Sex Differences in Affect Behaviors, Desired Social Responses, and Accuracy at Understanding the Social Desires of Other People

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Abstract: I recently proposed a socio-relational framework that suggests that phenotypic variation in the expression of discrete affect behaviors (e.g., expressed anger vs. sadness) may reflect two basic dimensions of behavioral response. The first dimension is the motivation to selectively attract or avoid interactions with different people. The second dimension is the behavioral display of either personal capacity or trustworthiness cues, often through the expression of dominant and submissive behaviors, respectively (Vigil, in press). Sex differences in affect behaviors (e.g., externalizing vs. internalizing displays) may reflect developmental sensitivities to advertise capacity and trustworthiness cues somewhat differently, due to the unique social dynamics and relational constraints under which males and females evolved. In this study, I use a series of self-report questionnaires to examine two basic assumptions of the framework. The first assumption is that sex differences in nonverbal affect behaviors (aggression vs. crying) reflect the desire for, and are effective for causing other people to either avoid or comfort the individual, respectively. I hypothesized that males would report a greater likelihood of responding to various distress moods with aggressive, rather than crying behaviors, and that males would desire, and believe male peers similarly desire distancing responses from others when feeling these moods. Instead, females were hypothesized to report more crying behaviors, and to desire, and believe female peers desire more comforting responses from others. The second assumption is that people are more accurate at inferring the desired social responses (i.e., to be left alone or comforted when experiencing distress) of same-sex, rather than opposite-sex peers. I hypothesized that people’s beliefs of same-sex peers are more similar to the self-reported desires of the male and female participants, themselves, than their beliefs of opposite-sex peers. The results are consistent with the first assumption, but show that only men were more accurate at inferring same-sex, rather than opposite-sex desires. In general, the findings are consistent with the socio-relational framework that suggests that humans may have evolved specialized expressive behaviors and interpersonal styles for communicating and interacting with same-sex affiliates.
**Keywords:** evolution, sex differences, nonverbal behaviors, social styles, empathy

Recent theory on the evolution and development of social behaviors in humans suggests that males and females evolved specialized expressive styles for communicating and interacting with same-sex affiliates (Geary, Byrd-Craven, Hoard, Vigil, and Numtee, 2003; Geary and Flinn, 2002; Taylor et al., 2000; Vigil, 2007). Boys and men express higher levels of behaviors that project the perception of independence and dominance (e.g., expressed toughness), which are in turn and broadly associated with popularity among male peers (Arsenio, Cooperman, and Lover, 2000; Chang, 2004; Cillessen and Mayeux, 2004; Farmer, Bishop, O’Neal, and Cairns, 2003; Levy, 2005; Rodkin, Farmer, Pearl, and Van Acker, 2000). Girls and women, in contrast, express higher levels of behaviors, such as crying, that are instead associated with the perception of nurturance, submissiveness, and compassion (Montepare and Dobish, 2003; Van Tilburg, Unterberg, and Vingerhoets, 2002; Williams, 1982). In this article I describe a meta-theoretical framework that attempts to help understand the social properties (socially relevant information) that may underlie variation in the expression of affect behaviors (e.g., expressed anger vs. sadness), as well as the social, evolutionary constraints that may have selected divergent expressive styles in males and females. I then examine some basic assumptions of the framework, including the hypotheses that sex differences in distress behaviors may be effective for causing other people to react in systematic and distinct (e.g., sex-typical) ways, and that people are more accurate at inferring the desired social responses (i.e., to be either left alone or consoled when distressed) of same-sex, rather than opposite-sex peers.

**The Socio-Relational Framework of Expressive Behaviors**

I recently proposed a Socio-Relational Framework of Expressive Behaviors (SRFB; Vigil, in press), which suggests that variation in the expression of discrete affect behaviors, such as anger and sadness, can be understood in terms of two primary dimensions of behavioral responses. The first dimension is based on the basic (“reptilian”) motivational system designed to either approach or withdraw from environmental stimuli (Buck, 1999; Davidson, 1993; Davidson, Jackson, and Kalin, 2000; see also, Cacioppo, Klein, Berntson, and Hatfield, 1993; Camras, Holland, and Patterson, 1993; Camras, Holland, and Patterson, 1993; Gray, 2002). In humans, this system may be especially sensitive to evaluate potential benefits and dangers of interacting with different people and engaging in different types of relationships (Andersen and Chen, 2002; Bugental, 2000; Kenny, Mohr, and Levesque, 2001; Öhman, 2002; Rudolph, Caldwell, and Conley, 2005). Interactions that signal the potential to provide reciprocated investment should stimulate affiliative responses (e.g., interpersonal attraction, bonding, protection, and comforting behaviors) and associated emotions (e.g., joy, sadness, and sympathy). Instead, interactions that are perceived to be non-reciprocal, and thus potentially exploitive, should stimulate avoidant responses (e.g., expressed hostility) and emotions (e.g., fear, disgust, and anger) designed to protect the individual. In this sense, all social (expressive) behaviors should be identifiable along an affiliative/avoidant dimension of behavioral response, depending on whether the behavior usually results in social bonding or in social distancing, across individual relationships. Importantly, some affect
Sex differences in affect behavior

behaviors such as sadness are pleiotropic (resulting in multiple outcomes), and can result in both social bonding (e.g., among intimate affiliates) and in social distancing (e.g., among less familiar affiliates), depending on the context of the relationship (Vigil, in press).

The second dimension that may help explain variation in expressive behaviors is the display of the two most fundamental properties of reciprocity potential, or attractiveness as a social partner (e.g., mate, friend, community member, etc.). Specifically, I previously hypothesized that that these essential properties can be conceptualized as the individual’s (a) perceived capacity to either help or hurt other people, and their (b) perceived trustworthiness or probability of actually reciprocating altruism (Vigil, 2007). These two elementary concepts (capacity and trustworthiness) may be the most parsimonious properties (irreducible characteristics) by which social evaluations and expressive behaviors are based. This is because insufficient levels of either of these constructs (e.g., having a lot to offer but being unwilling to do so, or being willing but having nothing to offer) results in little impact to others. This thesis is supported by recent research showing that people are particularly sensitive to process cues of competency and trustworthiness in human faces (Todorov, 2008, Todorov, Mandisodza, Goren, and Hall, 2005; Willis and Todorov, 2006).

