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Happy Guys Finish Last: The Impact of Emotion Expressions on Sexual Attraction

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This research examined the relative sexual attractiveness of individuals showing emotion expressions of happiness, pride, and shame compared with a neutral control. Across two studies using different images and samples ranging broadly in age (total $N = 1041$), a large gender difference emerged in the sexual attractiveness of happy displays: happiness was the most attractive female emotion expression, and one of the least attractive in males. In contrast, pride showed the reverse pattern; it was the most attractive male expression, and one of the least attractive in women. Shame displays were relatively attractive in both genders, and, among younger adult women viewers, male shame was more attractive than male happiness, and not substantially less than male pride. Effects were largely consistent with evolutionary and socio-cultural-norm accounts. Overall, this research provides the first evidence that distinct emotion expressions have divergent effects on sexual attractiveness, which vary by gender but largely hold across age.

Keywords: emotion expression, sexual attraction, pride, shame, happiness

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Showing a happy face is considered essential to any friendly social interaction, including those involving sexual attraction. Yet few studies have examined whether a happy expression is in fact, attractive. Are women interested in men who smile, or do they prefer men who appear confident? Do men seek happy women, or are they more drawn to those who are demure, averting their gaze and showing shame? Given that most social interactions entail the spontaneous display of emotion expressions (Ekman, 2003), and are, to some extent, guided by judgments of attractiveness (Reis et al., 1982), it is likely that emotion expressions have some impact on attractiveness. Furthermore, although emotion expressions tend to be fleeting, they are often perceived as indicators of the expresser's dispositional qualities, and some have argued that they evolved, in part, to serve this broader communicative function (Darwin, 1872/1962; Knutson, 1996). Yet, previous research has not systematically addressed the question of how distinct emotion expressions influence sexual attractiveness.

The present research examined whether three emotion expressions known to be cross-culturally recognized and to communicate information relevant to an individual's mate value (i.e., information that should influence attractiveness; Buss & Schmitt, 1993; Gangestad & Simpson, 2000) have reliable effects on the perceived sexual attractiveness of targets showing them. Specifically, we compared attractiveness judgments made for individuals displaying expressions of happiness, pride, and shame, as well as a neutral control. All three of these expressions show evidence of cross-cultural universality, suggesting evolutionary origins (Ekman, 2003; Izard, 1971; Keltner, 1995; Tracy & Matsumoto, 2008; Tracy & Robins, 2008)[1], and convey important social information relevant to mating and romantic relationships. Pride signals the expresser's high status; studies have shown that individuals displaying pride are automatically perceived as higher status than individuals showing a range of other emotions (including shame, happiness, and neutral), and this signaling function generalizes across cultures (Shariff & Tracy, 2009; Tracy, Shariff, Zhao, & Henrich, 2011). Shame, an appeasement display, signals both the expresser's low status and his or her awareness that he or she has violated a social norm; the adaptive benefit of this message may lie in its communication of the expresser's regret and implied respect for social norms (Gilbert, 2007; Keltner, 1995; Keltner, Young, & Buswell, 1997). Happiness communicates the expresser's friendliness and approachability; happy displays tend to elicit trust and approach-oriented behaviors in onlookers (Becker, Kenrick, Neuberg, Blackwell, & Smith, 2007; Brown, Palameta, & Moore, 2003). All of these messages may influence attractiveness, but, given evidence for gender-specific mating strategies (Buss, 2008), they may do so in different ways for male and female expressers.

Previous research suggests that women tend to seek partners who are reliable providers, whereas men place higher value on a potential mate's youth, health, and apparent receptivity to sexual

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[1] The evidence for cross-cultural recognition of shame is somewhat weaker than that for pride and happiness; shame recognition rates tend to be lower, across samples, and not always significantly greater than chance (see Haidt & Keltner, 1999). However, several studies have found shame recognition rates to be significantly greater than chance and comparable to rates for other displays, in several different cultural groups (Izard, 1971; Keltner, 1995; Tracy & Robins, 2008), and there is evidence for spontaneous displays of shame by the congenitally blind (Tracy & Matsumoto, 2008), suggesting that the expression is, in fact, universal.

relationships (e.g., Buss, 2008). Thus, women may find male pride displays more attractive than male happiness, given that a high-status man is likely to be a better provider than a friendly and approachable man. In contrast, men may show the reverse preferences for female expressers, given that a friendly and approachable woman may seem more sexually interested or receptive than a high-status woman. This prediction is also consistent with sociocultural gender norms which, in many cultures, require that women appear submissive and vulnerable, and men dominant and confident (Cicone & Ruble, 1978; Rainville & Gallagher, 1990). Individuals whose behavior and appearance is consistent with these gender norms tend to be considered most attractive (Brown, Cash, & Noles, 1986; O'Doherty et al., 2003), so a proud man and happy woman may be valued for reasons of gender-norm consistency, as well as for their potentially high mate value. Indeed, perhaps because women are known to smile (the key behavioral component of the happy display) more frequently than men (LaFrance, Hecht, & Paluck, 2003), happy displays have been associated with femininity (Becker et al., 2007).

