The Psychological Record, 2003, 53, 33-49

AFFILIATION, FLIRTING, AND FUN: MOCK AGGRESSIVE BEHAVIOR IN COLLEGE STUDENTS

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We examined mock aggression—behavior that appears aggressive, but lacks intent to harm—among emerging adults, using a survey (N = 34 females and 22 males) and an interview (N = 79 females and 30 males). As expected, mock aggression was a common, positive, and integral part of the lives of our sample across social, familial, romantic, and sports contexts. Both men and women reported considerable mock aggression, but men displayed more of some types of mock aggression (e.g., backslap, bump chests, knuckle hit). Adults reported developmentally appropriate outcomes of mock aggression (e.g., sex, stress relief) not reported among children. Contrary to the prevailing literature, participants reported increases in mock aggression from mid-adolescence into adulthood. Findings indicate that, whereas aggression occurs under circumstances of increased negative affect and typically has negative outcomes, mock aggression occurs under circumstances of positive affect and almost always has positive outcomes.

Mock aggression, behavior that resembles aggression but lacks intent to harm, is usually considered within the realm of childhood and has not been examined beyond adolescence in humans. We asked emerging adults (Arnett, 2000) about their mock aggressive interactions and the social and emotional outcomes of these interactions. Examining mock aggression into adulthood is important to our understanding of its developmental course, sequela, and functions, and of the similarities and differences in serious and mock aggression.

Aggression is behavior aimed at harming other living beings, physically or emotionally (Baron & Richardson, 1994; Berkowitz, 1998; Geen, 1998). Mock aggression has a dual nature, in that it resembles serious aggression structurally, but lacks intent to harm, and is friendly or playful. The emotional contexts and outcomes of mock aggression and aggression are antithetical. Aggression is usually accompanied by

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negative emotions outcomes (Anderson & Dill, 2000; Berkowitz, 1998). Mock aggression is typically accompanied by positive emotions and almost always has positive outcomes (Ballard, 1998; Boulton, 1991a; Fry, 1990; Humphreys & Smith, 1987; Smith & Boulton, 1990).

Mock aggression occurs in nearly all species of fauna (Aldis, 1975; Fagen, 1981) and includes behaviors such as play-fighting, tickling, chasing, wrestling, and biting. Among humans, mock aggression is also used as a nonverbal means of celebration (e.g., hand slaps, head butts), greeting (e.g., giving the finger), and flirting (e.g., bumping, biting). Across species, play faces and signals are used to elicit mock aggression and moderate the intensity and duration of a bout (Fagen, 1981; Pellis, 1988).

Children as young as 4 years of age discriminate between mock and serious aggression using cues such as positive vocalizations and facial expressions, pretending, play face, role-reversal, restraint, and self-handicapping (Boulton, 1991a; Fry, 1987; Smith & Boulton, 1990; Smith, Hunter, Carvalho, & Costabile, 1992). Other distinguishing features include outcome of bout (e.g., continuing to interact), posture, and targets (Boulton, 1991a; Fry, 1990; Pellis, 1988; Smith & Boulton, 1990; Smith et al., 1992). Mock aggressive behaviors have the potential to cause harm, but rarely result in injury or distress because when mock aggression becomes too intense, the partner is signaled and stimulation lessens (Boulton, 1991a; Fry, 1990; Pellegrini & Smith, 1998; Pellis, 1988).

Variables such as developmental status, gender, and context affect mock aggression. It first appears between parents and infants and is common among peers during the juvenile years before decreasing as adolescence or adulthood approaches (Enomoto, 1990; Fry, 1987; McDonald & Parke, 1986; Pellegrini & Smith, 1998; Pellis & Pellis, 1997). Among humans, mock aggression peaks around the age of 8 (Boulton, 1996; Pellegrini & Smith, 1998). Little is known about mock aggression in adult humans.

Findings regarding gender and mock aggression vary depending on developmental status and species (Enomoto, 1990; McDonald & Park, 1986; Pellis & McKenna, 1992; Werner & Crick, 1999). Among children, boys displayed more total mock aggression than girls, but girls were just as likely to chase and wrestle as boys (Boulton, 1996; Smith et al., 1992). Among adults competing in sports, women showed slightly higher levels of mock aggression than men (Ballard, 1998; Smith, Willis, & Gier, 1980; Sugiyama, 1990).

Contexual factors also affect mock aggression. It is more common among familiar and similar partners (Boulton, 1991b; Fry, 1990; Humphreys & Smith, 1987; Pellis & McKenna, 1992; Thor & Holloway, 1984). Aggressive models and toys (e.g., bobo dolls, weapons, video games) increase the probability of mock aggression (Bandura, Ross, & Ross, 1997; Fry, 1990; Hellendoorn & Harinck, 1997; Schutte, Malouff, Post-Gordon, & Rodasta, 1988). Mock aggression is particularly common in "playful" settings, such as sports, swimming pools, and playgrounds (Aldis, 1975; Ballard, 1998; Boulton, 1991b; Humphreys & Smith, 1987).

