence differs for the particular case of aggression in response to provocation, in which gender differences appear to shrink greatly or even disappear.

In a meta-analysis of 64 articles, Bettencourt and Miller (1996) calculated that in experimental studies of aggressiveness in which participants were provoked (with a physical attack, an insult or negative evaluation, negative intelligence feedback, or frustration), women's responses were nearly as aggressive as those of men. The unweighted effect size of the gender difference was reduced from .43 (in conditions without provocation) to .06. When grouped by type of provocation, experimental conditions with a physical provocation had the smallest gender difference of the four provocation types (Bettencourt & Miller, 1996),

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suggesting that differences between men and women may be trivial under circumstances of physical provocation.<sup>3</sup>

If one considers a physical or sexual attack by a stranger to be a real-life instance of provoked physical aggression, these results suggest that women and men may not differ in the aggressiveness of their self-protective responses to such situations. With the coming of age of a new generation of young feminists, the popularity of “Take Back the Night” rallies at college campuses, and the growth of self-defense courses aimed at empowering women, it would not be unreasonable to predict that men and women—especially those born within the last three decades—might be able to engage in equally aggressive responses when threatened with a physical attack. This proposition, however, has never been tested empirically.

Certainly, a great deal of evidence exists demonstrating the effectiveness of physical and verbal self-defense strategies in averting rape and reducing injury for victims of attacks. As a whole, the research suggests that such strategies are correlated with avoidance of rape and assault (Levine-MacCombie & Koss, 1986; Siegel, Sorenson, Golding, Burnam, & Stein, 1989; Ullman & Knight, 1993; see Ullman, 1997, for a review of rape-avoidance studies). In other words, when women shout at their attackers or push back, attack severity is likely to be reduced. Contrary to popular belief, physical resistance has not been found to be associated with increased physical injury to victims of stranger attacks (Bachman & Carmody, 1994; Ullman, 1998).

Nonetheless, social norms and rape myths persist that may decrease the likelihood that a woman’s modal response to an attack is a physically aggressive one. That men are, in general, more aggressive than women is one of the strongest gender stereotypes in Western cultures (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Lorber, 1994). In fact, our society embraces the myth that women are actually nonaggressive (White & Kowalski, 1994).

Some evidence has suggested that men and women indeed may have different beliefs and expectations about self-defense responses. Harris and Miller (2000) asked participants to recommend appropriate strategies to men and women who feared becoming assault victims. The results showed that more physical strategies (physically fighting, taking up bodybuilding) were recommended to men, while more passive strategies (carrying pepper spray or a cellular phone, being escorted, screaming) were recommended to women. Easton and colleagues (Easton, Summers, Tribble, Wallace, & Lock, 1997) directly asked female college students, an age group at high risk for rape, whether they would resist an assault by

<sup>3</sup>The aggressive provocations coded as *physical* in the studies included in the meta-analysis were such laboratory-based techniques as giving electric shock or blasts of loud noise to a participant. It is possible that these types of provocation, and their consequences, do not fully generalize to the physical provocations found in daily life (e.g., shoving, punching, kicking, invading personal space).

an unarmed stranger. Only 52% said they would resist, a disconcertingly low figure, given what researchers know about the effectiveness of attack resistance.

Other work has shown that women feel guiltier than men about causing other people physical pain, and they are reinforced more for avoiding physical risks (Eagly & Steffen, 1986). Many also may fear increasing the danger to themselves by being aggressive (Eagly & Wood, 1991). Such beliefs may lead women to believe that they do not have the ability to—or should not—be aggressive when needed, as when provoked or attacked.

In addition to affecting beliefs, social norms also may influence individuals' skills at producing an aggressive response. For example, male participants reported having hit and kicked more in their past than females did (Hyde, 1984). Norms of male aggression may have given men more lifetime opportunities to practice aggressive responses. Thus, they may be more skilled at summoning them—for better or for worse—when provoked.

In summary, research on crime and victimization suggests that both men and women would be well advised to use diverse and forceful resistance strategies if they find themselves in a physical attack situation. Yet, for women, social norms about female nonaggression, fear of increased physical harm, or lack of skill may make them unwilling or unable to fight off an attacker. The present work bridges theory and practice by directly testing men's and women's ability to physically defend themselves. Study 1 measures participants' beliefs and expectations about their own self-defense abilities and those of women in general, and Study 2 tests these abilities in a simulated attack situation.