In contrast to these generally positive emotions, shame's low-status message may reduce attractiveness, at least in male expressers. Women who display shame might benefit from the gender-norm consistent message of low status or submissiveness, but, when sent by men, this message would be both gender-norm-inconsistent and indicative of low mate value. On the other hand, given that the shame display functions as both a low-status message and an appeasement mechanism generating forgiveness for one's transgressions, the expression's impact on male attractiveness may not be entirely negative. The shame expression is thought to be recognized and displayed, despite its potentially harmful (to the expresser) message of low-status, because it protects a transgressing expresser from overly negative social appraisals via its appeasement effect (Keltner, Young, & Buswell, 1997). Indeed Gilbert (2007) and Fessler (2007) have argued that the shame expression has been co-opted from its ancient role as a submission display to now function as a signal of trustworthiness and willingness to cooperate. Although, on the one hand, it may seem odd that both pride and shame could increase attractiveness, on the other hand, if shame functioned only to signal failure, it would be maladaptive for the sender and thus unlikely to have evolved. Rather, shame displays may communicate an individual's commitment to his or her social group and its norms and beliefs, a message that could promote attractiveness in both genders. Furthermore, if shame communicates high group-commitment while also informing of a social trespass, it could elicit sympathy or nurturance—traits previously found to increase attractiveness (Cunningham, Barbee, & Pike, 1990). In sum, it is somewhat unclear precisely how shame might affect attractiveness, and whether its effect varies by gender. Competing hypotheses exist and no previous studies have examined this issue.

Previous studies have, however, provided evidence relevant to the impact of happy and proud displays on attractiveness. The appearance of dominance, which is communicated by pride, has been shown to increase male attractiveness in several American samples (e.g., Cunningham et al., 1990; Sadalla, Kenrick, & Vershure, 1987; Reis et al., 1982), and in nonhuman primates (e.g., Struhsaker, 1967). In one of the only studies to directly examine the attractiveness of several distinct female expressions, happiness was found to increase women's attractiveness (Mueser, Grau, Sussman, & Rosen, 1984). In several other studies examining the social impact of smiling, these expressions increased the attractiveness of female targets but had no effect on males (Penton-Voak & Chang, 2008; Schulman & Hoskins, 1986); another study found that the presence versus absence of a smile had no effect on male attractiveness, but the broadness of a man's smile was a positive predictor (Cunningham et al., 1990).[2] In one study that examined the attractiveness of male and female happy faces, there was no overall cross-gender effect (O'Doherty et al., 2003).

Thus, given limited previous research and somewhat equivocal findings on the impact of happy displays, we examined the relative attractiveness of happy, pride, and shame expressions, as well as neutral, in several large samples of younger and older adults. In Study 1, we compared attractiveness judgments made for one male and one female target individual, each showing all four expressions. In Study 2, three samples of participants, varying in age, viewed 240 different male and female targets, with different targets showing each expression.

Study 1

Method

Participants and procedure. In this study, 184 Canadian undergraduates (50% female; age = 17–49 years, *median* = 21; 52% Asian, 48% Caucasian)[3] were approached by an experimenter of the same gender and asked to view one 8″ × 10″ laminated photo of an opposite sex target posing an expression of happiness, pride, shame, or neutral. By asking participants to view and judge only one image, we ensured that effects would not be influenced by any tendency to make comparisons among different targets or emotions. Given our interest in studying the effects of emotion expressions on *sexual* attraction, all participants viewed and provided judgments for an opposite sex target only, and nonheterosexual participants (i.e., those who rated themselves 3 or above a 1–7 scale where 1 = *exclusively heterosexual*, 4 = *bisexual*, and 7 = *exclusively homosexual*) were removed from analyses. While viewing the image, participants responded to the question: "How sexually attractive do you find this person?" using a 9-point scale ranging from 1 (*not very*) to 9 (*extremely*).

Materials. Photos were taken from the University of California Davis Set of Emotion Expressions (Tracy, Robins, & Schriber, 2009), a Facial Action Coding Scheme (FACS; Ekman & Friesen, 1978)-verified set of expressions. The photos featured one Caucasian male and one Caucasian female target from the waist up (see Figure 1). All emotion expressions featured in these photos have been shown to be reliably recognized significantly better than chance (Tracy et al., 2009), and to convey the behaviors found to be associated with each of these expressions, and no other behaviors. More specifically, as is shown in Figure 1, the pride photos

[2] Although smiling (i.e., raised lip corners, or, activation of the *zygomaticus major*) is only one component of the prototypical, cross-culturally recognized happy display, it is the most essential component. The only other component, raised cheeks (activation of the *orbicularis oculi*), is present only sometimes; smiles not accompanied by raised cheeks are still reliably identified as happiness, despite being less reliably associated with the experience of happiness (Ekman, 1992).

[3] Ethnicity did not moderate any results in Study 1.

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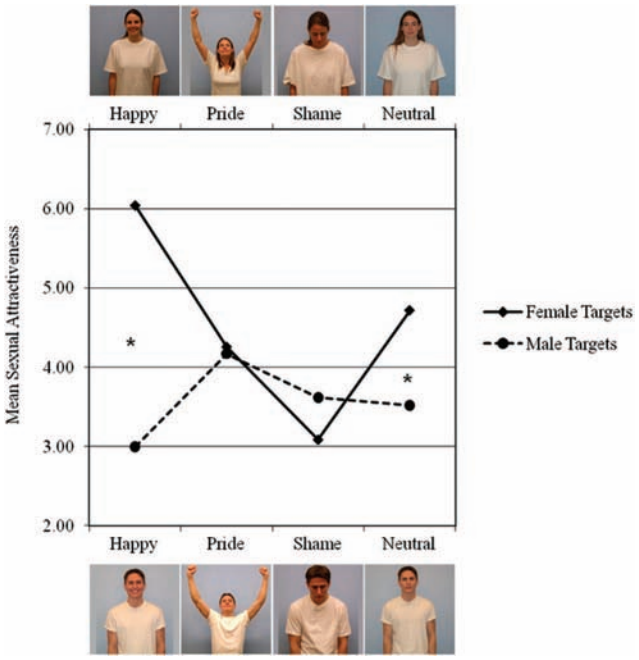