From the perspective of the SRFB, humans should also be sensitive to advertise cues of capacity and trustworthiness to other people through myriad expressive behaviors, and especially through behaviors that are perceived as dominant or submissive. Traits (e.g., healthiness and independence) and affect behaviors that are perceived as dominant, such as expressed joy and anger, may be functional for signaling the capacity to reciprocate with other people (affiliation) and the ability to protect oneself (avoidance), respectively. Traits (e.g., feebleness and dependence) and affect behaviors that are perceived as submissive (e.g., fear and sadness) may instead operate (in part) to exaggerate the display of vulnerability in order to reduce the perception of threat (avoidance) and to signal deference (affiliation), and hence the trustworthiness component of reciprocity potential to other people (Vigil, in press).

Research on social relationships suggests that people adjust preference for (affiliative) capacity attributes (e.g., physical healthiness, intelligence, material resources) and trustworthiness attributes (e.g., kindness, responsibility) in relation to the expected duration of the relationship. For example, research on mate preferences shows that both men and women place greater emphasis on preference for high capacity traits rather than high trustworthiness traits when anticipating short-term relationships. In contrast, people increase preference for higher levels of trustworthiness traits than personal capacity attributes when seeking long-term or more exclusive partners (e.g., Cottrell, Neuberg, and Li, 2007; Geary, Vigil, and Byrd-Craven, 2004; Li et al., 2002; Vigil, Geary, and Byrd-Craven, 2006).

Other research shows that people adjust the display of affect behaviors in relation to social situational factors, such as the perceived social status, group size, familiarity, and relationship history of audience members (e.g., Chapman, 1973; Fridlund, 1991; Kraut and Johnston, 1979). Several studies, for example, have shown that people increase the display of externalizing behaviors (e.g., aggression) and overall capacity cues (e.g., expressed confidence) in larger group settings, and instead increase the expression of internalizing behaviors (e.g., sadness and worrying) and overall trustworthiness cues (e.g., expressed compassion) in more intimate (e.g., dyadic) social settings (Benenson et al., 2002;
Sex differences in affect behavior

LaFrance, Hecht, and Paluck, 2003; Leaper and Smith, 2004; Vingerhoets, Cornelius, Van Heck, and Becht, 2000). Collectively, these studies suggest that subtle detection and expression of capacity and trustworthiness cues of reciprocity potential may be specialized and functional for facilitating the formation of strategic, fitness-enhancing relationships in humans (Vigil, in press).

Evolution of Sex Differences in Affect Behaviors

From the perspective of the SRFB, phenotypic variation in the expression of capacity and trustworthiness cues are predicted to covary with the fundamental dynamics of individuals’ social networks (Vigil, in press). These dynamics can be summed up as the quantity, quality, and expected extent (e.g., short-term vs. long-term) of interpersonal investment across one’s relationships. Research in the social developmental literature describes similar distinctions in the prototypical social networks and relationship styles of males and females. These studies show that girls and women spontaneously form, and report a preference for fewer, but more intimate relationships with their same-sex peers. Males, in contrast, evidence the opposite pattern by usually forming and reporting a preference for larger, but less intimate social networks on average (Geary et al., 2003; Lever, 1978; Maccoby, 2002; Rose and Rudolph, 2006; Vigil, 2007).

One model that has the potential to explain these sex differences in relationship dynamics is based on a human evolutionary history characterized by male-biased philopatry and male-male coalitional competition. In this type of social system, males tend to remain in closer proximity to their male-kin—this allows them to form strong, kin-based coalitions—while females tend to emigrate into the social networks of their husbands upon marriage (see Geary, 1998, 2002; Geary and Flinn, 2002; Geary et al., 2003; Wrangham and Peterson, 1996). With this system, males would have been exposed to and reliant upon more daily interactions with kin. In contrast, females would have been dependent upon more daily interactions with non-kin or distantly related kin (de Waal, 1993; Geary, 2002; Geary et al., 2003).

Relationships between non-kin operate differently than relationships among kin, because the former are based on reciprocal altruism (equal exchange of resources), whereas the latter are based on inclusive fitness (equal sharing of genes; Hamilton, 1964; Trivers, 1971). In the context of a SRFB, the necessity for females to solicit more committed and secure relationships among non-kin may have co-evolved with the sensitivity to exaggerate the display of submissive behaviors vis-à-vis explicit demonstrations of vulnerability (e.g., expressed sadness) and appeasement (e.g., expressed compassion). These behaviors may therefore reflect an expressive bias for females to signal higher levels of the trustworthiness component of reciprocity potential than males (Vigil, 2007, in press; see also Geary and Flinn, 2001, 2002; Geary et al., 2003; Taylor et al., 2001). Formation of smaller social networks in females may in turn enable greater allocation of intimate investment behaviors (requiring time and empathy) and thus trustworthiness cues into fewer, but more reliable relationships (Geary and Flinn, 2001, 2002; Geary et al., 2003; Vigil, 2007; Vigil and Geary, 2008).

Instead, as a result of more daily exposure to kin-related peers, there is predicted to be an overall relaxation of the selection pressures for males to exaggerate the expression of vulnerability and intimacy behaviors within their relationships (Geary et al., 2003; Vigil, 2007). In theory, this would have enabled men to form a greater number of total
Sex differences in affect behavior

relationships, and thus larger and more functional coalitions (Geary and Flinn, 2001, 2002). At the same time, men may have evolved a sensitivity to rely more heavily on the behavioral advertisement of dominance behaviors (e.g., aggression, denial of pain, flashy body movements) and thus the capacity component of reciprocity potential (Vigil, 2007, in press). Capacity cues are more observable (visible from a distance and through limited interactions) than trustworthiness cues, and may be more effective for maintaining larger, less intimate (e.g., time-investing), and less exclusive peer networks among males. From this perspective, sex differences in the propensity express higher levels of dominance displays (e.g., impulsivity, risk-taking, inflated self-evaluations, and physical aggression) in males and submissiveness displays (e.g., cautiousness, conscientiousness, modest self-descriptions, and expressed sadness) in females may reflect asymmetries in the social ecologies and relationship demands in which humans evolved. More specifically, these behaviors may reflect the associated sensitivity to interchange the capacity and trustworthiness components of reciprocity potential within these social ecologies, among same-sex peers (Vigil, 2008; see also Geary and Flinn, 2002; Geary et al., 2003; Vigil, 2007).