### Study 1

The aim of the first study is to quantify beliefs about how well people expect to be able to defend themselves in a hypothetical attack situation, as well as how effectively they expect that an "average woman" would respond in that situation. Given research showing that men and women are likely to engage in similarly aggressive behaviors under conditions of provocation, we predict that male and female participants will expect to respond in a similarly aggressive and effective manner should they find themselves under attack by a stranger. However, in accordance with traditional gender norms, we expect that women will feel more embarrassment than men and a greater fear of injury, whereas men will feel more social pressure to put up a good defense, compared to women.

We also predict that women will expect themselves to be more aggressive against an attacker, and less at risk for a real attack, compared to the average woman. This is consistent with the work of Harris and Miller (2000), who found that female participants believed themselves to be at less risk for violent assault than they believed other women to be, and with work on the personal/group discrimination discrepancy, in which negative events are more likely to be

attributed to one's group than to oneself (e.g., Taylor, Wright, Moghaddam, & Lalonde, 1990). Finally, we asked about perceived levels of physical fitness and experience with self-defense training, variables generally hypothesized to improve outcomes for attack victims.

### *Method*

In exchange for partial course credit, 1,279 college students (806 female, 473 male) completed a questionnaire in which they were asked to predict their behavioral and emotional responses to an attack situation. The students were enrolled at a large, public West Coast university, and had a mean age of 20.9 years. With respect to ethnicity, 33% described their backgrounds as European American, 52% as Asian American, 6% as Latino/a, 2% as African American, and 7% as of mixed or other ethnic backgrounds.

Approximately half of the sample (378 female, 220 male) completed a version of the survey that asked participants to predict their own responses, and half (428 female, 253 male) were asked to predict the responses of an unnamed woman. The situation was described as follows:

Please take a moment to imagine that you are (a woman is) suddenly, rapidly approached by a stranger. You (She) quickly realize that the situation calls for you (her) to physically defend yourself (herself)—e.g., punching, kicking, and yelling. Try to predict what kind of response you (she) would make.

The requested predictions, made on a 10-point scale ranging from 1 (*not at all*) to 10 (*extremely*), included: (a) "How fast would your response be?" (b) "How aggressive would your response be?" (c) "How well would your response make contact with the attacker?" (d) "Would you feel social pressure to defend yourself effectively?" (e) "Would you feel embarrassed or dumb about trying to defend yourself?" (f) "Would you feel that you knew what actions to take to defend yourself?" and (g) "Would you be afraid that you would be injured if you tried to defend yourself?" This version of the items was used for the attack-on-self condition. Participants in the average-woman condition received the same items referring to a woman in the third person (e.g., "How fast would her response be?").

In addition, each participant was asked to rate how physically fit he or she (or the average woman) is, using the same 10-point scale. Finally, participants indicated how likely they are (or the woman is) to become an attack victim in their lifetimes (in terms of a likelihood percentage ranging from 0% likely to 100% likely), and whether or not they have ever taken a self-defense course (*Yes* or *No* response; same question for both conditions).

Table 1

*Mean Predicted Responses to a Physical Attack by a Stranger*

|                            | Males' predictions about self (N = 220) |      | Females' predictions about self (N = 378) |      | Females' predictions about "average woman" (N = 428) |      |
|----------------------------|---|------|---|------|--|------|
|                            | M                                       | SD   | M   | SD   | M  | SD   |
| Response speed             | 7.02                                    | 2.10 | 6.87                                      | 1.89 | 6.83   | 1.91 |
| Response aggressiveness    | 6.98                                    | 2.31 | 7.13                                      | 2.17 | 6.89   | 2.00 |
| Response contact           | 6.62 <sup>a</sup>                       | 2.33 | 6.24                                      | 2.12 | 6.01   | 1.91 |
| Social pressure            | 5.19 <sup>a</sup>                       | 2.85 | 4.54                                      | 2.65 | 5.02 <sup>a</sup>                                    | 2.58 |
| Embarrassment              | 2.93                                    | 2.28 | 3.16                                      | 2.46 | 3.21   | 2.30 |
| Know actions to take       | 6.11 <sup>a</sup>                       | 2.45 | 4.84                                      | 2.17 | 4.53 <sup>a</sup>                                    | 2.08 |
| Fear of self-injury        | 5.18 <sup>a</sup>                       | 2.59 | 6.03                                      | 2.97 | 5.88   | 2.53 |
| Perceived physical fitness | 6.78 <sup>a</sup>                       | 2.13 | 5.51                                      | 2.09 | 4.84 <sup>a</sup>                                    | 1.36 |

Note. Responses rated on a 10-point scale ranging from 1 (*not at all*) to 10 (*extremely*) scale.