Figure 1. Mean sexual attractiveness ratings of male and female displays of emotion expressions posed by a single male and female target, Study 1. For the female target, significant differences emerged between shame and all other expressions, and between happiness and all other expressions, all *p*s $< .01$, except for the difference between shame and pride which was significant at the $p < .05$ level. For the male target, a significant difference emerged between pride and happy expressions, $p < .05$. Images (which were used as stimuli in Study 1) were taken from the University of California, Davis Set of Emotion Expressions (Tracy et al., 2009). $N = 184$. * $p < .05$.

portrayed individuals displaying a small smile, head tilted slightly up, expanded chest, and arms raised above the head with hands in fists. The shame photos portrayed individuals tilting their heads down, directing eye gaze down, and slightly narrowing their chest and posture. The happy photos portrayed individuals smiling broadly with open mouth, and raising their cheeks (i.e., the Duchenne smile; Ekman, 2003).

Results and Discussion

To test our prediction that the effect of emotion expression on attractiveness would vary by gender, we conducted a 4 (emotion condition) $\times$ 2 (gender) between-subjects analysis of variance (ANOVA) on attractiveness ratings, and found the predicted interaction, $F(3, 175) = 9.44$, $p < .01$ (see Figure 1).[4] We next examined differences between displays within each gender, to determine how the pattern of attractiveness by emotion varied between men and women. As predicted, female happy displays were judged more attractive than female pride displays, $t(45) = 3.44$, $d = 1.02$, $p < .01$, whereas the reverse pattern emerged for the male target, $t(45) = 2.37$, $d = 0.70$, $p < .05$. Indeed, happiness was the most attractive female expression; compared to shame, $t(44) = 5.51$, $d = 1.63$, $p < .01$, and neutral, $t(44) = 2.56$, $d = 0.66$, $p < .05$. Shame was the least attractive female expression; compared to pride, $t(43) = 2.35$, $d = 0.70$, $p < .05$, and neutral, $t(42) = 2.87$, $d = 0.87$, $p < .01$. Other than the difference between the male pride and happy displays, none of the male expressions differed significantly from each other. Directly comparing the attractiveness of each expression by gender, happy, $t(46) = 6.39$, $d = 1.88$, $p < .01$, and neutral expressions, $t(41) = 2.22$, $d = 0.69$, $p < .05$, were more attractive in women than men.

Indeed, collapsing across expression, an overall gender effect emerged on attractiveness, $t(181) = 3.49$, $d = 0.52$, $p < .01$. This difference, likely associated with the broader tendency for women to be judged more positively than men, has been previously documented (Eagly, Mladinic, & Otto, 1991; Jones, Jones, Thomas, & Piper, 2003; Raines, Hechtman, & Rosenthal, 1990). Here, this difference may also represent a response bias driven by the cultural "double standard," wherein it is considered more acceptable for men to openly express their sexual interests than it is for women to do so (D'Emilio & Freedman, 1997; Li & Kenrick, 2006). As a way of controlling for this overall gender difference in attractiveness ratings, we next standardized ratings within each gender, to equate male and female attractiveness means. We then reanalyzed results using these standard scores. The 2 (gender) $\times$ 4 (emotion expression) interaction held, $F(3, 175) = 8.54$, $p < .01$, as did the between-gender difference in ratings of happy displays, $t(46) = 4.25$, *M*s $= 0.71$ versus -0.34, $p < .01$. The absolute gender difference in ratings of neutral displays was reduced to nonsignificance, $t(41) = 0.40$, *M*s $= 0.08$ (female displays) versus -0.03 (male), *ns*, as would be expected if these ratings are largely driven by the overall gender difference in attractiveness judgments. Interestingly, a significant difference in judgments of shame displays emerged, with male shame rated more attractive than female shame, $t(44) = 2.59$, *M*s $= 0.03$ versus -0.70, $p < .05$. For pride, the between-gender difference became marginally significant, $t(44) = 1.69$, *M*s $= 0.35$ (male displays) versus -0.14 (female), $p = .10$. Thus, it seems that the absolute gender difference in happy displays was not due to the broader gender difference in attractiveness judgments, and that shame displays may actually be *more* attractive in men than women when this broader difference is statistically removed.

Overall, these findings are largely consistent with our expectations; happiness was more attractive in women than men, both relative to the other expressions and in terms of an absolute gender difference, and even when controlling for the overall gender difference in attractiveness ratings. In addition, pride was more attractive in men than women, but only relative to the other expressions—though the lack of an absolute gender difference here may partly be due to the broader tendency of men to rate women more attractive than women rate men. The specific nature of this pattern was somewhat unexpected; although we predicted a gender difference for happy and pride expressions, we had expected a larger absolute gender difference for pride displays than happy; the very low ratings of male happiness were somewhat unexpected, as was the absence of a difference between male shame and pride, and the finding that male shame was more attractive than female shame when standard scores were used.

However, given that only two targets were included in this study, these results could be due to unique physiognomic features

[4] Because all participants viewed opposite sex photos, "gender" refers both to targets and participants.

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of these individuals. To address this concern, Study 2 included multiple targets portraying each expression. Study 2 also included several different samples of viewers, one of which was drawn from a population of older adults, allowing us to test whether results vary by viewer age.