Unlike aggression, which is related to poor developmental outcomes, mock aggression is related to positive development outcomes. In terms of its hypothesized functions, mock aggression is affiliative and may enhance social skills (Boulton, 1990, 1991b; Humphreys & Smith, 1987; Pellegrini, 1992; Schafer & Smith, 1996). Pellegrini (1989, 1992) found mock aggression to be related to social problem-solving among boys. He posited that mock aggression builds social skills by aiding in interpreting social cues (Pellegrini & Smith, 1998). Mock aggression also serves to develop motor skills, but there is controversy as to whether it serves as practice for practical self-defense (Boulton & Smith, 1992; Croft & Snaith, 1991; Fry, 1990; Pellis, 1988; Pellis & Pellis, 1997).

Statement of Problem and Hypotheses

Whereas aggression has been examined extensively, mock aggression has been examined primarily among children in the context of rough-and-tumble play on the playground. Our goal was to extend research on mock aggression into adulthood and across a wider array of contexts than has been examined among children. We also strived to identify contextual characteristics that differentiate mock from serious aggression. We performed two descriptive studies (a survey and an interview) to examine mock aggression among college students. We used self-report methodology so that a wider array of interpersonal contexts, including intimate interactions not available for observation, could be examined. The survey study was aimed at obtaining base rate information on types and frequencies of mock aggression during emerging adulthood and the common contexts and targets of this behavior. The interview study was more extensive, also examining common outcomes, differentiation of aggression and mock aggression, and the potential benefits of mock aggression.

We expected mock aggression to be more common among emerging adults than has been indicated by the literature. We expected that the mock aggression among adults would be both similar to and different from mock aggression among children. That is, we expected that mock aggression would be similar in structure (e.g., behaviors and some contexts), targets (friends, family), function (affiliation), and gender differences (males are somewhat more likely to engage in mock aggression than females) to mock aggression in childhood. However, we expected mock aggression to play an important role in the work and romantic relationships and sexual behavior of emerging adults, roles that are not salient among children. We also expected to find that mock aggression, unlike serious aggression, occurs primarily in the context of positive emotion and affection and has positive outcomes. Subsequently, we expected that those reporting high levels of mock aggression would report lower levels of serious aggression.

Survey Study

Method

Participants

Participants were 56 (34 female; 22 male) middle to upper-middle class students (M age = 20.00). Most (N = 52) were white, the remainder were African-American (N = 2) and Hispanic-American (N = 1). All of the participants were heterosexual and single. They received extra credit for participating.

Materials and Procedure

Participants individually completed a consent form, a demographic questionnaire, and a survey used to gather data on 31 mock aggressive behaviors (see Table 1). These close-ended items were generated from

Table 1

Survey Study: Number and Percentage of Participants Reporting Engaging in Mock Aggressive Behaviors and Common Targets and Contexts for Mock Aggressive Behavior

Behavior	Number	Percent	Target	Context
Tickling	52	92.8	Romantic Partner (57.7%)	Romantic (50.0%)
Arm Punch	51	91.1	Friend (58.8%)	Social (62.8%)
Bear Hug	51	91.1	Friend (49.0%)	Social (50.5%)
Finger Jab	46	82.1	Friend (38.2%)	Social (50.1%)
Pretend Fighting	44	78.6	Friend (60.0%)	Social (71.1%)
Back Slap	43	76.8	Friend (76.7%)	Social (65.1%)
Wrestling	38	67.9	Friend (52.6%)	Social (52.6%)
Chasing	36	64.3	Romantic Partner (44.4%)	Social (50.0%)
Butt Slap	35	62.5	Romantic Partner (45.7%)	Romantic (40.0%)
Body Flex	31	55.4	Friend (58.1%)	Social (51.6%)
Giving the Finger	30	53.6	Friend (80.0%)	Social (86.6%)
Firm Handshake	30	53.6	Friend (70.0%)	Social (66.7%)
Pin Down	28	50.0	Romantic Partner (67.9%)	Romantic (53.6%)
"Throw" Object	26	46.4	Friend (73.1%)	Social (61.5%)
Pillow Fighting	26	46.4	Romantic Partner (53.8%)	Social (50.0%)
Biting	23	41.1	Romantic Partner (78.3%)	Romantic (65.2%)
Tackle/Sweep	23	41.1	Friend (52.2%)	Social (43.5%)
Fist into Palm	21	37.5	Friend (71.4%)	Social (74.1%)
Pretend Slap	19	33.9	Friend (52.6%)	Social (52.6%)
Bump Chests	18	32.1	Friend (83.3%)	Sports (77.7%)
Knuckle Hit	17	30.4	Friend (94.1%)	Social (64.7%)
Spanking	17	30.4	Romantic Partner (82.3%)	Romantic (70.6%)
Bumping Forearms	16	28.6	Friend (81.3%)	Sports (43.8%)
Head/Helmet Slap	16	28.6	Friend (81.3%)	Sports (62.5%)
Dump Liquids	15	26.8	Friend (80.0%)	Sports (60.0%)
Growling	13	23.2	Romantic Partner (38.5%)	Romantic (30.8%)
Body Slam	13	23.2	Friend (69.2%)	Social (69.2%)
"Tear" Clothing	11	19.6	Romantic Partner (81.8%)	Romantic (63.6%)
Pretend to Shake	10	17.9	Friend (70.0%)	Social (80.0%)
Scratching	10	17.9	Friend (50.0%)	Social (60%)
Head-butt	3	05.3	Friend (66.6%)	Social (66.6%)