<sup>a</sup>Significant difference compared to females' predictions about self.

*Results*

*Predictions about attack on self.* The first set of analyses compared the responses of men and women who predicted their own responses to the attack situation. (Means and standard deviations are presented in Table 1.) Between-participant ANOVAs reveal no gender difference in how fast participants predicted their responses would be,  $F(1, 597) = 0.78$ , *ns*; how aggressive they predicted their responses would be,  $F(1, 595) = 0.66$ , *ns*; or how much embarrassment they predicted they would feel,  $F(1, 597) = 0.78$ , *ns*.

However, male participants predicted that they would make contact with the attacker,  $F(1, 597) = 4.10$ ,  $p = .043$ ; and that they would know what actions to take,  $F(1, 596) = 43.21$ ,  $p < .001$ ; to a significantly greater degree than did female participants. They also expected to feel more social pressure to defend themselves effectively,  $F(1, 593) = 7.82$ ,  $p = .005$ , than did female respondents. In contrast, women predicted that they would have a greater fear of self-injury, compared to men,  $F(1, 596) = 12.54$ ,  $p < .001$ .

Finally, men reported that they consider themselves to be physically fit to a greater degree than did women,  $F(1, 597) = 50.57, p < .001$ . Women ( $M = 39.1\%$ ), compared to men ( $M = 30.8\%$ ), believed themselves to be significantly more likely to be the victim of a violent attack in their lifetime,  $F(1, 584) = 14.05, p < .001$ . Men (35.8%) and women (32.0%) reported having taken a self-defense class in approximately equal percentages,  $F(1, 1276) = 1.89, ns$ . (This question was presented in the same format in both the attack-on-self and the attack-on-average-woman conditions.)

*Females' predictions about self versus female target.* The second set of analyses compared the responses of female participants who had made predictions about their own behavior with those of female participants who had made predictions about the behavior of a target woman. (Means and standard deviations are presented in Table 1.) Between-participants ANOVAs show that the female participants describing themselves thought they would feel less social pressure,  $F(1, 797) = 6.71, p = .010$ , and would better know what actions to take,  $F(1, 804) = 4.20, p = .041$ , than did those participants describing the average woman. They also perceived themselves to be more physically fit than did those describing the target woman,  $F(1, 804) = 29.40, p < .001$ , and they believed they ( $M = 39.1\%$ ) were significantly less likely than those describing the target woman ( $M = 47.2\%$ ) to become the victim of a violent attack,  $F(1, 792) = 23.46, p < .001$ . There were no significant differences in the two groups' predictions of response speed,  $F(1, 804) = 0.08$ ; aggressiveness,  $F(1, 798) = 2.68$ ; degree of contact,  $F(1, 804) = 2.58$ ; embarrassment,  $F(1, 803) = 0.07$ ; or fear of injury,  $F(1, 799) = 0.64$ .

*Effects of self-defense training.* When participants who reported having had some self-defense training were compared with those who had not, trained participants predicted that they would make better contact with the aggressor ( $M = 6.77$ ) than did untrained participants ( $M = 6.20$ ),  $F(1, 597) = 8.40, p = .004$ .<sup>4</sup> Trained participants also predicted that they would know what actions to take ( $M = 5.95$ ) to a greater degree than did untrained participants ( $M = 5.02$ ),  $F(1, 596) = 20.13, p < .001$ . Predicted speed, aggressiveness, perceived social pressure, level of embarrassment, or fear of self-injury did not differ as a function of whether the participant reported having taken a self-defense class.

In addition, there was a significant Gender  $\times$  Training interaction for the social-pressure prediction,  $F(1, 590) = 4.44, p = .035$ . Looking at simple comparisons, the degree of social pressure predicted by men with self-defense training ( $M = 4.86$ ) did not differ significantly compared to that predicted by men without self-defense training ( $M = 5.35$ ),  $F(1, 217) = 1.43, ns$ ; while women with training ( $M = 4.94$ ) predicted they would feel marginally more pressure than did untrained women ( $M = 4.38$ ),  $F(1, 373) = 3.50, p = .060$ .

<sup>4</sup>Only participants in the condition in which they predicted their own behavior were included in these analyses.