Study 2

Method

Participants and procedure. Three samples of participants (total $N = 857$; see below for details on each sample) viewed photos, online, of different opposite sex targets displaying each of the four expressions, in a randomized order. For each photo, participants responded to the question, "How sexually attractive do you find this person?" using a 9-point scale ranging from 1 (*not very*) to 9 (*extremely*). Nonheterosexual participants were excluded using the same criteria as in Study 1.

Materials. Over 400 photos of different individuals portrayed either in full, from the waist up, or face-only, were collected from online sources (e.g., www.google.com) by research assistants, blind to the hypotheses, who were trained to identify each expression. Using Emotion-FACS (see Ekman & Rosenberg, 2005) and previously published guidelines regarding shame and pride expressions (e.g., Keltner, 1995; Tracy & Robins, 2007), we excluded photos that did not accurately convey each intended emotion or that conveyed any other emotion. For example, shame expressions are often misidentified as conveying sadness, so we ensured that in all shame photos targets did not show any of the prototypical facial muscle movements associated with sadness, such as lip corners turned down or inner eyebrows raised. Pride expressions can also convey happiness, given the presence of a smile in both displays, but we used criteria developed by Tracy and Robins (2007) to ensure that all pride photos included the necessary features to be reliably identified as pride and not happiness. There are two reliably recognized versions of the pride display, and both were included (48% of pride photos showed the version with arms raised above the head, portrayed in Figure 1; 52% showed the version with arms akimbo and hands on hips; see Tracy & Robins, 2004; 2007). Except where noted, results held across both versions of pride. Targets varied in age (approximately 18–45 years) and ethnicity (for both males and females, 72% were Caucasian, 13% African American, 10% Asian, and 5% other). All photos can be viewed at www.ubc-emotionlab.ca/emotionattraction/.

Sample A. Three-hundred and forty-one Canadian undergraduates (50% female; age = 16–37 years, *median* = 20; 65% Asian, 24% Caucasian, 11% other)[5] viewed and rated the sexual attractiveness of opposite sex targets in 80 photos (20 of each gender showing each expression; 160 photos total). Sample A also completed the Socio-Sexual Orientation Scale—Revised (SOI-R; Penke & Asendorpf, 2008), measuring individual differences in mating strategies. The SOI-R was included to test whether the effect of emotion expressions on attractiveness varies on the basis of whether participants are oriented toward a short-term versus long-term mating strategy; previous research suggests that sociosexual orientation influences numerous preferences in the mating domain (e.g., Waynforth, Delwadia, & Camm, 2005).

Sample B. One-hundred and twenty North American adults (80% female; age = 28–83 years, *median* = 39; 88% Caucasian, 3% Asian, 9% other)[6] were recruited through social networking websites to view and rate the sexual attractiveness of opposite sex targets in 40 photos (10 of each gender showing each expression; 80 total), all different from those viewed by Sample A, such that a broad range of stimuli was included. In this stimulus set, we restricted the number of photos featuring targets that appeared to be professional models to three within each emotion condition.

By including a sample of participants who were past the age of early dating and courtship, we were able to determine whether the effects of distinct emotion expressions on attraction found in Study 1 and Study 2's Sample A generalize to individuals in a markedly different stage of romantic relationships, and beyond the preferences of the rather narrow population of undergraduates, who do not necessarily represent the majority of the world's populations (Henrich, Heine, & Norenzayan, 2010).

Sample C. Three-hundred and ninety-six Canadian undergraduates (64% female; age = 17–32 years, *median* = 20; 58% Asian, 30% Caucasian, 12% other)[7] viewed and rated the sexual attractiveness of opposite sex targets in the same set of 40 photos as were viewed by Sample B. By including two samples from the same population (A and C), and using the same stimuli in two samples from different populations (B and C), we were able to determine whether any differences that emerged among the three samples were due to sample differences (e.g., age) or to the particular stimuli viewed by each sample.

Results and Discussion

Mean attractiveness scores for each emotion expression were computed across ratings of all exemplars of each expression, separately by gender (across samples, scale αs ranged from .76–.95; interrater αs from .92–1.00). Next, to test our prediction that the effect of emotion expression on attractiveness would vary by gender, we conducted a 4 (emotion) $\times$ 2 (gender) mixed measures ANOVA in each sample. In all three samples, an emotion x gender interaction emerged on expression-attractiveness scores, $F(3, 337) = 392.38$, $F(3, 114) = 88.82$, and $F(3, 390) = 384.92$, for

[5] Participant ethnicity—Asian versus Caucasian—moderated the emotion x gender interaction in this sample, $F(3, 885) = 5.32$, $p < .05$, but the overall pattern of effects was highly similar across ethnic groups. Only two specific differences emerged: (a) for Asian female participants, male shame and pride did not differ, $t(104) = 1.35$, *ns*, as was the case in the full sample in Study 1; and (b) for Caucasian male participants, female pride was less attractive than neutral, $t(33) = 2.53$, $p < .05$, replicating a finding that emerged in full Samples B and C.

[6] Participant ethnicity did not moderate Sample B results.