Current Study

The plausibility of the SRFB for understanding variation in sex-general and sex-typical expressive behaviors rests on several testable assumptions. One assumption, for example, is that males and females express distress through behaviors that project the perception of dominance and submissiveness, which may ultimately operate (in part) to cause peers to either distance from, or to comfort the individual, respectively. Expressed anger is associated with the perception of dominance, whereas fear and sadness are associated with the perception of submissiveness (e.g., Marsh, Adams, and Kleck, 2005; Montepare and Dobish, 2003; Zuroff, Fournier, and Moskowitz, 2007; see also Mondillon et al., 2005). Higher levels of physical aggression among males may signal the individual’s strength, prowess, and hence capacity to hurt others and to defend oneself. Anger facial expressions are inversely associated with the likelihood of receiving sympathetic responses from others (Strayer and Roberts, 2004), which may further enhance the perception of capacity (e.g., toughness) by causing peers to distance themselves from the individual and thus demonstrate the ability to defend oneself in times of stress. Instead, sadness behaviors among females may display high trustworthiness cues (e.g., via expressed vulnerability) in order to evoke reciprocal displays of trustworthiness (e.g., via expressed compassion) and hence investment into the relationship from peers. Trustworthiness interchanges may be especially adaptive under conditions in which individuals experience decreased capacity resources (i.e., negative life events), when they are unable to effectively advertise these qualities to others, and when reliable social support is most essential. Another assumption of the framework is that prototypical male and female expressive styles (e.g., masculine and feminine distress behaviors) are used to communicate with same sex affiliates. According to this assumption, people should be better at inferring (understanding) the social desires of same-sex, rather than opposite-sex peers.

In the current study, I examine these assumptions through a series of self-report questionnaires designed to assess 4 predictions. According to the first assumption above, people should (a) be more likely to respond to dominant mood states (e.g., anger and frustration) with aggressive behaviors and to respond to submissive moods (e.g., sadness,
Sex differences in affect behavior

Sex differences in affect behavior can manifest in varying degrees of fear, worrying, and embarrassment, often accompanied by crying behaviors. These responses should differ by sex such that males and females should exaggerate reports of aggression and crying behaviors, respectively. Likewise, people should (b) desire others to respond to one’s dominant distress moods with distancing (avoidant) reactions and to respond to submissive moods with comforting (affiliative) reactions. These desires should again differ by sex, such that males should desire more distancing reactions from others, whereas females should desire more comforting reactions. In order to support the hypothesis that sex-typical distress behaviors are effective for communicating the desire to evoke distancing and comforting responses from peers, I also needed to demonstrate that people (c) believe their peers similarly desire to be left alone and comforted when feeling dominant and submissive distress moods and expressing aggression and crying behaviors. These beliefs should differ according to the sex of the respondent and sex of the peer. Female respondents are expected to believe that peers desire more comfort than believed of male respondents, and both sexes should infer that female peers desire more comfort than male peers. Finally, to examine the second assumption, I hypothesized that (d) people are better at inferring the social desires of same-sex, rather than opposite-sex peers. I examine this hypothesis by directly comparing the believed social desires of same-sex and opposite-sex peers (to receive comfort vs. distancing when experiencing distress moods) and the reported desires of the male and female participants, themselves.

Materials and Methods

Participants and Procedures

Two hundred participants (125 males) were recruited from the University of Missouri-Columbia (mean age for men = 19.1, SD = 0.9 years; mean age for women = 18.9, SD = 1.3 years). In a 30 to 40 minute testing session, participants completed a series of questionnaires designed to measure “stress behaviors” in a classroom setting.

Materials

The questionnaires were designed specifically for this study, and consisted of 56 items across three broad sections. Items in the first section were designed to assess the association between common nonverbal distress behaviors (crying vs. physical aggression) and three dominant mood states (anger, frustration, and hot-temperedness) and five submissive moods (sadness, embarrassment, worry, fright, and stress). Participants were told to think about their behaviors when they felt different emotions, and were given eight forced-choice items that asked “when I am feeling (mood state), I am most likely to ______” (choices: “start crying” vs. “hit, bang, or slam a nearby object”). The second part of this section consisted of 10 items designed to measure desired social responses from other people when experiencing the eight mood states and nonverbal distress behaviors (crying and hitting). Participants were asked to imagine how they wish other people would respond to their emotions, and were given eight forced-choice items that asked “when I am feeling (mood state), I wish people would ______” (choices: “leave me alone for awhile” vs. “come over and give me comfort”). Two additional items asked participants how they wished others would respond when the participant is “crying” and when they are “hitting, slamming, or banging objects”.

The second section was designed to assess how people respond to negative life-
Sex differences in affect behavior

events, the perceived impact of the events on individuals’ life, and how they wish others would react to them, under the conditions. Participants were asked to imagine experiencing six negative life-events that consisted of 1) stepping in a mud puddle, 2) receiving an official letter from the Undergraduate Dean stating that the participant was accused of cheating on an exam and would be expelled from the University, 3) locking their keys inside their car or house, 4) receiving a phone call from the police saying that their parent had been killed in a car accident, 5) receiving a failing grade on an important exam, and 6) stubbing their toe on a metal chair. For each of the six hypothetical events, participants were asked three questions; the first question asked participants to report what their “first reaction would most likely be” (choices: “start crying” vs. “hit, bang, or slam a nearby object”); the second question asked how much “this event would impact my life” (choices: “not at all”, “a little”, or “very much”); and the third question asked how they “wish people would respond” to their reaction (choices: “leave me alone for a while” vs. “coming over to give me comfort”).

The third section was designed to assess knowledge of desired responses of same-sex vs. opposite-sex peers. In the first part of this section, participants were asked to “think about how you think a male friend might want you to respond to his emotions”. Participants were then given eight questions that asked to “imagine a close male friend is feeling very (each of the eight emotions from Section 1), he probably wants me to ______” (choices: “leave him alone for awhile” vs. “go over and give him comfort”). Two additional questions asked how they think their male peers would want the participant to respond if the peer was crying and hitting nearby objects. The entire set of 10 questions was then repeated to refer to the social desires of female peers.

Results

Prediction (a) People respond to dominant moods with physical aggression and to submissive moods with crying behaviors, and these responses are exaggerated in males and females, respectively. Percentages of males and females that reported either crying or hitting behaviors in response to the 8 mood states (sadness, anger, frustration, embarrassment, worry, hot-temperedness, fright, and stress) are presented in the first set of columns of Table 2. Nonverbal responses across mood states were assessed by McNemar’s chi square tests; for these comparisons, a conservative cutoff point (\( \alpha = .002 \)) was used to test mood differences. As shown in Table 2, males reported the highest likelihood of hitting in response to dominant moods that included feelings of hot-temper, anger, and frustration. In contrast, females reported the highest likelihood of crying in response to submissive moods that included feelings of stress, fright, embarrassment, worry, and sadness. Chi square tests revealed sex differences in nonverbal responses for each of the mood-states (\( ps < .001 \)), due to higher reports of crying behaviors in women and aggressive behaviors in men. These findings indicate a male-bias to respond to dominant moods with aggressive behaviors that are suggestive of capacity displays, and a female-bias to respond to submissive moods with sadness behaviors that are suggestive of trustworthiness displays (Vigil, in press).
### Table 2. Sex Differences in Affect Behaviors, Desired Social Responses, and Believed Social Desires of Peers