Note. Percentages for targets and contexts were derived by dividing the number of participants choosing each target or context by the number of participants who reported engaging in each behavior at least once monthly.

a review of the literature and the experiences of psychology research assistants—peers of the sample. Participants reported the following about each mock aggressive behavior: frequency (almost daily, 3-5 times/week, weekly, monthly, never); target (friend, romantic partner, co-worker, family member); and context (sports, social, romantic, work). Participants were debriefed following the survey.

Results

As expected, mock aggression was common among the participants (see Table 1). Participants reported engaging in all of the mock aggressive behaviors, often several times per week. Friends and romantic partners were the most common targets of mock aggression. General social settings and romantic settings were the most common contexts for mock aggression. Many behaviors (e.g., play fighting, wresting, chasing) were reported to occur across social contexts. Romantic situations were the most common context for tickling, butt slaps, pinning, biting, spanking, growling, and pretending to tear clothing. Several behaviors (e.g., bumping chests, bumping forearms, head/helmet slaps, and dumping liquids) occurred almost exclusively in sports settings.

Males and females displayed similar levels of most types of mock aggression (*t* tests were used to assess gender; *p* was set at .01 for these analyses to help control for family-wise error). Males reported higher levels of backslap, head/helmet slap, bump chests, knuckle hit, and firm handshake than females (see Table 2). Several of the behaviors displayed more often by men were more likely in sports contexts.

Table 2

Means, Standard Deviations, and *t* Scores for Sex Differences in Mock Aggression

Mock Aggressive Behavior	Men		Women		*t* score
	Mean	*Std*	*Mean*	*Std*	
Backslap	2.05	(1.13)	3.24	(1.60)	3.26
Head/Helmet Slap	3.91	(1.23)	4.88	(0.33)	3.63
Bump Chests	3.68	(1.21)	4.85	(0.44)	4.36
Knuckle Hit	3.73	(1.35)	4.65	(1.01)	2.73
Firm Handshake	2.90	(1.44)	4.41	(0.96)	4.31

Note. *Lower* scores indicate *higher* levels of mock aggression; all *p*s < .01.

Interview Study

Method

Participants

Participants included 109 (79 female; 30 male) undergraduates, aged 18 to 39 ($X = 21.37$); most (62%) were juniors or seniors. The upper-middle class sample was representative of liberal arts students on campus: 90.8% White ($N = 99$); 4.6% African-American ($N = 5$); 2.8% Native American ($N =$

3); 0.9% Hispanic (N = 1); and 0.9% Asian-American (N = 1). Most participants were heterosexual (98%) and in a romantic relationship (78%). Participants earned extra credit for their participation.

Measures

A structured interview (see Appendix) was developed using the results of the survey study. Participants were asked to recall each type of mock aggression they had displayed over the past month. Next they were given a list of 30 mock aggressive behaviors, to cue recall, and were asked to describe any other mock aggressive behaviors they had displayed over the past month. Participants reported the frequency, target(s), context(s), and outcomes of each behavior. Other items assessed the relation between mock aggression and aggression, behavioral traits, skills, benefits, and negative effects related to mock aggression. Coding schemes were created for each variable after data collection. A proportion (N = 60) of the cases were reviewed and the coding system was refined to include the discrete responses for each of the categorical variables (e.g., target or skills). Three mock aggressive behaviors not on the cue list (tripping, pileup, and shaking) were added to the coding scheme. The authors and a research assistant coded the data. Because of the structure of the interview and the flexible coding system there were few questionable responses, but these were discussed and agreed upon. Detailed responses for each variable (e.g., mother, father, sister) were encoded and then, to increase power, collapsed into catch-all categories (e.g., family members) for analysis (see Appendix).

The Interpersonal Behavior Survey Short Form (IBS, Mauger & Adkinson, 1993) was used to assess participants' aggressiveness, assertiveness, and denial of socially undesirable traits. The aggressiveness scale measures day-to-day aggression (e.g., "Some people think I have a violent temper."). The assertiveness scale measures assertiveness versus nonassertiveness (e.g., "I say what I want to say in most situations."). The denial scale measures participants' willingness to admit socially undesirable behaviors and minor flaws (e.g., "I never make fun of people who do things I feel are stupid."). The IBS subscales have adequate validity (see Mauger & Adkinson, 1993 for a review). Test-retest reliability for the subscales is excellent and 10-week test-retest coefficients range from r = .81 to r = .93 (Mauger & Adkinson, 1993).

Procedure

Participants signed a consent form and completed a demographic questionnaire and the IBS-S. One of four well-trained female research assistants interviewed each participant individually about their mock aggression over the past month. Each session lasted 45-60 min. Participants were debriefed and given a participation slip.