[7] Participant ethnicity—Asian versus Caucasian—moderated the emotion x gender interaction, $F(3, 337) = 7.59$, but, as in Sample A, the overall pattern of effects was highly similar across ethnic groups. The only specific differences that emerged did *not* replicate the ethnicity effects that emerged in Sample A: (a) among Caucasian women, male happy and neutral did not differ, $t(74) = 0.54$, *ns*, as was the case in the full Sample B; (b) among Asian men, female shame and neutral did not differ, $t(79) = 0.41$, *ns*, as was the case in the full Sample B; and (c) among Asian participants, there was no gender difference for shame, $t(224) = .11$, *ns*, as was the case in Study 1. Thus, ethnicity had no clear, consistent, or predictable pattern of effects across samples or studies, and in all cases the ethnic-group-specific result that differed from the full sample replicated an effect that emerged in one of the other full samples examined.

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Samples A, B, and C, respectively, all *p*s < .001, all revealing a similar pattern (see Figures 2, 3, and 4). In Sample A, who also completed the measure of sociosexual orientation, this interaction held controlling for SOI-R scores, and these scores did not interact with gender to predict any expression's attractiveness. In Sample B, which included adult participants ranging widely in age, age (based on a median split) did not moderate the gender x emotion interaction, and continuous age scores did not interact with gender to predict any expression's attractiveness. The gender x emotion interaction also held controlling for age.

To determine how the emotion-based patterns of attractiveness varied between the two genders, we next examined expression differences within each gender. Replicating Study 1, female happy displays were substantially more attractive than female pride displays, $t(171) = 23.28$, $d = 1.29$; $t(37) = 13.96$, $d = 2.06$; and $t(139) = 28.61$, $d = 1.70$ in Samples A, B, and C, respectively; whereas the reverse occurred for male pride and happy displays, $t(168) = 23.83$, $d = 1.26$; $t(79) = 8.16$, $d = 0.69$; and $t(253) = 18.95$, $d = 0.80$ in Samples A, B, and C, all *p*s < .001. Furthermore, as in Study 1, female happy expressions were the most attractive female expression in all three samples; compared to shame, $t(171) = 9.87$, $d = 0.44$, $t(37) = 5.57$, $d = 0.92$, and $t(139) = 9.17$, $d = 0.62$; and compared to neutral, $t(171) = 26.98$, $d = 1.28$, $t(37) = 7.85$, $d = 0.90$, and $t(139) = 15.69$, $d = 0.78$ in Samples A, B, and C, all *p*s < .001.

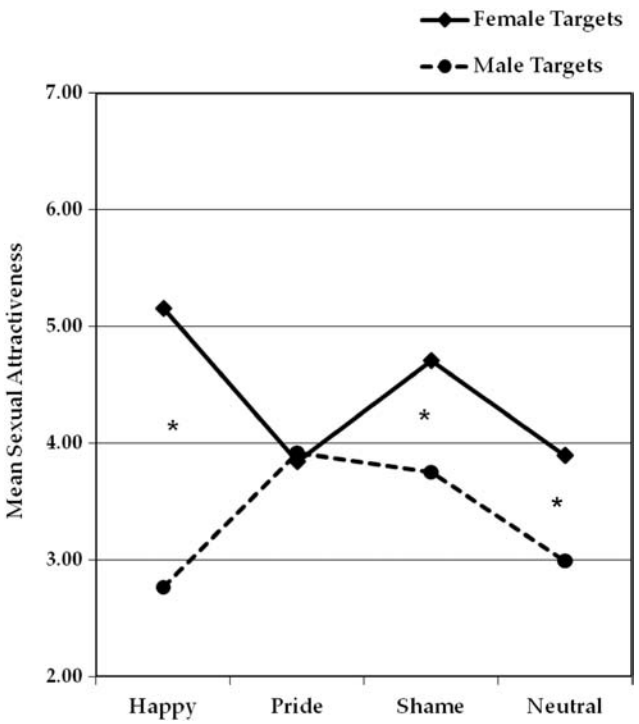

Figure 2. Mean sexual attractiveness ratings of male and female displays of emotion expressions shown by 80 different male and female targets (160 total), viewed by young adults, Sample A. For male targets, all differences between expressions were significant, *p*s < .001; for female targets, all differences were significant (*p*s < .001) except for that between pride and neutral. $N = 341$. * $p < .001$.

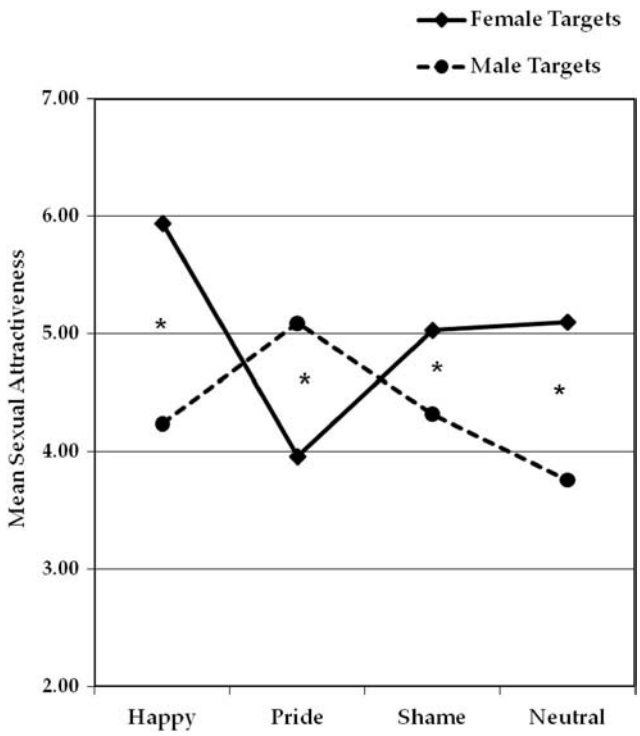

Figure 3. Mean sexual attractiveness ratings of male and female displays of emotion expressions shown by 40 different male and female targets (80 total), viewed by older adults, Sample B. For male targets, all differences between expressions were significant, *p*s < .001, except for that between shame and happiness; for female targets, all were significant, *p*s < .001, except for that between shame and neutral. $N = 120$. * $p < .001$.

