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The Evolution of Pride and Shame

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What drives us to climb that highest mountain? And what do we subsequently feel when we realize we are extremely bad at mountain climbing and decide to fake an injury to get helicoptered back to basecamp? The emotions that shape these events and our responses to them—pride and shame— play a central role in motivating and regulating many of people's thoughts, feelings, and behaviors (Tangney & Tracy, 2012). These self-conscious emotions drive people to work hard to succeed (Stipek, 1995; Weiner, 1985), and to behave in moral and pro-social ways in their relationships (Baumeister, Stillwell, & Heatherton, 1994; Leith & Baumeister, 1998; Retzinger, 1987). Yet despite their centrality to psychological functioning, pride and shame did not receive the same attention from early emotion researchers as the so-called "basic" emotions, such as joy, fear, and sadness (Campos, 1995; Fischer & Tangney, 1995).

There are both theoretical and methodological reasons for the relatively later arrival of research on self-conscious emotions. In the emotions literature, researchers have historically focused on studying those emotions that are biologically based, shared with other animals, pan-culturally experienced, and identifiable via discrete, universally recognized facial expressions—in other words, emotions that can be measured without reliance on verbal reports of internal experience (e.g., Davidson, 2001; Ekman, Levenson, & Friesen, 1983; LeDoux, 1996; Panksepp, 1998). These emotions have been labeled "basic" because of their presumed evolved origins, and location (in most cases) at the basic level in a hierarchical classification of emotion terms (Johnson-Laird & Oatley, 1989; Shaver, Schwartz, Kirson, & O'Connor, 1987). Until the past decade, only a small subset of the vast number of emotions represented in the natural language—anger, fear, disgust, sadness, happiness, and surprise—were considered "basic" (Ekman, 1992; Izard, 1971). However, in recent years a growing body of research has accumulated to suggest

that pride and shame also meet at least the evolutionary-based criterion, and should therefore be considered "basic".

In this chapter, we review findings from many of these studies and highlight their central implication: Pride and shame are likely to be adaptive parts of human nature. First, we review evidence supporting the claim that pride and shame are biologically innate, including studies demonstrating that both emotions are associated with nonverbal expressions that are reliably recognized and displayed by individuals across a wide range of cultures, and without visual learning (e.g., Tracy & Matsumoto, 2008; Tracy & Robins, 2008a). Next, we focus on the functionality of pride and shame, both in terms of their subjective experiences and their non-verbal displays. We argue that the subjective feelings associated with pride and shame aided human survival and reproductive success by facilitating behaviors oriented toward status-related goal pursuits. We further suggest that the prototypical nonverbal expressions associated with these emotions likely evolved from earlier non-human displays of dominance and submission, which became ritualized into the recognizable expressions that correspond to these emotions in humans today. Finally, we close with several proposed directions for future research. Our overarching goals for this chapter are to lay a foundation for continued programmatic research on pride and shame, and to persuade readers that these emotions serve important and essential social functions, and thereby increase humans' adaptive fitness.

The Evolution of Pride and Shame

All human societies reveal status differences among individuals which influence patterns of conflict, resource allocation, and mating (Fried, 1967), and often facilitate coordination on group tasks (Bales, 1950; Berger, Rosenholtz & Zelditch, 1980; Ellis, 1995). Even the most

egalitarian of human foragers show such status differences, despite the frequent presence of social norms that partially suppress them (Boehm, 1993; Lee, 1979; see Henrich and Gil-White 2001). High-status individuals tend to hold disproportionate influence, such that social status can be defined as the degree of influence one possesses over resource allocations, conflicts, and group decisions (Berger et al., 1980). In contrast, low-status individuals often passively give up these benefits, deferring to higher status group members. As a result, high status tends to promote greater fitness than low status, and a large body of evidence attests to a strong relation between social rank and fitness or well-being (e.g., Barkow, 1975; Cowlishaw & Dunbar, 1991; Hill, 1984).

In evolutionary accounts, emotions are fitness-maximizing affective mechanisms that galvanize coordinated suites of physiological and psychological responses to recurrent events of evolutionary significance (Beall & Tracy, under review; Cosmides & Tooby, 2000; Nesse & Ellsworth, 2009). The costs associated with being low status imposed large selective pressures on humans throughout history, and led to the evolution of specialized affective mechanisms geared toward helping individuals successfully compete with other group members for status and signal their own (self-perceived) relative status. Functionalist accounts of emotions suggest that pride and shame are adaptive by virtue of helping individuals attain or maintain social status and acceptance in the eyes of their social group (Tracy & Robins, 2004a).