Results

The data were analyzed descriptively. Participants had engaged in a wide variety (X = 7.6 types; range = 1-22; SD = 3.9) of mock aggressive behaviors and had done so often (X = 80.6 events; range 1-621; SD = 96.6; see Table 3). Familiar and proximal targets—friends, romantic

Table 3

Interview Study: Number and Percentage of Participants Reporting Displays of Mock Aggressive Behaviors and Number of Events for Each Mock Aggressive Behavior

Behavior	Number of Participants	Percent of Participants	Number of Events
Tickle	79	73%	910
Pretend Fight	77	71	1004
Bear Hug	58	53	698
Wrestle	52	48	442
Arm Punch	48	44	580
Giving the Finger	41	38	543
Finger Jabs/Poking	41	38	519
Butt Slap	33	30	726
Chase	30	28	150
Back Slap	29	27	211
Pillow Fight	29	27	83
Body Flex	23	21	119
Pretend Slap	20	18	146
Body Slam	20	18	70
Throw Object	15	14	112
Splashing	13	12	36
Growling	12	11	197
Biting	12	11	158
Pinning	12	11	66
Overly Firm Handshake	11	10	45
Knuckle-to-Knuckle Hit	10	9	90
Scratching	8	7	73
Spanking	8	7	38
Tackle/Sweep	7	6	59
Bump Chests	7	6	18
Head Lock	5	5	35
Fist into Palm	5	5	30
Head Butt	4	4	7
Tripping	2	2	5
Pile-Up	2	2	2
Pretend to Tear Clothing	1	1	12
Shaking	1	1	5
Dunking	0	0	0

partners, and family members—were the most common targets of mock aggression (see Table 4). Less familiar targets, such as acquaintances and classmates, were less likely to have mock aggression directed toward them. Some (0.5%) participants referred to mock aggression with pets, but as we did not specifically assess this we may have underestimated its occurrence.

Table 4

Percentage of Participants Reporting Mock Aggressive Behaviors Toward Particular Contexts and Targets

Target	Percent of Participants	Context	Percent of Participants
Friend	40%	Social	50%
Partner	31	Home	17
Family	10	Romantic	11
Coworker	5	Sports	8
Teammate	4	Work	5
Roommate	4	Friend's home	4
Acquaintance	2	Outside	2
Child	1	Party	1
Classmate	1	Class	1
Pet	0.5	Bar	1
Professor	0.2	Car	0.5
Stranger	0.2	Church	0.3

Common targets for mock aggression were linked with typical contexts. That is, mock aggression was most often reported to occur in social situations, at home, and in romantic contexts, the contexts in which one is most likely to interact with those partners. Positive emotions (e.g., smiling, play face, laughing, and teasing) were more common in conjunction with mock aggressive bouts than were negative emotions (e.g., anger, frown, annoyance; see Table 5). Mock aggression was also typically related to positive outcomes. Most partners stayed together after a bout of mock aggression (96%; mock aggression was also used to say goodbye), experienced positive effect (91%), and continued with the previous activity (92%). Some participants (2%) reported that sex resulted from a bout of mock aggression, but we did not specifically assess this outcome in the interview, so the proportion of bouts ending in sex may be higher. In other species mock aggression is clearly related to sexual behavior (Pellis & McKenna, 1995; Pellis & Pellis, 1992).

Table 5

Percentage of Participants Reporting Particular Facial Expressions and Vocalizations Following Mock Aggressive Behaviors

Facial Expression	Percent of Participants	Vocalization	Percent of Participants
Smile	54%	Laughing	39%
Play Face	34	Teasing	31
Anger	6	Screaming	12
Frown	3	Grunting	7
Annoyance	3	Says "Stop."	6
		Growling	4
		Squealing	2

Skill Development, Benefits, and Negative Effects

When asked what kinds of skills children and adults develop as a result of engaging in mock aggressive behavior, these participants cited

social skills (49%), social cues (12%), fighting skills (12%), stress relief (10%), motor skills (9%), communication skills (7%), and flirting skills (1%). In considering the benefits of mock aggression, participants cited two primary categories, social contact and emotional control. Perceived social benefits of mock aggression included affiliation (22%), icebreaker (10%), social skills (3%), dominance (2%), and sex (1%) and accounted for 38% of the total responses. A majority of the responses (60%) cited benefits related to emotional control. Participants viewed mock aggression as a way to induce positive emotional states, such as fun (26%) and positive emotion (8%), and to relieve negative emotions, such as stress (21%) and anger or aggression (7%).

Most (83%) participants reported specific positive outcomes (e.g., positive emotion, attention, stress relief) to their mock aggressive interactions (see Table 6). Some participants (17%) experienced negative

Table 6

Percentage of Participants Reporting Particular Outcomes Following Mock Aggressive Behaviors

Outcome (Effect on Target)	Percent of Participants
Positive Emotion	58%
Negative Emotion	13
Attention	8
Positive Vocalizations	7
Stress Relief	5
Reciprocate Mock Aggression	5
Avoidance	2
Aggression	2

responses (e.g., negative emotion, avoidance, stress relief) to mock aggression. Most participants reported that mock aggression does *not* usually lead to injury (69%) or serious aggression (84%). When asked about potential negative effects of mock aggression, participants cited negative emotion (26%), injury (24%), increased aggression (8%), being perceived as aggressive (3%), and dislike of touch (1%). Many participants (37%) reported that mock aggression never has negative effects.