Also as predicted, male pride was the most attractive male expression in all three samples; compared to shame, $t(168) = 3.74$, $d = 0.16$, $t(79) = 6.35$, $d = 0.70$, and $t(253) = 4.15$, $d = 0.19$,[8] all *p*s < .001. Given that this difference, between male pride and shame, was replicated across all three samples but was small in magnitude in the college-aged samples (A and C), the absence of a significant difference in Study 1's college-aged sample is likely due to that study's relative lack of power, and that the difference in attractiveness between male pride and shame is small, especially when these displays are judged by female undergraduates. Male pride and shame were both more attractive than neutral; *t*s(168) = 15.42 and 22.26, *d*s = 0.98 and 0.97; *t*s(79) = 11.79 and 5.89, *d*s = 1.20 and 0.48; and *t*s(253) = 23.59 and 19.64, *d*s = 1.14 and 0.99; for comparisons of male neutral with pride and shame in

[8] Separately examining the two versions of pride, two differences emerged: Sample A women rated male shame more attractive than the male pride version with arms raised, $t(168) = 12.86$, $d = 0.68$, and Sample C women rated male shame more attractive than the male pride version with arms akimbo, $t(253) = 2.81$, $d = 0.12$, both *p*s < .01. Given that these variations occurred for two different versions of pride, there is likely little difference between the versions' attractiveness, but, consistent with overall findings, they suggest that male shame is not substantially less attractive than male pride, regardless of which pride version is shown.

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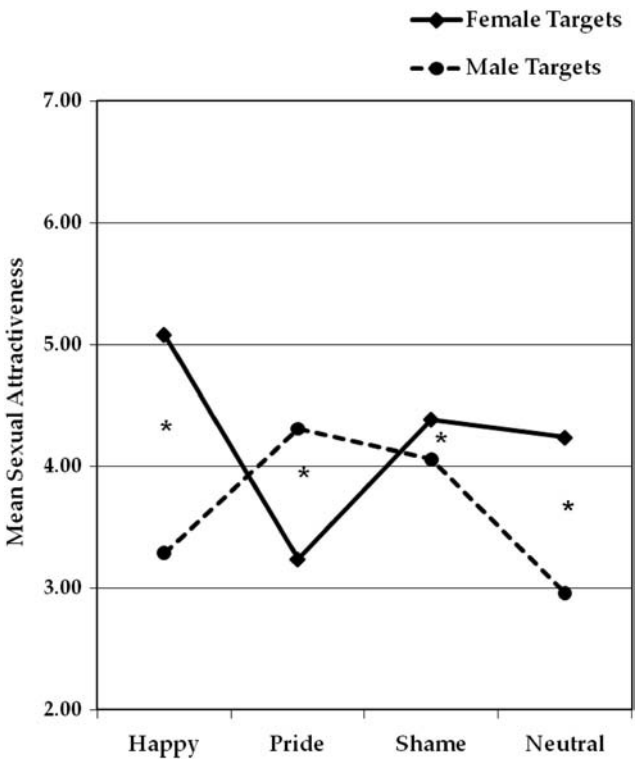

Figure 4. Mean sexual attractiveness ratings of male and female displays of emotion expressions shown by 40 different male and female targets (80 total), viewed by young adults, Sample C. For male and female targets, all differences between expressions were significant, *p*s $< .001$, except for that between female shame and neutral expressions, which was significant at the $p < .05$ level. $N = 396$. * $p < .01$.

Samples A, B, and C respectively, all *p*s $< .001$.[9] In the younger adult Samples A and C, male shame was more attractive than happiness, $t(168) = 16.80$, $d = 1.04$; and $t(253) = 13.16$, $d = 0.64$, both *p*s $< .001$. Although this effect was not predicted, it replicates a nonsignificant trend from Study 1. In the older adult Sample B, male shame and happy displays did not differ, $t(79) = 0.66$, *ns*. This divergence between samples suggests that the tendency to find shame-displaying men especially attractive may be characteristic of younger, college-age women in particular. However, in all three samples male happy displays were one of the least attractive expressions. Indeed, in Sample A happy displays were the least attractive male expression, and in Samples B and C male happiness was more attractive only than neutral, with differences relatively small in magnitude for happy-neutral comparisons in Samples A, B, and C, $t(168) = 6.68$, $d = 0.27$; $t(79) = 5.11$, $d = 0.40$; and $t(253) = 6.89$, $d = 0.30$; all *p*s $< .001$. This divergence between samples—whether happy or neutral displays were the least attractive male expression—may be due to something idiosyncratic about the targets displaying these expressions in the two stimulus sets, given that the pattern was more similar among the two samples that viewed the same stimuli (B and C).