*Discussion*

These results partially support our hypothesis that women and men would expect to respond to an attack with similar degrees of aggressiveness and effectiveness. As predicted, male and female participants did not differ in the aggressiveness or speed of their predicted responses in the attack-on-self condition. Also as predicted, men expected to feel more social pressure and to have less fear of injury, compared to women.

However, contrary to our predictions, men expected to make better contact with the attacker than women did, and to have better knowledge of the appropriate actions to take. Also, neither men nor women expected to feel much embarrassment, and the gender difference was not significant. Interestingly, male participants perceived themselves to have a greater degree of subjective physical fitness than did female participants, which may reflect a greater concern with physical fitness among college-aged men and with physical appearance among women in that age group.

Women predicted a higher likelihood of lifetime victimization than did men, an incorrect estimate but one that has been demonstrated previously (Harris & Miller, 2000). This finding may indicate that the specter of violence—especially sexual violence—looms more portentously over the lives of young women than of young men. In fact, a comparison with government statistics from 1987 (U.S. Department of Justice, 1987), the most recent year for which lifetime risk data are available, reveals that this participant group made two notable errors in their estimates. First, women estimated that they are at greater risk of violence than did men; and second, both men and women significantly underestimated their overall lifetime risk.

U.S. Department of Justice (1937) statistics indicate that 74% of Americans will be victims of an assault sometime in their lives, and this risk is greater for men (82%) than for women (62%). For rape, not included in the assault definition, a woman's lifetime risk of victimization is 8%.<sup>5</sup> The incidence of rape with male victims was not reported. In our study, by contrast, the mean estimate across genders was 36.0% in response to the question "How likely is it that you will become the victim of a violent attack in your lifetime?" Male participants' mean estimate was 30.8% and females' mean estimate was 39.1%. It is important to note that the U.S. government's definition<sup>6</sup> of assault includes a broad range of crimes, including unsuccessful assault attempts and assaults by acquaintances as well as strangers. It is possible that the description in this study of a surprise attack by a stranger primed participants to narrow their estimates to only that

<sup>5</sup>This figure probably underestimates a woman's lifetime risk of rape, given the large number of incidents that go unreported.

<sup>6</sup>*Assault* is defined in the National Crime Survey as "an unlawful physical attack, whether aggravated or simple, upon a person, including attempted or threatened attacks with or without a weapon" (U.S. Department of Justice, 1987, p. 4). Rape and attacks that include robbery are excluded.

type of assault, leaving out perhaps more common occurrences, such as domestic violence or barroom brawls. Nonetheless, the disparity between participants' predictions and reality suggests that these young men and women underestimate the omnipresence of violence in American life.

Comparisons of women's predictions of their own defensive strategies versus those of women describing an average woman also partially support our hypotheses. Women describing themselves perceived themselves as knowing more about self-defense and as being more physically fit, compared to women who were describing the average woman. These estimates—which must represent a degree of inaccuracy, since not all women can be better than average—may lead individual women to be overly optimistic about their physical abilities in anticipation of attack situations such as the one described. The average woman also was thought to be much more likely to become the victim of a violent attack than women perceived themselves to be. This bias is consistent with that found in the literature on the personal/group discrimination discrepancy (Taylor et al., 1990). In this situation, however, it could have particularly dangerous consequences. Young women who believe "It won't happen to me" may be likely to take more risks and to put themselves in more dangerous situations than those with a more accurate (i.e., greater) perception of their victimization risk.

In contrast to our predictions, however, women describing themselves and those describing the average woman predicted comparable levels of speed, aggressiveness, degree of contact, embarrassment, and fear of injury in response to a hypothetical stranger attack. Participants describing the average woman thought she would feel more social pressure to defend herself effectively than those women describing themselves, which was not predicted.

Training in self-defense was related to increased self-defense efficacy in that participants who reported having taken a self-defense class thought they would have more knowledge of what actions to take against an attacker and would make better contact with an attacker, compared to those who had not taken a class. This is consistent with work showing that self-defense training increases self-efficacy in both the self-defense domain and in other aspects of life (Weitlauf, Cervone, Smith, & Wright, 2001; Weitlauf, Smith, & Cervone, 2000). However, whether self-defense training actually increases self-defense effectiveness and improves attack outcomes, or only raises self-efficacy, remains to be demonstrated clearly in the psychological literature.