Gender and Developmental Status

In this study, we found no gender differences in terms of total types of mock aggression displayed, frequency of mock aggression, or any of the 33 individual mock aggressive behaviors. However, there was a preponderance of female participants and all of the research assistants were female, which may have biased these findings.

When asked about the developmental path of their mock aggression, 46.8% of participants reported that their rate of mock aggression had increased over the years. These participants viewed increases in mock aggression as related to an interest in flirting, romantic involvement,

improved social skills, decreased shyness, and/or an increased number of friends. Many students (40.4%) reported decreases in mock aggression since childhood. These participants viewed decreases in their mock aggressive behavior as related to emotional maturation, improved social skills, physical maturation (increases in size/strength in males; increases in breast size in females), and separation from mock aggressive partners (often family members, especially brothers). Some participants (12.8%) reported that they had exhibited a relatively stable rate of mock aggression since childhood.

Mock Aggression, Aggression, and Assertiveness

IBS scores, adjusted for denial using partial correlations, were related to mock aggression among males, but not females. For males, the aggression score was *negatively* correlated ($r = -.50$, $p < .01$) with the levels of mock aggression. The assertiveness score was positively correlated with levels of mock aggression ($r = .37$; $p < .05$). Thus, the males in our study who reported higher levels of mock aggression also reported lower levels of serious aggression and higher levels of assertiveness.

Discussion

Each of our hypotheses was supported. Briefly, mock aggression was more common among emerging adults than has been indicated by the literature and many students reported that their level of mock aggression had increased since childhood. Mock aggression among adults was similar in structure (i.e., behaviors), targets (i.e., friends and family), function (e.g., affiliation), and gender differences (i.e., males displayed slightly more mock aggression) to mock aggression in childhood. However, among adults mock aggression was important in contexts (work and romantic relationships and sexual behavior) that are not relevant among children. We also found that mock aggression, unlike serious aggression, occurs primarily in the context of positive emotion and affection and has positive outcomes.

More specifically, while the literature has indicated a decrease in mock aggression in late childhood (Aldis, 1975, Fagen, 1981, Pellegrini & Smith, 1998), we found that mock aggression was frequent among college students. While some students reported decreases in mock aggression since childhood, a majority reported that their rate of mock aggression had remained stable or increased over the years. Participants who reported decreases in mock aggression cited that those decreases resulted from improved social skills, separation from mock aggressive partners, and physical maturation. Participants who reported increases in mock aggression cited improved social skills, increased romantic interest, and an increased number of friends as related to increases in mock aggression. Thus, there appear to be at least two developmental paths for mock aggression into adulthood. These findings warrant more developmental research on mock aggression from childhood into adulthood.

As anticipated, mock aggression in adulthood was both similar to and different from mock aggression during childhood. Across both samples, tickling, arm punches, bear hugs, finger jabs, pretend fighting, back slaps, wrestling, and chasing were reported most frequently. These behaviors are structurally similar to those common among children on the playground (Humphreys & Smith, 1987; Pellegrini & Smith, 1998; Smith et al., 1992). Our participants reported similar functions (i.e., development of social, motor, and cognitive skills; affiliation) of mock aggression as have been reported for children (Boulton, 1991a; Fry, 1990; Humphreys & Smith, 1987). And, as with children, our participants reported that mock aggression was related to positive social interactions and outcomes (stayed together after bout, experienced positive affect, and continued with the previous activity). However, our emerging adult sample reported outcomes (e.g., sex, stress relief, emotional control) that have not been noted among children. The possibility that mock aggression is related to stress relief and emotional control among children should be examined. While sex is an adult behavior, mock aggression is related to sexual behavior in other species and should be examined more directly in humans (Pellis & McKenna, 1995; Pellis & Pellis, 1992).

We also supported our hypothesis that, although structurally similar, mock aggression would be clearly distinguished from, and in some ways antithetical to, serious aggression. Several findings are relevant to this argument. First, as among children, emerging adults reported that they differentiated mock from serious aggression via behavioral cues such as facial expressions and vocalizations (Boulton, 1990; Humphreys & Smith, 1987; Pellegrini, 1992; Pellegrini & Smith, 1998; Schafer & Smith, 1996; Smith et al., 1992).

Second, in considering the benefits of mock aggression, participants cited two primary categories, social contact and emotional control. Thus, although aggression is typically related with decreased social contact and poor social skills (Boulton, 1991a; Fry, 1990; Humphreys & Smith, 1987; Pellis, 1988; Smith & Boulton, 1990), young adults viewed mock aggression as related to affiliation and as important to the development of social cognition, such as learning social skills, social cues, and developing communication skills (Pellegrini, 1992; Pellegrini & Smith, 1998). Further, whereas aggression is usually tied to negative emotions and arousal (e.g., Anderson & Dill, 2000; Berkowitz, 1998), participants viewed mock aggression as a way to induce positive emotional states, such as fun and positive emotion, and to relieve negative emotions, such as stress and anger or aggression. Participants, however, did not view mock aggression as closely related to the development of motor skills (Boulton, 1990; Fry, 1990; Humphreys & Smith, 1987; Pellegrini & Smith, 1998; Smith et al., 1992).