| Nonverbal Behaviors | Desired Social Responses | Beliefs about Males | Beliefs about Females |
|---------------------|--------------------------|--------------------|-----------------------|
|                     | Males        | Females        | Males       | Females      | Males      | Females   | Males       | Females     |
| Males | Females | Males | Females | Males | Females | Males | Females | Males | Females |
| Cry | Hit | Cry | Hit | D | C | D | C | D | C | D | C | D | C | D | C | D | C |
| Dominant (Capacity) Moods |
| Hot-temper | 1%<sup>a</sup> | 99%<sup>a</sup> | 32%<sup>a</sup> | 68%<sup>a</sup> | 86%<sup>a</sup> | 14%<sup>a</sup> | 89%<sup>a</sup> | 11%<sup>a</sup> | 90%<sup>a</sup> | 10%<sup>a</sup> | 96%<sup>a</sup> | 4%<sup>a</sup> | 60%<sup>a</sup> | 40%<sup>a</sup> | 80%<sup>a</sup> | 20%<sup>a</sup> |
| Anger | 2%<sup>a</sup> | 98%<sup>a</sup> | 51%<sup>b</sup> | 49%<sup>b</sup> | 84%<sup>a</sup> | 16%<sup>a</sup> | 83%<sup>a</sup> | 17%<sup>b</sup> | 86%<sup>a</sup> | 14%<sup>a</sup> | 91%<sup>a</sup> | 9%<sup>a</sup> | 9%<sup>a</sup> | 46%<sup>b</sup> | 54%<sup>b</sup> | 51%<sup>b</sup> | 49%<sup>b</sup> |
| Frustration | 6%<sup>a</sup> | 94%<sup>a</sup> | 73%<sup>c</sup> | 27%<sup>c</sup> | 67%<sup>b</sup> | 33%<sup>b</sup> | 65%<sup>bc</sup> | 35%<sup>bc</sup> | 69%<sup>b</sup> | 31%<sup>b</sup> | 76%<sup>bc</sup> | 24%<sup>bc</sup> | 24%<sup>c</sup> | 76%<sup>c</sup> | 35%<sup>bc</sup> | 65%<sup>bc</sup> |
| Submissive (Trustworthiness) Moods |
| Stress | 19%<sup>b</sup> | 81%<sup>b</sup> | 89%<sup>d</sup> | 11%<sup>d</sup> | 49%<sup>c</sup> | 51%<sup>c</sup> | 56%<sup>cd</sup> | 44%<sup>cd</sup> | 50%<sup>bc</sup> | 50%<sup>bc</sup> | 59%<sup>cd</sup> | 41%<sup>cd</sup> | 10%<sup>de</sup> | 90%<sup>de</sup> | 27%<sup>bc</sup> | 73%<sup>bc</sup> |
| Fright | 34%<sup>c</sup> | 66%<sup>c</sup> | 96%<sup>d</sup> | 4%<sup>d</sup> | 26%<sup>d</sup> | 74%<sup>d</sup> | 8%<sup>o</sup> | 92%<sup>e</sup> | 30%<sup>d</sup> | 70%<sup>d</sup> | 21%<sup>e</sup> | 79%<sup>e</sup> | 3%<sup>ef</sup> | 97%<sup>ef</sup> | 0%<sup>d</sup> | 100%<sup>d</sup> |
| Embarrassment | 37%<sup>cd</sup> | 63%<sup>cd</sup> | 92%<sup>d</sup> | 8%<sup>d</sup> | 53%<sup>bc</sup> | 47%<sup>bc</sup> | 49%<sup>cd</sup> | 51%<sup>cd</sup> | 56%<sup>bc</sup> | 44%<sup>bc</sup> | 80%<sup>bc</sup> | 20%<sup>bc</sup> | 18%<sup>cd</sup> | 82%<sup>cd</sup> | 25%<sup>bc</sup> | 75%<sup>bc</sup> |
| Worry | 49%<sup>d</sup> | 51%<sup>c</sup> | 93%<sup>d</sup> | 7%<sup>d</sup> | 29%<sup>d</sup> | 71%<sup>d</sup> | 16%<sup>c</sup> | 84%<sup>d</sup> | 19%<sup>d</sup> | 81%<sup>d</sup> | 9%<sup>d</sup> | 91%<sup>c</sup> | 5%<sup>ef</sup> | 95%<sup>ef</sup> | 3%<sup>d</sup> | 97%<sup>d</sup> |
| Sadness | 53%<sup>d</sup> | 47%<sup>d</sup> | 99%<sup>d</sup> | 1%<sup>d</sup> | 38%<sup>cd</sup> | 62%<sup>cd</sup> | 39%<sup>d</sup> | 61%<sup>d</sup> | 46%<sup>c</sup> | 54%<sup>c</sup> | 45%<sup>d</sup> | 55%<sup>d</sup> | 1%<sup>f</sup> | 99%<sup>f</sup> | 1%<sup>d</sup> | 99%<sup>d</sup> |

Nonverbal Behaviors

Crying | - | - | - | - | 54%<sup>a</sup> | 46%<sup>a</sup> | 40%<sup>a</sup> | 60%<sup>a</sup> | 53%<sup>a</sup> | 47%<sup>a</sup> | 51%<sup>a</sup> | 49%<sup>a</sup> | 2%<sup>a</sup> | 98%<sup>a</sup> | 3%<sup>a</sup> | 97%<sup>a</sup> |

Hitting | - | - | - | - | 82%<sup>a</sup> | 18%<sup>a</sup> | 76%<sup>a</sup> | 24%<sup>a</sup> | 82%<sup>a</sup> | 18%<sup>a</sup> | 95%<sup>a</sup> | 5%<sup>a</sup> | 46%<sup>a</sup> | 54%<sup>a</sup> | 65%<sup>a</sup> | 35%<sup>a</sup> |

Note. Frequencies of the responses of male and female participants are shown for crying and hitting behaviors (first set of columns), for desiring distance (D) or comfort (C) responses from others (second set of columns), and for the believed desires of male and female peers (third and fourth sets of columns). Underlined values indicate significant differences ($p < .05$) between the responses of male and female participants. Different superscript letters indicate significant mood differences in crying/hitting and distancing/comforting responses ($p = .002$).
Sex differences in affect behavior

Prediction (b) People desire others to react to one’s dominant distress behaviors with avoidant responses and to react to one’s submissive distress behaviors with comforting responses, and these desires are moderated by sex. Percentages of males and females that desired either distancing or comforting responses from others are shown in the second set of columns in Table 2. Examination of the social desires across mood states (α = .002) revealed that, collectively, males and females report the greatest desire for others to avoid rather than comfort them when feeling hot-temper and anger, followed by frustration, stress and embarrassment, sadness, worry, and fright. Chi square tests revealed sex differences in desired responses for fright, worry, and crying behavior (ps < .05), due to greater desires of females to receive more social comforting than males.