Pride may be a major part of the suite of affective mechanisms that motivate status-seeking efforts, by supplying psychological rewards and recalibrating psychological systems to sustain attained status, and providing the affective substrate for signalling (via pride displays) status achievements or self-perceived status increases (Tracy, Shariff, & Cheng, 2010). In contrast, feeling shame may function to inform the individual of a discrepancy between his/her

current and desired state (Leary, Tambor, Terdal, & Downs, 1995; Simon, 1967), or that the individual is not making sufficient progress toward his or her goals (Carver & Scheier, 1990; Larsen, 2000). These perceived discrepancies lead to an aversive emotional state (e.g., shame), which in turn provides a motivational push for individuals to halt their unsuccessful status-seeking strategies and minimize the potential negative consequences of their lowered status. In addition, the desire to avoid shame's unpleasant feelings may provide an anticipatory incentive to avoid engaging in future status-lowering actions (Fessler, 2007). Together, pride and shame may therefore represent psychological adaptations that guide the selection of strategies (including cognitions, subjective feelings, and behaviors) from an organism's repertoire, and thereby facilitate the acquiring, sustaining, and (through nonverbal displays) signalling of social status (Tracy et al. 2010).

Questions about the phylogenetic history of a particular human characteristic often beg speculation, given the difficulty of empirically tracing the path of evolution. Nonetheless, the question of whether a given faculty of the mind evolved to its present form in humans is an important one. For pride and shame, it is unclear whether their subjective feeling experiences are present, in any form, in non-human animals. Given that self-conscious emotions require complex self-evaluative processes, pride and shame may exist in a more primitive (less cognitively complex) form in other Great Apes and other animals in whom evidence of self-awareness (e.g., mirror self-recognition) has been documented (see Hart & Karmel, 1996), but these emotions are unlikely to be experienced by animals that do not self-reflect or hold stable self-representations.

One of the most prominent gold-standard criteria used to determine whether a particular emotion is likely to be evolved (or, "basic") is whether it has a distinct, cross-culturally recognized nonverbal expression (e.g., Ekman & Cordaro, 2011; Tracy & Randles, 2011).

Although pride and shame were not included in the pantheon of emotions originally thought to meet this criterion (e.g., Ekman, 1992), studies conducted over the past decade demonstrate (quite conclusively in the case of pride) that both of these emotions are associated with reliably recognised nonverbal expressions, which are spontaneously displayed in pride- and shame-eliciting situations.

The pride expression is universally recognized and displayed

The prototypical pride expression consists of an expanded and upright posture, head tilted slightly upward (about 20 degrees), a small smile, and arms either akimbo with hands on the hips or raised above the head with hands in fists (Tracy & Robins, 2004b; 2007; see Figure 1).

Figure 1. The prototypical pride expression.

Pride-recognition rates in educated North American and Western European samples typically range from about 80-90%, comparable to rates found for basic emotions such as happiness and sadness. Pride recognition tends to be somewhat lower in non-Western cultures, as is the case for all emotions originally documented in Western nations (see Elfenbein & Ambady, 2002), but cross-cultural work has demonstrated reliable recognition of pride in two highly isolated, traditional small-scale societies in disparate parts of the world: Burkina Faso and Fiji (Tracy & Robins, 2008b; Tracy, Shariff, Zhao, & Henrich, 2013). Given that individuals in these samples are unlikely to have learned about the pride expression from cross-cultural transmission (in both groups participants had never left the local community, and had no access to any kind of media such as magazines, films, or television from beyond their community), these findings suggest that pride recognition is likely to be universal. Also like basic emotions, pride displays can be distinguished from other emotions quickly and efficiently, from a single snapshot image (Tracy & Robins, 2008a), and children acquire the ability to recognise pride at the same age (4 years old) at which they demonstrate accurate recognition (i.e., verbal labelling) of most other expressions (Tracy, Robins, & Lagattuta, 2005).

A number of authors have noted that the pride expression differs from other highly recognizable emotion expressions in that accurate recognition requires bodily and head movements as well as facial muscle movements (Tracy & Robins, 2004b). However, several researchers probing this distinction found that pride can be recognized at fairly high levels of accuracy from the face and head alone (i.e., without expanded posture) if shown as a dynamic display (i.e., via video; Nelson & Russell, 2011). This finding suggests that although static

images of pride require expanded posture for accurate recognition, the observation of a head tilting upward removes this need, so in everyday interpersonal interactions pride displays are likely to be reliably recognized even when bodily movements (beyond the head) are not visible.