Third, positive emotions and outcomes were more common in conjunction with mock aggressive interactions than were the type of negative emotions and outcomes typically associated with aggression (Aldis, 1975; Anderson & Dill, 2000; Boulton, 1991a; Fry, 1987; Smith et

al., 1992). Participants reported that others most commonly responded to their mock aggressive overtures with smiling and laughing and that the outcome of the interaction was typically positive. Further, although aggression often results in injury, anger, and other negative outcomes, most participants reported that mock aggression rarely leads to injury, serious aggression, or other negative outcomes.

Finally, we found that mock aggression was positively correlated with assertiveness and negatively correlated with trait aggression among males, but not females. Females displayed less variability in mock and serious aggression than males, which may contribute to the low correlations among females between the two. However, the males in our study who reported higher levels of mock aggression also reported lower levels of serious aggression and higher levels of assertiveness. Given that mock and serious aggression differ as discussed above, several theses should be explored to explain why males who are prone to engage in high rates of mock aggression may be less likely to engage in aggression. First, social cognitive skills should be examined in relation to mock and serious aggression, because those with better social cognitive skills may be both more likely to engage in mock aggression and less likely to engage in serious aggression. Second, personality traits, such as trait hostility, quality of mood, and so forth, should be examined, as it seems likely that dispositional differences might account for individual differences in mock and serious aggression. Third, contextual features of the individual's environment, which might affect mood or related factors in a systematic fashion, should be considered.

Theoretically, social-cognitive models suggest that aggression results when a combination of factors, including negative effect, arousal, aggressive cognitive scripts, aggressive environmental priming, and specific environmental stimuli are present (Anderson & Dill, 2000; Berkowitz, 1998; Canary, Spitzberg, & Semic, 1998; Huesmann, 1998). We suggest that a similar model can be used to explain the display of mock aggression. That is, we suggest that mock aggression is likely to occur when participants who have developed scripts for mock aggressive behavior experience a combination of positive effect, excitement, or arousal, and mock aggressive priming (e.g., wrestling on TV) or stimuli (sports context, a playmate). This theoretical model must be tested more directly, but it is consistent with the literature and our findings.

A few weaknesses of the study must be addressed. We specifically used retrospective, self-report measures so that a broad array of descriptive data could be gathered. However, there are inherent weaknesses in such measures. Participants may have overestimated or underestimated their levels of mock aggression or misremembered how this behavior has changed over time. For this reason, observational studies of mock aggression should be extended beyond adolescence and into adulthood, particularly in sports and social settings, including work. However, given our findings, some important uses of mock aggression, such as that used by couples in the home to increase intimacy or initiate

sex, may primarily be tapped via the use of self-report measures. Thus, multiple methods should be used to gather information about the developmental and contextual factors related to the use of mock aggression among adults.

Although we examined mock aggression among a neglected demographic, a second limitation of the study is tied to the limited age range and context of the sample. Mock aggression among college students may differ from that of other emerging adults, such as those who are employed and/or have become parents. Further, the development of mock aggression beyond early adulthood has yet to be examined. Our results indicate that mock aggression is worthy of study throughout the life span. Whereas an inverted-U-shaped pattern of the development of mock aggression was suggested by the literature (Aldis, 1975; Fagen, 1981; Pellegrini & Smith, 1998), the preponderance of this literature is based on the behavior of juveniles. Our participants often reported increasing mock aggression during emerging adulthood. Thus, it is premature to assume that development of mock aggression ceases following adolescence among humans. Rather, mock aggression may fluctuate across developmental contexts throughout the life span. Given our findings, contexts such as a new romance, sports involvement, a move away from home, and parenthood are likely to be related to changes in levels of mock aggression (Aldis, 1975; Ballard, 1998, 1999; Boulton, 1991b; Enomoto, 1990). Future research should aim at explaining these factors.

References

ALDIS, O. (1975). *Play fighting.* New York: Academic Press.

ANDERSON, C. A., & DILL, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology,* 78, 772-790.

ARNETT, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist,* 55, 469-480.

BALLARD, M. E. (March, 1998). *Mock aggression in NCAA basketball.* Presented at the Conference on Human Development, Mobile, AL.

BALLARD, M. E. (August, 1999). *Mock aggression among adolescents and adults in "pick-up" basketball games.* Presented at the Annual Meeting of the American Psychological Association, Boston, MA.

BARON, R. B., & RICHARDSON, D. (1994). *Human aggression.* New York: Plenum.

BANDURA, A., ROSS, D., & ROSS, S. A. (1963/1997). Imitation of film-mediated aggressive models. Reprinted in R. Diessner (Ed.), *Sources: Notable selections in human development* (pp. 171-178). Guilford, CN: Dushkin/McGraw-Hill.