The Gender  $\times$  Training interaction for the social-pressure variable, in which training was associated with comparable levels of social pressure for men but increased social pressure for women, is not necessarily intuitive. However, it may indicate that training in self-defense skills increases women's sense that self-defense is something at which they ought to be skilled, a perception men may have regardless of their exposure to self-defense training. Indeed, trained men and trained women were most similar to each other in terms of the mean social

pressure they anticipated feeling than they were to either of the other groups (untrained men or untrained women).

Overall, these results suggest that men and women anticipate having a fairly similar response to a physical attack, at least in terms of aggressiveness and speed, although women expect that they are more likely to be faced with this type of attack situation, compared to men. Even so, individual women may overestimate their physical fitness and self-defense knowledge and underestimate their risks compared to women as a whole.

### Study 2

The purpose of the second study is to test the accuracy of men's and women's predictions about their ability to defend themselves. It may be that for the present generation of young women, empowerment has preceded skill: Women may have learned about the importance of self-defense while not gaining the childhood experience with physical aggression that would allow them to master these skills. If so, young women may not be able to produce on demand the responses that Study 1 suggested that they may believe to be in their repertoire.

Study 2 set up a simulated attack situation in which the dependent variable was the effectiveness of the participant's immediate response to an aggressor. Although the first few seconds of a person's efforts at self-defense may not fully capture his or her abilities, this technique provides a glimpse into these abilities without putting participants at risk by continuing the "attack."

#### *Method*

*Participants.* A sample of 30 (15 female, 15 male) undergraduates volunteered to participate in a study for partial course credit; 60 additional students received partial course credit for judging the attack simulation. The study was conducted in an outdoor common area of a small, private East Coast college, and students were approached and invited to participate as they passed by. Gender was noted by observation, but no additional demographic information was recorded. However, the vast majority of students at this institution are of European American descent.

*Materials.* The "aggressor" used handheld kickboxing pads for self-protection. These pads, available at sporting goods stores, are about the size of a baseball glove and consist of a foam cushion with a vinyl cover and elastic loops for the user's hand. The pads are designed to prevent both users and kickers from injury upon physical contact.

*Procedure.* The study was described to participants as being about "issues encountered by students." They were informed that it would involve both physical and verbal tasks. As a whole, the procedure was designed to simulate the immediacy of a personal-attack scenario without placing participants or

experimenters at risk of physical harm or emotional distress. Participants were shown the kickboxing pad, held by a professionally trained kickboxing instructor, and told to imagine that the pad was an aggressor. The instructor then stood at a taped line on the floor, while the participant was asked to stand at a parallel taped line, 10 feet (3.0 m) away. Participants completed the session individually. They did not have the opportunity to view other sessions before participating, and they did not know that a simulated attack would take place.

Once the participant and instructor were in their positions, the instructor rapidly approached the participant, holding the kickboxing pad out toward the participant at full arm's length. The instructor then called out "Punch this person!" If the participant made a physical response, such as punching or attempting to punch the pad, the instructor stopped. If no response was made, the instructor stopped when the pad touched the participant's upper torso.

The participant and instructor then returned to the taped lines, and two more trials were conducted. The instructor next instructed "Kick this person!" in the second trial and "Punch and yell at this person!" in the third trial. Once again, when contact with the pad occurred or the pad lightly touched the participant without any response, the session ended. It is important to note that contact was made only with the kickboxing pad and that the kickboxing instructor was never hit. No injuries to either the kickboxing instructor or the participants resulted at any point during the study.

Two judges (also undergraduate student participants) were present in every experimental session. To reduce judges' suspicion as to the gender-related nature of the test, two new judges were utilized with each participant so that each judge rated only one participant. In addition, to reduce participants' awareness of the variables being measured, judges made subjective ratings, instead of using objective measuring equipment (e.g., stopwatches). Such equipment would likely have been visible to participants involved in the attack simulation and might have increased feelings of self-consciousness. Although some degree of rating accuracy was sacrificed, we were able to have judges appear to participants as mere observers of the task, not evaluators.

The pair of judges rated each participant's three trials on (a) response speed, (b) response aggression, and (c) degree of effective contact the participant made with the experimenter's pad. Ratings were made on 10-point scales, with higher numbers indicating more effective defensive techniques.