In order to further examine the hypothesis that males and females differentially prefer others to react to one’s distress with avoidant and comforting responses, respectively, I assessed distress behaviors and desired social responses to six negative life-events (stepping in mud, expulsion from school, locked keys in car, parental death, failing grade, and stubbed toe). Chi square tests, again, revealed a higher likelihood of males responding to each negative life-experience with hitting than crying behaviors and females with more crying than hitting behaviors (ps < .001), except for parental death (p = .17), of which both sexes reported a greater likelihood of crying to this event. These group differences emerged despite no sex differences in the perceived impact of the events on participant lives (ps > .29). Examination of desired social responses revealed sex differences for each event; males desired others to react with more avoidant than comforting reactions and females desired others to provide more comforting than avoidant behaviors (ps < .05), except for parental death (p = .13) and getting a failing grade (p = .30), of which both sexes reported a greater likelihood of desiring comfort and avoidance (respectively) to these events. Collectively, these findings indicate that people desire others to respond to self-expressed anger and hot-temper with avoidant reactions and respond to self-worry and especially fright with comforting reactions and that males and females differentially prefer avoidant and comforting social responses from others.

Prediction (c) People believe their peers similarly desire others to respond to the peer’s dominant and submissive distress behaviors with avoidant and comforting responses, respectively, and these beliefs differ by sex of the respondent and sex of the peer. The believed social desires (avoidance vs. comforting) of male and female peers are shown in the third and fourth set of columns in Table 2. Examination of believed social desires of male peers for each of the mood states (α = .002) revealed that both male and females participants believed male peers desired to be distanced from when experiencing dominant moods such as hot-temper and anger, and desired to be comforted when experiencing submissive moods such as fright and worry. Examination of the believed social desires of female peers again revealed that both male and female participants believed female peers desired distance when experiencing dominant moods such as hot-temperedness, and desired to be comforted when experiencing submissive moods such as sadness, fright, and worry.

Chi square tests revealed differences in believed desires of male and female peers among male and female participants. Chi square tests revealed that more males than females believed that male peers desire comfort when experiencing embarrassment and hitting behaviors, and that female peers desire comfort when experiencing hot-temperedness, stress, and hitting behavior. These tests also revealed that both male and
female participants believed that female peers desired more social comforting than male peers when experiencing each of the 8 mood states and distress behaviors (ps < .05), except for worrying among women (p = .06). These findings indicate that people believe their peers want others to respond to the peer’s dominant moods with avoidant reactions, and to respond to submissive moods with comforting reactions. Both sexes believe female peers desired more comforting behavior than male peers; however, male participants were more likely to infer that peers desire more comfort than female participants for some of the moods and aggressive behavior.

Prediction (d) Males and females are more accurate at inferring the social desires of same-sex, rather than opposite-sex peers. This hypothesis was examined by comparing participants’ self-desired social responses (for others to avoid or provide comfort; second set of columns in Table 2) and participants’ believed social desires of male and female peers (third and fourth set of columns of Table 2), separately by sex. Due to the possibility of carry-over effects in reporting self- and other-desired responses, McNemar’s chi square tests were used to test significant (p < .05) differences. These tests revealed a same-sex advantage at inferring the social desires of others among males, but not among females. Specifically, male participants believed their male peers’ social desires were similar to their own social desires for every mood state, crying, and hitting behavior (ps > .05). In contrast, male participants believed female peers desired more comforting responses than the male participants, themselves, self-desired for every mood state, crying, and hitting behaviors (ps < .001) as described above.

For female participants a different pattern emerged, such that female participants believed their female peers’ social desires were only similar to their own social desires for hot-temper (p = .09) and hitting behavior (p = .15). For the remainder of the mood states (except for fright) and for crying behavior, female participants self-desired less comforting responses than they believed their female peers desired (ps < .001). Comparisons for fright could not be computed due to the uniformity of belief that females' peers desired comfort when frightened. In contrast, female participants self-desired more similar responses to the believed desires of male peers for sadness, anger, frustration, worry, hot-temper, stress, and crying behavior (ps > .17); and self-desired less distancing responses than believed of male peers for embarrassment, fright, and hitting behavior (ps < .05).

Further examination of the bivariate correlations between self-reported desires (coded 1 for social comfort and 2 for social distancing) and inferred social desires of same-sex peers confirmed a male advantage at within-sex inferences. Males evidenced significant correlations between self-reported desires and inferred desires of male peers for each of the 8 mood states and crying behavior (rs ranged from .19 to .42, ps < .05). In contrast, female participants’ only evidenced significant correlations between self-reported desires and inferred social desires of female peers for hot-temper (r = .37, p < .01), frustration (r = .30, p < .05), and hitting behavior (r = .25, p < .05); for the remainder of the mood states and for crying behavior, the correlations were non-significant (ps > .05).

Discussion

According to the socio-relational perspective, sex differences in distress behaviors, such as higher levels of physical aggression in males and crying behaviors in females may reflect the selective advantage of advertising the capacity (via dominant behaviors) or
Sex differences in affect behavior

trustworthiness (via submissive behaviors) components of reciprocity potential across same-sex relationships (Vigil, in press). I used this thesis to examine two broad assumptions of the framework. The first assumption is that males and females display higher levels of aggressive and crying behaviors in order to cause peers to either distance themselves from, or to comfort the individual, respectively. For males, receiving emotional support from others may reduce the perception of capacity attributes (e.g., toughness). This hypothesis is consistent with observational research showing that people are less likely to provide comforting behaviors to, and are more likely to distance themselves from peers they perceive as angry and aggressive (e.g., Strayer and Roberts, 2004; Xu and Zhang, 2007). Males may thus express higher levels of aggression in part to cause peers to distance themselves from the individual, and demonstrate the ability to protect oneself in times of stress. Some research suggests that males (particularly during adolescence and young adulthood) are attracted to male peers that are perceived as aggressive and dominant (e.g., Chang, 2004; Farmer et al., 2003). This research suggests that males may have evolved the sensitivity to express higher levels of aggressive behaviors in order to attract the affiliation of potential coalition members and avoid interactions with potentially dangerous adversaries. In contrast, females were predicted to exaggerate the expression of submissive distress behaviors (i.e., crying) in order to attract the affiliation of others. Female peers may respond to these displays with the reciprocation of intimate comforting responses and hence trustworthiness displays of their own (Vigil, in press; see also Hagen, 2003). The second assumption I examined is that people are better at inferring the desired social responses of same-sex, rather than opposite-sex peers. These sensitivities, should they exist, would support the hypothesis that nonverbal affect behaviors have evolved, primarily, to communicate with same-sex affiliates.