As predicted, female shame was more attractive than female pride in all three samples, $t(171) = 14.04$, $d = 0.85$; $t(37) = 6.28$, $d = 1.13$; and $t(139) = 15.74$, $d = 1.07$; in Samples A, B, and C, all *p*s $< .001$ (though, this difference did not hold in Sample B for the version of pride with arms akimbo, $p = .28$). Given this consistency across samples and stimuli, the low ratings received by the shame-displaying female target in Study 1 were likely due to something idiosyncratic about that target as she posed shame. In Samples A and C, female shame was also more attractive than neutral, $t(171) = 17.48$, $d = 0.83$, $p < .001$; and $t(139) = 2.32$, $d = 0.14$, $p < .05$; in Sample B female shame and neutral did not differ, $t(38) = 0.48$, *ns*, but given the small effect size in Sample C, who viewed the same images as Sample B, the failure to replicate in the older adult sample may not be meaningful. The least attractive female expression in all three samples was pride; although it did not differ significantly from neutral in Sample A, $t(171) = 1.02$, *ns*, it did in Samples B, $t(38) = 9.91$, $d = 1.28$, and C, $t(139) = 18.51$, $d = 1.00$, both *p*s $< .001$.

Comparing the attractiveness of each expression across gender, in all three samples happy, shame, and neutral expressions were more attractive in women than men, $t(339) = 23.86$, $d = 2.61$, $t(116) = 7.52$, $d = 1.54$, and $t(392) = 14.64$, $d = 1.56$, for happy comparisons in Samples A, B, and C, all *p*s $< .001$; $t(339) = 8.51$, $d = 0.92$, $t(116) = 3.29$, $d = 0.66$, and $t(392) = 2.67$, $d = 0.28$, for shame comparisons, all *p*s $< .01$; and $t(339) = 8.98$, $d = 0.99$, $t(116) = 6.31$, $d = 1.31$, and $t(392) = 12.17$, $d = 1.28$, for neutral, all *p*s $< .001$. In Sample A, there was no gender difference for pride, $t(339) = 0.63$, *ns*, as was the case in Study 1; but in Samples B and C pride was more attractive in men than women, $t(116) = 5.64$, $d = 1.14$; and $t(392) = 8.04$, $d = 0.88$; though, in both cases, this difference held only for the version of pride with arms raised, both *p*s $< .001$. Examining only pride displays with arms akimbo, there was no difference between male and female ratings. Combined with the absence of a difference, in Sample B, between female akimbo-pride and shame, these results suggest that this version of the pride expression, when shown by women, is particularly attractive—likely due to the fact that holding one's arms akimbo with hands on hips increases the appearance of chest expansion. Indeed, in all three samples, women showing the akimbo-pride display were judged more attractive than those showing the arms-up version, $t(171) = 20.56$, $d = 1.10$; $t(37) = 9.92$, $d = 1.53$; and $t(139) = 15.27$, $d = 1.06$, all *p*s $< .05$.

Replicating Study 1, collapsing across all expressions, women were judged more attractive than men, $t(339) = 10.76$, $d = 1.16$; $t(116) = 3.60$, $d = 0.74$; and $t(392) = 5.31$, $d = 0.57$; in Samples A, B, and C, all *p*s $< .001$. To determine whether this overall gender difference contributed to the absolute gender differences that emerged for happy, shame, and neutral displays, we replicated the between-gender *t* tests comparing ratings of each expression, controlling for ratings of neutral expressions, under the assumption that these judgments would account for variance attributable to the broader gender difference. (The between-subjects design of Study 1 prohibited us from running similar analyses there). Controlling for ratings of neutral displays, the absolute gender differences that emerged for happy and pride displays held (all *p*s $< .01$). In contrast, the absolute gender difference in shame displays were reduced to nonsignificance in both Samples A and B when controlling for neutral (*p*s $= .052$ and $.15$), and reversed direction in Sample C, such that male shame became more attractive than

[9] The pride-neutral difference did not hold in Sample A when examining the version of pride with arms raised only, $p = .53$.

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female shame in this group, $F(1, 391) = 56.92$, $d = 0.82$, $p < .01$, replicating Study 1. Thus, across the 2 studies and four samples, it seems reasonable to conclude that the absolute gender difference in happy displays is not due to the broader gender difference in attractiveness ratings, but that there may be no overall, cross-sample absolute gender difference in shame displays, when accounting for the broader gender difference in attractiveness ratings. This further supports the conclusion that male shame displays are not inherently unattractive.

General Discussion

The present research is the first to demonstrate that distinct emotion expressions have distinct, gender-specific effects on sexual attractiveness, which largely hold across age. Men are made most attractive by displaying pride and least attractive by displaying happiness, whereas women are made most attractive by displaying happiness and least attractive by displaying pride. Shame expressions increase the attractiveness of both men and women, compared to neutral, and, at least among younger women viewers, male shame tends to be more attractive than male happiness. These gender-specific patterns largely held across ethnicity, and across four samples of individuals varying widely in age, who viewed three different sets of photos and followed two different study designs (i.e., viewed and judged a single photo, in Study 1, or viewed and judged photos of 10 or 20 different targets displaying each expression, in Study 2). They cannot be attributed to the broader gender difference in attractiveness ratings that emerged across expressions. The strength of these effects across studies and methods indicates their robustness, and helps ameliorate concerns about the limitations of each method.