Judges also were instructed to rate the kickboxing instructor on the consistency with which the participants were approached. This measure was a two-item dichotomy of *consistent* and *inconsistent*. Judges were instructed to choose *inconsistent* for any behaviors on the part of the aggressor that deviated whatsoever across trials. Because the aggressor always began from the same line, walked toward participants with the pad extended, and varied only the instructions, it was not surprising that all 90 experimental trials were rated as *consistent* by both judges.

Table 2

*Mean Effectiveness of Responses to Physical Aggression by Gender and Response Type*

|                         | Male     |           | Female   |           |
|-------------------------|----------|-----------|----------|-----------|
|                         | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Trial 1: Punch          |          |           |          |           |
| Speed                   | 7.33     | 0.86      | 4.80     | 1.44      |
| Aggressiveness          | 8.00     | 1.05      | 5.67     | 1.41      |
| Contact with aggressor  | 7.43     | 1.13      | 4.40     | 1.55      |
| Trial 2: Kick           |          |           |          |           |
| Speed                   | 7.73     | 0.73      | 5.27     | 1.62      |
| Aggressiveness          | 8.20     | 0.65      | 6.03     | 1.29      |
| Contact with aggressor  | 7.00     | 0.73      | 4.23     | 1.36      |
| Trial 3: Punch and yell |          |           |          |           |
| Speed                   | 8.13     | 0.72      | 5.67     | 1.23      |
| Aggressiveness          | 8.27     | 0.62      | 6.30     | 1.32      |
| Contact with aggressor  | 7.67     | 0.65      | 5.27     | 1.15      |

*Note.* Responses rated on a 10-point scale ranging from 1 (*not at all*) to 10 (*extremely*).

*Results*

Reliability between the responses of judge pairs was high (Cronbach's  $\alpha = .92$ ), so an average rating of the judges' responses was created. Comparisons between ratings of male and female participants reveal substantial differences in the effectiveness of their defensive responses (see Table 2 for mean ratings). On the punching trial, men were judged to have responded much more quickly than were women,  $t(29) = 5.86, p < .001$ . The punches of male participants were also judged to be more aggressive,  $t(29) = 5.14, p < .001$ , and to involve more contact,  $t(29) = 6.12, p < .001$ , than the punches of female participants. On the kicking trial, men's kicks were judged to be faster,  $t(29) = 5.37, p < .001$ , more aggressive,  $t(29) = 5.82, p < .001$ , and to involve more contact than women's kicks,  $t(29) = 6.93, p < .001$ .

Finally, on the third trial, male participants were judged to be much quicker to simultaneously punch and yell,  $t(29) = 6.69, p < .001$ ; to be significantly more aggressive,  $t(29) = 5.22, p < .001$ ; and to have made significantly better contact,  $t(29) = 7.06, p < .001$ , than were female participants. Judges' subsequent comments suggest that differences in the punch-and-yell trials were driven largely by

physical behaviors. They noted few differences in yelling between the male and female participants.

All 30 participants completed the three trials in the same order: a punch, then a kick, then a punch with a yell. The mean ratings suggest that both male and female participants improved over time; that is, the effectiveness ratings were, in general, highest for both groups on the third trial (punch with yell), and lowest on the first trial (punch). However, there seemed to be no gender difference in the rate of improvement. Both men and women improved with practice, but the women's responses never caught up to the men's responses in effectiveness (Table 2).

### *Discussion*

This study provides strong evidence of a gender difference in the ability to produce self-defense responses. For three types of behaviors (a punch, a kick, and a punch with a yell), independent judges reported that the responses of males were significantly faster and more aggressive, and involved more contact with the "aggressor," than did the responses of females. Although the initial, immediate response to an attacker may not fully capture a person's overall ability to defend himself or herself, it seems likely that a quick response in the first few seconds of an attack situation would be an important predictor of overall outcome.

In addition, there are several features of the simulated attack described here that suggest that an effective response should be easier to produce than in a real-life attack. For one, the required response (punch, kick, or punch and yell) was clearly specified in each trial, whereas in real life, the victim must make his or her own decision about an appropriate response. Also, the scenario was unambiguous in its requirement of a physical response. In daily life, it is often hard to know, for example, whether the person approaching you at the bus stop late at night has malicious intentions or simply needs directions.