The results of the study are generally consistent with these hypotheses and showed that both sexes were more likely to respond to dominant moods (e.g., anger, hot-temper, and frustration) with higher levels of aggression then they responded to submissive moods (e.g., sadness, fear, embarrassment, worry, and stress). Likewise, both sexes were more likely to respond to submissive moods with higher levels of crying behaviors than they responded to dominant moods. These behavioral proclivities were in turn moderated by sex; males were more likely to respond to mild and significant stressors and variant mood states with aggression, and females were more likely to respond with crying behaviors. These findings are consistent with cross-cultural studies showing that females cry an average of 2½ times more frequently than males (Becht and Vingerhoets, 2002), and report crying in response to a greater variety of emotions and personal and interpersonal experiences in general (e.g., Williams and Morris, 1996). Other research suggests that sex differences in behavioral reactivity may be rooted in distinct neuroendocrine (e.g., sympathetic nervous system) mechanisms for moderating affect behaviors in males and females (e.g., see Vigil, Geary, Granger, and Flinn, in press). Indeed, the female participants in this study reported a greater likelihood of crying than hitting behaviors when feeling each of the dominant and submissive moods, except for feelings of hot-temperedness. Sadness behaviors result in increased social support provided by intimate confidantes (Terwogt, 2002). Females may have therefore evolved a sensitivity to display higher levels of these behaviors than males in order to consolidate the intimacy and reliability of their social networks. In contrast, males evidenced the reverse pattern by reporting a greater likelihood of producing aggressive behaviors (hitting) when feeling each
Sex differences in affect behavior

of the dominant and submissive mood-states, except for feelings of sadness. Males may have evolved a sensitivity to display higher levels of these behaviors in part to cause others to distance themselves from the male and thus enable him to demonstrate the ability to protect himself in times of stress.

The findings are also consistent with the prediction that both sexes desire, and infer peers to desire, social avoidance when experiencing more dominant distress moods and instead desire and infer peers to desire comforting responses when feeling more submissive distress moods. These findings suggest that dominant and submissive distress behaviors may be effective for causing others to either avoid or solicit affiliation with the individual. According to the SRFB, affective responses are manifested as expressive behaviors that operate in part to modify the formation and maintenance of different types of relationships. By modifying the quantity and intimacy level of peer relationships, individuals may be able to optimize their social networks in ways that facilitate recovery from adverse experiences (Vigil, in press).

The findings also suggest that males and females desire different responses from their peers when experiencing various life stressors and discrete moods. Males reported a greater desire for other people to respond to their distress with avoidant rather than comforting responses, and especially when experiencing fear, worrying, and crying behaviors. In contrast, females overwhelmingly desired comforting over distancing responses from others to these types of submissive distress behaviors. Previous research suggests that males are more likely to explicitly deny experiencing submissive emotions, compared to females, and instead report a greater likelihood of experiencing dominant moods such as contempt (e.g., Stapley and Haviland, 1989; Timmers, Fischer, and Manstead, 1998). Other studies have shown that self-reported masculinity in males is associated with acute anxiety over expressing displays of submissiveness (e.g., felt pain and sadness), but not dominance (e.g., anger; Gold, Fultz, Burke, Prisco, and Willet, 1992; Jakupcak, Salters, Gratz, and Roemer, 2003; see also Updegraff, McHale, and Crouter, 2000). By disregarding submissive emotions, males may increase the perception of dominance to peers. When men do experience these feelings, they appear to be motivated to distance themselves from others, conceal their vulnerability, and deny the comforting responses of others. Likewise, both males and females believed that male peers desire more social distancing responses than female peers in general. This effect was quite robust, and suggests that both sexes are intuitively aware of the distinct social desires described above. These findings provide tentative support for the hypothesis that nonverbal distress behaviors are both specialized (e.g., distinguished across males and females) and functional (e.g., for effectively communicating social desires), and hence phenotypically adaptive. One finding that was not expected, however, was the pattern for female participants, rather than male participants, to believe both male and female peers desired more social distancing to some moods and distress behaviors. This finding is inconsistent with the hypothesis and previous results and are consequently paradoxical (see thoughts below).

Finally, I predicted that males and females were more accurate at inferring or understanding the desired social responses of same-sex, rather than opposite-sex peers. Results were only partially consistent with this hypothesis, and showed that only men were better at predicting the social desires of same-sex peers for every mood and distress behavior, compared to inferences among women. The similarity between men’s self desires and the believed desires of male peers suggest that males are using their own motivational
Sex differences in affect behavior

drives as an anchor or model for their beliefs about other males. In contrast, males believed that females desired more comforting responses than the males themselves desired across every mood and distress behavior. These findings suggest that males are taking into consideration the general tendency of females to usually desire comforting responses to submissive mood states.

Equally interesting is the finding that the majority of females, with the exception of hot-temperedness and hitting behaviors, did not believe their female peers’ desires were similar to their own. This pattern emerged due to greater beliefs that female peers desire more comforting responses that the female participants, themselves, desired. Thus, whereas males appeared to use their own desires to make inferences about other males, the females in this study did not. One possibility is that these findings reflect a broad expressive bias for women to ubiquitously provide (or desire to provide) more comforting responses (e.g., sympathy) to distressed peers, compared to males. However, if this is the case, then the same bias should be shown toward males (i.e. females should believe that males also desire comfort more than distance). This finding is not supported by the data (with exception of “worry” in which 91% of females believed males desire comfort). Another possibility is that both males and females are sensitive to the types of submissive distress behaviors (e.g., sadness facial expressions, reserved body language, crying) that females display more overtly than males, and subsequently react with compassionate (comforting) responses.