BERKOWITZ, L. (1998). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin,* 106, 59-73.

BOULTON, M. J. (1990). A comparison of structural and contextual features of middle school children's playful and aggressive fighting. *Ethology and Sociobiology,* 12, 213-220.

BOULTON, M. J. (1991a). Partner preferences in middle school children's playful fighting and chasing: A test of some competing functional hypotheses. *Ethology and Sociobiology,* 12, 177-193.

BOULTON, M. J. (1991b). A comparison of structural and contextual features of middle school children's playful and aggressive fighting. *Ethology and Sociobiology,* 12, 119-145.

BOULTON, M. J. (1996). A comparison of 8- and 11-year-old girls' and boys' participation in specific types of play and aggressive fighting: Implications for functional hypotheses. *Aggressive Behavior,* 22, 271-287.

BOULTON, M. J., & SMITH, P. K. (1992). The social nature of play fighting and play chasing: Mechanisms and strategies underlying cooperation and compromise. In J. H. Barkow & L. Cosmides (Eds.). *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 429-444). New York: Oxford University Press.

CANARY, D. J., SPITZBERG, B. H., & SEMIC, B. A. (1998). The experience and expression of anger in interpersonal settings. In P. A. Anderson & L. K. Guerrero (Eds.), *Handbook of communication and emotion: Research, theory, applications, and contexts* (pp. 189-213). San Diego: Academic Press.

CROFT, D. B., & SNAITH, F. (1991). Boxing in red kangaroos, macropus rufus: Aggression or play? *International Journal of Comparative Psychology,* 4, 221-236.

ENOMOTO, T. (1990). Social play and sexual behavior of the bonobo (*Pan paniscus*) with special reference to flexibility. *Primates,* 31, 469-480.

FAGEN, R. (1981). *Animal play behavior.* New York: Oxford University Press.

FRY, D. P. (1987). Differences between play-fighting and serious fighting among Zapotec children. *Ethology and Sociobiology,* 8, 285-306.

FRY, D. P. (1990). Play aggression among Zapotec children: Implications for the practice hypothesis. *Aggressive Behavior,* 16, 321-340.

GEEN, R. G. (1998). Processes and personal variables in affective aggression. In R. G. Geen & E. Donnerstein (Eds.), *Human aggression: Theories, research, and implications for social policy* (pp. 1-21). San Diego, CA: Academic Press.

HELLENDOORN, J., & HARINCK, F. J. H. (1997). War toy play and aggression in Dutch kindergarten children. *Social Development,* 6, 340-354

HUESMANN, L. R. (1998). The role of social information processing and cognitive schema in the acquisition and maintainance of habitual aggressive behavior. In R. G. Geen & E. Donnerstein (Eds.), *Human aggression: Theories, research, and implications for social policy* (pp. 73-109). San Diego: Academic Press.

HUMPHREYS, A. P., & SMITH, P. K. (1987). Rough-and-tumble, friendship, and dominance in schoolchildren: Evidence for continuity and change with age. *Child Development,* 58, 201-212.

MACDONALD, K., & PARKE, R. D. (1986). Parent-child physical play: The effects of sex and age of children and parents. *Sex Roles,* 15, 367-378.

MAUGER, P. A., & ADKINSON, D. R. (1993). *Interpersonal Behavior Survey.* Los Angeles, CA: Western Psychological Services.

PELLEGRINI, A. D. (1989). Elementary school children's rough-and-tumble play. *Early Childhood Research Quarterly,* 4, 245-260.

PELLEGRINI, A. D. (1992). Rough-and-tumble play and social problem solving flexibility. *Creativity Research Journal,* 5, 13-26.

PELLEGRINI, A. D., & SMITH, P. K. (1998). Physical activity play: The nature and function of a neglected aspect of play. *Child Development,* 69, 577-598.

PELLIS, S. M. (1988). Agonistic versus amicable targets of attack and defense: Consequences for the origin, function, and descriptive classification of play-fighting. *Aggressive Behavior*, 14, 85-104.

PELLIS, S. M., & MCKENNA, M. M. (1992). Intrinsic and extrinsic influences on play fighting in rats: Effects of dominance, partner's playfulness, temperament and neonatal exposure to testosterone propionate. *Behavioural Brain Research*, 50, 135-145.

PELLIS, S. M., & MCKENNA, M. (1995). What do rats find rewarding in play fighting? - an analysis using drug-induced non-playful partners. *Behavioral Brain Research*, 68, 65-73.

PELLIS, S. M., & PELLIS, V. C. (1992). Juvenilized play fighting in subordinate male rats. *Aggressive Behavior*, 18, 449-457.

PELLIS, S. M., & PELLIS, V. C. (1997). The prejuvenile onset of play fighting in laboratory rats (*Rattus norvegicus*). *Developmental Psychobiology*, 31, 193-205.

SCHAFER, M., & SMITH, P. K. (1996). Teachers' perceptions of play fighting and real fighting in primary school. *Educational Research*, 38, 173-181.

SCHUTTE, N. S., MALOUFF, J. M., POST-GORDON, J. C., & RODASTA, A. L. (1988). Effects of playing video games on children's aggressive and other behaviors. *Journal of Applied Social Psychology*, 18, 454-460.