Assaults by non-strangers represent another example of attack situations that are likely to be more ambiguous than the one encountered by our participants. About two-thirds of violent attacks against women are perpetrated by attackers known to the victim: acquaintances, friends, family members, or intimate partners (U.S. Department of Justice, 1994). Although it is true that the results of a stranger-attack simulation cannot necessarily be generalized fully to non-stranger attacks, we submit that such situations would find women in even less of a state of physical readiness than would attacks by a stranger. If the past behavior of the person coming toward a woman has been warm and loving as often as it has been aggressive and violent, she may not have her fists clenched in preparation. In sum, if women find themselves unable to respond in a straightforward attack simulation as in the present study, it does not bode well for their ability to summon effective responses should they find themselves in a more ambiguous situation outside the laboratory.

It is possible, of course, that the judges themselves were employing stereotypes in their decisions about the effectiveness of men's and women's physical self-defense strategies, meaning that they may have perceived men's responses as more aggressive than women's, in accordance with gender norms. However, it seems equally plausible that such biases, if they were in fact affecting judges' ratings, could have produced results in the opposite direction. Work on shifting standards in stereotyping (Biernat, Manis, & Nelson, 1991) suggests that women actually may be rated higher than men on dimensions inconsistent with the female stereotype because a within-gender comparison group is assumed implicitly. That is, a target woman may be perceived as extremely competent or extremely aggressive (for a woman), whereas a man performing the same behaviors may be perceived as only moderately competent or aggressive (compared to men as a whole). Thus, it is not obvious that judge bias can readily explain these gender differences. In addition, the fact that each judge only observed a single participant, rather than several male and female participants who might have shown a pattern of performance differences, reduces the likelihood that gender was salient to the judges.

Another potential difference between our simulation and a real attack situation is the presence of the judges. Social-facilitation research (Bond & Titus, 1983) suggests that unpracticed responses are hindered by the presence of others, while practiced ones are facilitated. This might explain women's less effective self-defense responses in this semi-public situation and men's more effective responses, given that aggressiveness was likely a less practiced response for the women in this study compared to the men. However, it is not impossible to imagine that other people might be witnesses to a real-life stranger attack. It seems important that both men and women be able to defend themselves physically, regardless of the anonymity of the attack.

### General Discussion

Taken together, the results of these two studies suggest that there is a disparity between men's and women's predictions about how well they can defend themselves, and their ability to actually do so. Comparing the three types of behavior ratings (speed, aggressiveness, and degree of contact) from Study 2 with participants' predictions of those behaviors in Study 1, it appears that the disparity is largely driven by women's overestimations of their ability to respond effectively. Men, if anything, slightly underestimated their abilities. Since the ratings in the two studies were made on the same metric (a 10-point scale), they may be compared for illustrative purposes.

On the dimension of speed, men ( $M = 7.02$ ) and women ( $M = 6.87$ ) predicted they would respond equally quickly to an aggressor in Study 1. However, in Study 2, whereas judges' ratings of men's speed ( $M = 7.33$ ) were comparable to

men's own predictions in Study 1, judges' ratings of women's speed ( $M = 4.80$ ) were much lower than the predictions made by women. The same pattern was found for aggressiveness: Women ( $M = 7.13$ ) and men ( $M = 6.98$ ) predicted equally aggressive responses, but judges rated women ( $M = 5.67$ ) to be much less aggressive than they rated men ( $M = 8.00$ ) in Study 2.

Finally, even though men did predict in Study 1 that they would make better contact with the attacker ( $M = 6.62$ ) than women predicted they would ( $M = 6.24$ ), women's actual contact with the attacker in Study 2 ( $M = 4.40$ ) was much lower than women's predictions. In contrast, men's rated contact ( $M = 7.43$ ) was more similar to—even greater than—the predictions made by men in Study 1.<sup>7</sup>

These results can be seen as both good and bad news for researchers and activists concerned about violence against women and dedicated to empowering women with physical self-defense skills. On the one hand, these results confirm other work in aggression showing that traditional gender norms that frown upon physically aggressive women do not apply under conditions of provocation or attack (Bettencourt & Miller, 1996). Women who participated in Study 1 apparently felt just as comfortable as men did in predicting fast and aggressive self-defense responses, and they did not predict feeling any greater embarrassment at the prospect of enacting self-defense behaviors than did the male participants. It seems that we do not need to worry about women not wanting to physically defend themselves out of fears of being unfeminine.

On the other hand, there remains a serious disparity between men's and women's actual abilities to enact these self-defense behaviors quickly and aggressively, as seen in Study 2. Judging from our simulation, it appears that the skills of young women born after the arrival of feminism have not caught up to their views about how women should defend themselves physically.