The finding that males are better at inferring the desires of same-sex peers than are females and that male participants believe peers desire more comforting responses to some moods than do females, runs contrary to previous research suggesting that females are more empathetic than males in general (Baron-Cohen and Wheelright, 2004; Davis, 1994; Geary, 1998; Hoffman, 1977; Rose and Rudolph, 2006). Other analyses have found that the female advantage in empathetic awareness is strongest for studies that use self-report measures, modest for observations of empathetic behaviors, and nonexistent for studies that rely on physiological measures of affective arousal (Eisenberg and Lennon, 1983). Thus, it is possible that females may not be more understanding of, or physiologically reactive to, the visceral distress and desires of other people than males, per se. Rather, females may simply be biased to express (self-report) higher levels of altruistic dispositions, compared to males in general. Because the items in this study were designed to measure behavioral actions (i.e., comforting or distancing from peers) rather than subjective dispositions (e.g., sympathy), it is likely that the current findings reflect this important distinction. Instead, the tendency for male participants to believe that female peers desire more social comfort than the female participants themselves expressed may reflect an overcompensation for the dissonance between male’s own desires (often to be distanced by peers) and the general desires of women to be comforted. Another possibility is that the participants in this study were influenced by their own interpersonal experiences or experiences that are unique to each sex (e.g., greater sexual victimization experiences and associated avoidant dispositions in women).

Unfortunately, individual differences in past experiences and intentions were not measured in the current study. This was a significant limitation and may have altered certain aspects of the current findings. It is certainly possible, for instance, that without references to specific contextual and interpersonal cues that guide social interactions, the participants may have chosen their responses (e.g., to provide comfort to female peers) by default. Still, the results of the study are interesting and provide a preliminary investigation
Sex differences in affect behavior

of specific socio-relational functions or selective advantages of common nonverbal behaviors. In particular, the results show that these functions may differ for males and females, and that humans may be equipped with specialized interpersonal behaviors for communicating and interacting with same-sex affiliates.

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References

Andersen, S. M., and Chen, S. (2002). The relational self: An interpersonal social-cognitive theory. Psychological Review, 109, 619-645.

Arsenio, W. F., Coopeman, S., and Lover, A. (2000). Affective predictors of preschoolers’ aggression and peer acceptance: Direct and indirect effects. Developmental Psychology, 36, 438-448.

Baron-Cohen, S. and Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. Journal of Autism and Developmental Disorders, 34, 163-175.

Becht, M. C., and Vingerhoets, A. J. J. M. (2002). Crying and mood change: A cross-cultural study. Cognition and Emotion, 16, 87-101.

Benenson, J. F., Maiese, R., Dolenszky, E., Dolensky, N., Sinclair, N., and Simpson, A. (2002). Group size regulates self-assertive versus self-depreciating responses to interpersonal competition. Child Development, 73, 1818-1829.

Buck, R. (1999). The biological affects: A typology. Psychological Review, 106, 301-336.

Bugental, D. B. (2000). Acquisition of the algorithms of social life: A domain-based approach. Psychological Bulletin, 126, 187-219.

Cacioppo, J. T., Klein, D. J., Berntson, G. G., and Hatfield, E. (1993). The psychophysiology of emotion. In M. Lewis and J. M. Haviland (Eds.), Handbook of emotions (2nd ed., pp. 119-142). New York: Guilford Press.

Camras, L. A., Holland, E. A., and Patterson, M. J. (1993). Facial expression. In M. Lewis and J. M. Haviland (Eds.), Handbook of emotions (2nd ed., pp. 199-208). New York: Guilford Press.

Chang, L. (2004). The role of classroom norms in contextualizing the relations of children’s social behaviors to peer acceptance. Developmental Psychology, 40, 691-702.

Chapman, A. J. (1973). Social facilitation of laughter in children. Journal of Experimental Social Psychology, 9, 528-541.

Cillessen, A. H. N., and Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. Child Development, 75, 147-163.

Cottrell, C. A., Neuberg, S. L., and Li, N. P. (2007). What do people desire in others? A sociofunctional perspective on the importance of different valued characteristics. Journal of Personality and Social Psychology, 92, 208-231.
Sex differences in affect behavior

Davidson, R. J. (1993). The neuropsychology of emotion and affective style. In M. Lewis and J. M. Haviland (Eds.), *Handbook of emotions* (pp. 143-154). New York: Guilford Press.

Davidson, R. J., Jackson, D. C., and Kalin, N. H. (2000). Emotion, plasticity, context, and regulation: Perspectives from affective neuroscience. *Psychological Bulletin, 126*, 890-909.

Davis, M. H. (1994). *Empathy: A social psychological approach*. Boulder, CO: Westview Press.

de Waal, F. B. M. (1993). Sex differences in chimpanzee (and human) behavior: A matter of social values? In M. Hechter, L. Nadel, and R. E. Michod (Eds.), *The origin of values* (pp. 285-303). Hawthorne, NY: Aldine de Gruyter.

Eisenberg, N., and Lennon, R. (1983). Sex differences in empathy and related capacities. *Psychological Bulletin, 94*, 101-130.

Farmer, T. W., Bishop, D. B., O’Neal, K. K., and Cairns, B. D. (2003). Rejected bullies or popular leaders? The social relations of aggressive subtypes of rural African American early adolescents. *Developmental Psychology, 39*, 992-1004.

Fridlund, A. J. (1991). Sociality of solitary smiling: Potentiation by an implicit audience. *Journal of Personality and Social Psychology, 60*, 229-240.

Geary, D. C. (Ed.) (1998). *Male, female: The evolution of human sex differences*. Washington, DC: American Psychological Association.

Geary, D. C. (2002). Sexual selection and human life history. *Advances in Child Development and Behavior, 30*, 41-101.

Geary, D. C., Byrd-Craven, J., Hoard, M. K., Vigil, J., and Numtee, C. (2003). Evolution and development of boys' social behavior. *Developmental Review, 23*, 444-470.

Geary, D. C., and Flinn, M. V. (2001). Evolution of human parental behavior and the human family. *Parenting: Science and Practice, 1*, 5-61.

Geary, D. C., and Flinn, M. V. (2002). Sex differences in behavioral and hormonal response to social threat: Commentary on Taylor et al. (2000). *Psychological Review, 109*, 745-750.

Geary, D. C., Vigil, J., and Byrd-Craven, J. (2004). Evolution of human mate choice. *Journal of Sex Research, 41*, 27-42.

Gold, S. R., Fultz, J., Burke, C. H., Prisco, A. G., and Willet, J. A. (1992). Vicarious emotional responses of macho college males. *Journal of Interpersonal Violence, 7*, 165-174.

Gray, J. R. (2002). Does a prosocial-selfish distinction help explain the biological affects? Comment on Buck (1999). *Psychological Review, 109*, 729-738.

Hagen, E. H., (2003). The bargaining model of depression. In P. Hammerstein (Ed.), *Genetic and cultural evolution of cooperation* (pp. 95–123). Cambridge, MA: MIT Press.

Hamilton, W. D. (1964). The genetical evolution of social behaviour. II. *Journal of Theoretical Biology, 7*, 17-52.