SMITH, D. E., WILLIS, F. N., & GIER, J. A. (1980). Success and interpersonal touch in a competitive setting. *Journal of Nonverbal Behavior*, 5, 26-34.

SMITH, P. K., & BOULTON, M. (1990). Rough-and-tumble play, aggression and dominance: Perception and behaviour in children's encounters. *Human Development*, 33, 271-282.

SMITH, P. K., HUNTER, T., CARVALHO, A. M. A., & COSTABILE, A. (1992). Children's perceptions of play-fighting, play-chasing, and real fighting: A cross-national interview study. *Social Development*, 1, 211-229.

SUGIYAMA, Y. (1990). A sex difference in hand-to-hand touching behavior in volleyball games: A preliminary study. *Perceptual and Motor Skills*, 71, 1002.

THOR, D. H., & HOLLOWAY, W. R., Jr. (1984). Sex and social play in juvenile rats (*Rattus norvegicus*). *Journal of Comparative Psychology*, 98, 276-284.

WERNER, N. E., & CRICK, N. R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of Abnormal Psychology*, 108, 615-623.

Appendix

Mock Aggression Interview

(The coding scheme for each variable is noted in bold-italics below the question.)

(Read aloud) Mock aggression can also be referred to as play aggression or rough and tumble play. Mock aggression is a distinctive form of social behavior that appears similar to aggression or fighting, but its intent is playful and it lacks intent to harm. Mock aggression, in the form of behavior like back slaps, tickling, and playful punches, is a common form of social interaction. We are interested in finding out more about how, when, and with whom adults display mock aggressive behavior.

1. **(Read Aloud)** First, I'd like for you to recall all of the mock aggressive behaviors you've participated in over the past month. Here is a calendar to help

you recall what events have taken place over the past month. *Please try to recall* all of the mock aggressive behaviors you've engaged in with others. *For each behavior generated, ask the participant the following questions:*

a. How many times did you engage in this behavior over the last month? ***number***
b. Did you initiate or were you the recipient of this mock aggressive behavior? ***self, other, both***
c. With whom did you engage in this behavior? *(target)* ***friend, partner, family member, coworker, roommate, teammate, acquaintance, child, classmate, pet, professor, stranger***
d. In what context(s) did you display this behavior? ***social, home, romantic, sports, work, friend's home, outside, party, class, bar, car, church, hospital***
e. What happened following the incident of mock aggressive behavior (i.e., the outcome)? *Obtain a general description and specific outcome information.*
   Outcome 1 – stay together or separate
   Outcome 2 – positive, neutral, or negative affect
   Outcome 3 – continue activity, change activity

2. **(Read aloud)** I have a list of mock aggressive behaviors that you did not mention. You may have engaged in some of these behaviors, but forgotten to mention them. *Read the attached list and circle any mock aggressive behaviors the participant engaged in.*
   Repeat follow-up questions as above.
3. Since what age have you used mock aggressive behavior as a way of interacting with others? ***age listed***
4. Have you noticed changes (increases/decreases) in your mock aggressive behavior over time? ***increases, decreases, no change***
5. Who usually initiates mock aggression behavior, you or someone else? ***self, other, both***
6. What kinds of facial expressions usually accompany displays of mock aggressive behavior? ***smile, play face, frown, angry, annoyed***
7. What kinds of vocalizations usually accompany displays of mock aggressive behavior?***laughing, growling, playful talking/teasing, requests to stop, screaming, squealing, grunting, flirting***
8. What kinds of skills do you think children and adults develop as a result of engaging in mock aggressive behavior. ***general motor skills, wrestling/fighting skills/strategy, strength, general social skills, flirting skills, problem-solving skills, communication skills, learn social cues, learn to relieve stress/tension, nothing/none***
9. How do you benefit from engaging in mock aggressive behavior? ***sex, dominance, affiliation/intimacy, positive emotions, exercise, fun/entertainment, stress tension release, rechannel aggression (catharsis), icebreaker, general social skills***
10. Does engaging in mock aggressive behavior have any negative effects on you? ***none, injury, negative emotions, increase serious aggression, perceived as aggressive, increased arousal, don't like being touched***
11. What effect does mock aggression have on your target? ***positive emotions, positive vocalizations, negative emotions, negative vocalizations, reciprocate, move away, requests stop, increase serious aggression, perceived as aggressive, increased arousal, don't like being touched, stress/tension relief, attention***

12. How often does someone accidentally get hurt during mock aggressive behavior?
0 - never 1- rarely 2 - sometimes 3 - often 4 - always
13. How often does mock aggressive behavior escalate into physically aggressive behavior?
0 - never 1- rarely 2 - sometimes 3 - often 4 - always
14-18. Using the following scale, how would you rate the level of importance mock aggressive behavior plays for each of the types of relationships listed?
(13 - friendships, 14 - family, 15 - work, 16 - teammates, 17 - romantic partner)
0 - not at all important
1 - somewhat unimportant
2 - neither unimportant or important
3 - somewhat important
4 - very important