Although we predicted a gender difference in the relative attractiveness of happy and pride expressions, we expected a larger absolute gender difference for pride displays than happy, and we did not expect the very large gender difference for happy expressions that emerged across studies and samples, and which was both absolute (happy women are more attractive than happy men) and relative (female happy expressions are more attractive than other female expressions, and male happy expressions less). Previous studies have demonstrated a positive effect of happy displays on female attractiveness (Mueser et al., 1984; Penton-Voak & Chang, 2008; Schulman & Hoskins, 1986), but, to our knowledge, this is the first research to demonstrate a negative effect of male happiness displays on male attractiveness. This gender difference may be due to happy expressions' appearance of femininity and low dominance (especially when shown by men; Becker et al., 2007; Hareli, Shomrat, & Hess, 2009), which would increase happy women's apparent gender-norm consistency, and thus attractiveness, but decrease happy men's (Brown et al., 1986). The friendliness signal sent by happy displays may also be relevant; if this message is taken to indicate sexual receptivity, it would increase women's mate value, but potentially decrease men's. If male sexual receptivity is, to some extent, taken for granted, a social communication along these lines may indicate neediness or desperation.

Similarly, the gender difference in the relative attractiveness of pride expressions, which held across samples and studies, is consistent with both evolutionary and gender-norm principles. Given its associations with high-status (Shariff & Tracy, 2009; Tiedens, Ellsworth, & Mesquita, 2000; Williams & DeSteno, 2009), the pride expression may convey heightened masculinity; its prototypical behavioral components of expanded chest and generally large appearance are notably male features, and similar features, such as upper-body strength, have been found to increase masculinity and male attractiveness (Li & Kenrick, 2006). Furthermore, by conveying high-status, pride may signal a man's competence and ability to provide for a partner and offspring; in contrast, from an evolutionary perspective, the mate value of a high-status woman is more ambiguous. Though a woman high in status may be well equipped to attain resources for her partner and children, previous research suggests that men evolved to seek female partners who were best equipped to bear children, but not necessarily to support them (Buss, 2008). Our finding of relatively low attractiveness ratings for female pride displays is consistent with this account; however, the absence of an absolute gender difference in pride attractiveness in Study 1 and Study 2 Sample A suggests that contemporary men do not judge pride-displaying women as unambiguously unattractive—particularly when women display pride in the akimbo-arms position—but, rather, as somewhat less attractive than women displaying certain other expressions.

The effect of shame expressions on attractiveness is more complex. In general, female shame displays fell between female happy and female pride (and above neutral) on attractiveness ratings; this finding fits with the assumption that shame's low-status and submission connotations increase its apparent femininity, and thus the attractiveness of shame-displaying women. The positive impact of shame displays on female attractiveness also may be due to shame's signaling of the expresser's respect for social norms and her awareness that she has violated them (Gilbert, 2007). This appeasement message may indicate trustworthiness, a trait previously found to increase attractiveness when conveyed by facial expressions (Todorov, Said, Engell, & Oosterhof, 2008). The appeasement account also may explain the high levels of attractiveness of male shame displays. In all samples, shame-displaying men were equally or more attractive than men displaying neutral, happy, and, in Study 1, pride expressions. Given that gender norms cannot account for the attractiveness of male shame (the low-status/high social-sensitivity signal is gender atypical), shame's communication of trustworthiness and group commitment may be what accounts for its relative attractiveness in men. This also fits with Zahavi and Zahavi's (1997) handicap principle of evolved signals; the expression's costliness (its low-status signal could endanger expressers) may simultaneously indicate its sincerity, leading women to place greater trust in men who show shame than, perhaps, those who show happiness. It is important to bear in mind, however, that the tendency for shame expressions to be recognized at a somewhat lower rate than happy or pride displays, and to be confused with expressions of sadness and general self-consciousness or shyness, may also have contributed to these effects. For example, if either women or men interpreted shame displays as conveying sadness, and thus indicating an individual's need for comfort and support, they may have found them attractive for this reason, given previous research suggesting that sympathy breeds attraction (Cunningham et al., 1990). Future studies are needed to probe these various explanations of the cross-gender shame-attractiveness effect found here, but the effect may have important, and novel, implications for the social functions of shame.

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The only noteworthy finding that did not replicate across samples also pertains to shame. When shown by men, the expression appears to be particularly attractive to *younger* women (as was evidenced by Study 1 and Study 2 Samples A and C). In contrast, women over the age of 30 tended to rate shame- and happy-displaying men as equally attractive (and both more so than neutral). This discrepancy is consistent with evolutionary accounts of the attractiveness of shame; college-age women are closer to the age at which evolved mating preferences are most reproductively relevant, so to the extent that such preferences shape judgments, they are more likely to do so in these women than those who are nearing or at the end of their reproductive life cycles (Gangestad, Garver-Apgar, Simpson, & Cousins, 2007). It is also possible that the "troublemaker" message implied by a shame expression (i.e., shame informs observers that a transgression was committed) is less appealing to older women who have learned to distrust transgressors, despite the possible appeal of their trust-signaling appeasement displays. However, because the older and younger samples were recruited from different populations, other demographic factors may underlie this distinction, making this an important issue for future research.

In sum, although future studies are needed to test explanatory accounts for these findings, and examine how widely these results generalize (e.g., whether they hold in other cultures), the present findings are robust and have major implications for the role of emotion expressions in interpersonal attraction. One important question for future research is whether these effects hold beyond judgments of a decontextualized photograph. That is, do these expressions have the same impact on sexual attractiveness in live social interactions? However, regardless of this issue, given the importance of first impressions and the frequency with which potential partners meet via a single photo (e.g., on social networking/dating websites), these findings provide new insight to our understanding of why certain people successfully attract others, why others do not, and how individuals seeking a mate should regulate their emotions. Smiles tend to be socially appropriate across many situations, but there are contexts in which the appearance of sexual attractiveness is valued over social correctness. The present results suggest that men may need to choose between these competing social goals, but women do not.

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