Hoffman, M. L. (1977). Sex differences in empathy and related behaviors. *Psychological Bulletin, 84*, 712-722.

Jakupcak, M., Salters, K., Gratz, K. L., and Roemer, L. (2003). Masculinity and emotionality: An investigation of men’s primary and secondary emotional responding. *Sex Roles, 49*, 111-120.
Sex differences in affect behavior

Kenny, D. A., Mohr, C. D., and Levesque, M. J., (2001). A social relations variance partitioning of dyadic behavior. *Psychological Bulletin, 127*, 128-141.

Kraut, R. E., and Johnston, R. E. (1979). Social and emotional messages of smiling: An ethological approach. *Journal of Personality and Social Psychology, 37*, 1539-1553.

LaFrance, M., Hecht, M. A., and Paluck, B. L. (2003). The contingent smile: A meta-analysis of sex differences in smiling. *Psychological Bulletin, 129*, 305-334.

Leaper, C., and Smith, T. E. (2004). A meta-analytic review of gender variations in children’s language use: Talkativeness, affiliative speech, and assertive speech. *Developmental Psychology, 40*, 993-1027.

Lever, J. (1978). Sex differences in the games children play. *American Sociological Review, 43*, 471-483.

Levy, D. P. (2005). Hegemonic complicity, friendship and comradeship validation and causal processes among white, middle-class, middle-aged men. *Journal of Men’s Studies, 13*, 199-224.

Maccoby, E. E. (2002). Gender and group processes: A developmental perspective. *Current Directions in Psychological Science, 11*, 55-58.

Marsh, A. A., Adams, R. B., and Kleck, R. E. (2005). Why do fear and anger look the way they do? Form and social function in facial expressions. *Personality and Social Psychology Bulletin, 31*, 73-86.

Mondillon, L., Niedenthal, P. M., Brauer, M., Rohmann, A., Dalle, N., and Uchida, Y. (2005). Beliefs about power and its relation to emotional experience: A comparison of Japan, France, Germany, and the United States. *Personality and Social Psychology Bulletin, 31*, 1112-1122.

Montepare, J. M., and Dobish, H. (2003). The contribution of emotion perceptions and their overgeneralizations to trait impressions. *Journal of Nonverbal Behavior, 27*, 237-254.

Öhman, A. (2002). Automaticity and the amygdala: Nonconscious responses to emotional faces. *Current Directions in Psychological Sciences, 11*, 62-66.

Rodkin, P. C., Farmer, T. W., Pearl, R., and Van Acker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology, 36*, 14-24.

Rose, A. J., and Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin, 132*, 98-131.

Rudolph, K. D., Caldwell, M. S., and Conley, C. S. (2005). Need for approval and children’s well-being. *Child Development, 76*, 309-323.

Stapley, J. C., and Haviland, J. M. (1989). Beyond depression: Gender differences in normal adolescents’ emotional experiences. *Sex Roles, 20*, 295-308.

Strayer, J., and Roberts, W. (2004). Empathy and observed anger and aggression in five-year-olds. *Social Development, 13*, 1-13.

Taylor, S. E., Cousino, L., Lewis, B. P., Gruenwald, T. L., Gurung, R. A. R., and Updegraff, T. L. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review, 107*, 411-429.

Terwogt, M. M. (2002). Emotional states in self and others as motives for helping in 10-year-old children. *British Journal of Developmental Psychology, 20*, 131-147.
Sex differences in affect behavior

Timmers, M., Fischer, A. H., and Manstead, A. S. R. (1998). Gender differences in motives for regulating emotions. *Personality and Social Psychology Bulletin, 24*, 974-985.

Todorov, A. (2008). Evaluating faces on trustworthiness. An extension of systems for recognition of emotions signaling approach/avoidance behaviors. *Annuals of the New York Academy of Sciences, 1124*, 208-224.

Todorov, A., Mandisodza, A. N., Goren, A., and Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science, 308*, 1623-1626.

Willis, J., and Todorov, A. (2006). First impressions: Making up your mind after 100-Ms exposure to a face. *Psychological Science, 17*, 592-598.

Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology, 46*, 35-57.

Updegraff, K. A., McHale, S. M., and Crouter, A. C. (2000). Adolescent’s sex-typed friendship experiences: Does having a sister versus a brother matter? *Child Development, 71*, 1597-1610.

Van Tilburg, M. A. L., Unterberg, M. L., and Vingerhoets, A. J. J. M. (2002). Crying during adolescence: The role of gender, menarche, and empathy. *British Journal of Developmental Psychology, 20*, 77-87.

Vigil, J. M. (2007). Asymmetries in the friendship preferences and social styles of men and women. *Human Nature, 18*, 143-161.

Vigil, J. M. (in press). A socio-relational framework of sex differences in the expression of emotion. *Behavioral and Brain Sciences*.

Vigil, J. M., and Geary, D. C. (2008). A preliminary investigation of family coping styles and psychological well-being among adolescent survivors of Hurricane Katrina. *Journal of Family Psychology, 22*, 176-180.

Vigil, J. M., Geary, D. C. and Byrd-Craven, J. (2006). Tradeoffs in low income women’s mate-preferences: Within-sex differences in reproductive strategy. *Human Nature, 17*, 319-336.

Vigil, J. M., Geary, D. C., Granger, D. A., and Flinn, M. V. (in press). Sex differences in salivary cortisol, alpha-amylase, and psychological functioning following Hurricane Katrina. *Child Development*.

Vingerhoets, A. J. J. M., Cornelius, R. R., Van Heck, G. L., and Becht, M. C. (2000). Adult crying: A model and review of the literature. *Review of General Psychology, 4*, 354-377.

Williams, D. G., (1982). Weeping by adults: Personality correlates and sex differences. *The Journal of Psychology, 110*, 217-226.

Williams, D. G., and Morris, G. H. (1996). Crying, weeping or tearfulness in British and Israeli adults. *British Journal of Psychology, 87*, 479-505.

Willis, J., and Todorov, A. (2006). First impressions: Making up your mind after 100-Ms exposure to a face. *Psychological Science, 17*, 592-598.

Wrangham, R., and Peterson, D. (1996). *Demonic males: Apes and the origins of human violence*. Boston: Houghton Mifflin.

Xu, Y., and Zhang, Z. (2007). Distinguishing proactive and reactive aggression in Chinese children. *Journal of Abnormal Child Psychology, 36*, 539-552.

Zuroff, D. C., Fournier, M. A., and Moskowitz, D. S. (2007). Depression, perceived inferiority, and interpersonal behavior: Evidence for the involuntary defeat strategy. *Journal of Social and Clinical Psychology, 26*, 751-778.