The implications of this work seem to be that interventions designed to improve outcomes for female assault victims, at least those of college age, should focus on concrete efforts to develop and practice forceful self-defense skills, in addition to increasing their risk awareness. As described earlier, self-defense training seems to have a great deal of potential for increasing broad self-efficacy and assertiveness (Weitlauf et al., 2000, 2001), although its ability to improve assault outcomes in particular has not been demonstrated empirically.

Perhaps more women than the one-third who reported having had self-defense training in our study should be encouraged to explore this training.

<sup>7</sup>Of course, one must use caution in interpreting the null findings of Study 1 in which men and women were shown not to differ in the predicted speed and aggressiveness of their physical response. Even though this was a predicted finding, other explanations for these nonsignificant findings are possible, other than that men and women do in fact have equivalent self-efficacy with regard to speed and aggressiveness. On the other hand, the large sample size in Study 1, combined with the very small  $F$  ratios and mean differences seen in those two analyses, minimizes the likelihood that greater statistical power would have resulted in significant gender differences on these dimensions.

This may help reduce skill disparities between men, who may have grown up practicing aggressive and self-defense behaviors as children, and women, who may not have done so and therefore are less likely to have these skills in their repertoire.

Exposing women to the discrepancy seen here between their expectations on paper and their behavior in practice is another potential avenue of intervention. For example, 89% of women in one study expected that they would be able to hit an unarmed attacker (Easton et al., 1997). The present research, however, suggests that this percentage may be an overestimation. When the experimental procedure used in Study 2 was repeated as a class demonstration, with male and female volunteers serving as “attack victims” and other class members as the judges, many observers expressed great surprise at the dramatic difference between males’ and females’ responses. One wrote on a comment form “I’m going to teach my sister to be better prepared. This was an eye-opener.” Another reported,

I was pretty shocked to see [the female volunteer] actually duck away from the perpetrator. I expected women to be a little slower, but I never would have suspected that they would just stand there and let the “aggressor” attack.

It seems, then, that women need increased awareness about why they should resist an attacker, and that they might not do so when surprised, even if they might predict that they would.

Both men and women also could benefit from a more accurate understanding of their own physical fitness and self-defense preparedness. In this research, men considered themselves to be more physically fit than women did, and women considered themselves to be more fit than they perceived the average woman to be. Female participants also believed themselves to be more knowledgeable about self-defense and appropriate actions, compared to female participants describing the average woman. Women may generally assume themselves to be better than average in the domain of physical abilities and knowledge, simply because they may have few opportunities to test these skills in comparison to same-gender peers. A more accurate assessment of an individual’s physical abilities and knowledge may lead to more accurate predictions of his or her likely self-defense outcomes and, consequently, behavioral change (e.g., enrolling in a self-defense class, avoiding risky situations).

Finally, it is notable that both men and women in the current study seriously underestimated their lifetime risk of becoming assault victims, and it is disconcerting that women as a whole believe themselves to be at less risk than the average woman. Increased awareness of the prevalence of violence may help both men and women make better choices about risky behaviors and may motivate them to take on self-defense training in order to reduce their personal violence risk.

One notable limitation of the present work comparing self-defense predictions and behavior is that it was conducted in a between-subjects manner, in that the participants who made predictions about their ability to defend themselves were not the same participants who were actually called upon to do so. This makes it somewhat more difficult to connect predicted behavior with actual behavior and to generalize beyond the present samples to young men and women as a whole. Likewise, critical questions remain regarding self-defense training, explored only as a correlational variable in this study, and the causal role it may (or may not) play in improving outcomes for male and female victims of violence. Future research exploring these two questions would add much to the literature on criminal victimization. Specifically, we propose testing whether men and women differ in their ability to accurately predict their own self-defense capabilities, as measured through their own behavior. Such a study would also reduce the dependency on null results in Study 1 of the present paper. We also suggest investigating whether this predictive ability—as well as actual attack outcomes—are improved by self-defense training, manipulated as an experimental variable.

In summary, female participants in this study, compared to male participants, had a decreased ability to respond quickly and effectively to a physical attack by a stranger. This is a discrepancy that cannot be attributed to a difference in self-defense willingness or efficacy, but seems more likely to be the result of differences in skills and experience with aggressive behavior. Interventions and education should focus on increasing training in self-defense techniques, and on awareness of this discrepancy itself, so that both women and men have a more accurate understanding of their own violence risks and abilities to defend themselves.

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