Studies of vocal displays of emotion have sought to identify a distinct pride vocal expression, but produced somewhat mixed results. While one set of studies failed to find a recognizable vocal "burst" associated with pride (Simon-Thomas, Keltner, Sauter, Sinicropi-Yao, & Abramson, 2009), another study found that vocal bursts of achievement were fairly reliably identified as "achievement". Achievement recognition rates (M = 71%) were slightly lower than those typically found for visually observed pride nonverbal displays (i.e., M = 80%), but higher than those found for vocal bursts intended to convey contentment (M = 28%), relief (M = 57%), and pleasure (M = 37%; Sauter & Scott, 2007). Participants in this study were not given the option to identify vocal bursts of achievement as "pride" and, in general, research on vocal expressions of emotion is still somewhat in its infancy, so further work is needed to determine whether feelings of pride—rather than merely the eliciting event of achievement –can be reliably conveyed through this medium.

In addition to substantial evidence indicating widespread reliable recognition for a visually observed pride expression, there is also evidence to suggest that this expression is spontaneously *displayed* in pride-eliciting situations of success. Behaviours such as head tilt upward, erect posture, and arms stretched upward and out from the body are reliably displayed by preschool children who have won a fight (Strayer & Strayer, 1976), high-school students who have performed well on a class exam (Weisfeld & Beresford, 1982), and children as young as 3 years old in response to task success (Belsky, Domitrovich, & Crnic, 1997; Lewis, Alessandri, & Sullivan, 1992; Stipek, Recchia, & McClintic, 1992).

Moreover, this tendency to display pride in response to success generalises across a wide range of cultures; the expression was found to be spontaneously displayed in response to victory at the 2012 Olympic Games by judo athletes from a wide range of nations, including individualistic countries such as Canada and Estonia, collectivistic countries such as China and Iran, countries with ‘‘secular-rational’’ values such as Belgium and Finland, and countries with more ‘‘traditional-religious’’ values such as Ireland and Poland (Tracy & Matsumoto, 2008). In all cases, individuals were substantially more likely to display pride if they won a judo match than if they lost, and winners tended to display all behaviours associated with the prototypical pride expression. Perhaps most important, these findings were replicated in an international sample of congenitally blind athletes participating in the Paralympic Games, who could not have learned to display pride through visual modelling (Tracy & Matsumoto, 2008).

The shame expression is universally recognized and spontaneously displayed

The shame expression consists of essentially the opposite set of behaviors as pride: head tilted downward and lowered eye gaze, along with slumped posture (Izard, 1971; Keltner, 1995; Tracy & Matsumoto, 2008; Tracy, Robins, & Schriber, 2009; see Figure 2).

Figure 2. The prototypical shame expression.

Like pride, shame is reliably recognised and, at least in educated Western populations, distinguished from similar emotions such as embarrassment and sadness (both of which share features with shame; Babcock & Sabini, 1990; Keltner, 1995). The discrimination of shame from most other emotions can also occur rapidly and efficiently (Tracy & Robins, 2008a). Shame-recognition rates in North American samples are typically lower than those observed for pride, but, at 57% on average, not substantially lower than rates often found for certain basic emotions, such as fear (Haidt & Keltner, 1999; Keltner, 1995; Tracy et al., 2009). Furthermore, most of these studies included the eye gaze and head tilt downward components of shame only, and one study found that shame recognition rates become slightly, though not significantly, improved when the display includes slumped posture in addition to downward head tilt. It is possible that future studies using a wider range of targets and judges will find additional improvements in shame recognition when such bodily features are added (Tracy et al., 2009). Shame recognition

rates are considerably lower in non-Western cultures, but recognition was significantly greater than chance in the same two traditional small-scale societies where pride recognition was examined (in Burkina Faso and Fiji), providing at least initial evidence for the universality of shame displays (Tracy & Robins, 2008b; Tracy et al., 2011).

The recognizable shame expression is also spontaneously displayed in shame-eliciting situations of failure. Shame behaviours such as head tilted downward and slumped posture or narrowed shoulders have been documented in response to failure or loss of a fight in children as young as 2.5-3 years old (Belsky et al., 1997; Lewis et al., 1992; Stipek et al., 1992), older children aged 3-10 (Ginsburg, 1980; Strayer & Strayer, 1976), high-school students (Weisfeld & Beresford, 1982), and adult Olympic athletes from a wide range of countries (Tracy & Matsumoto, 2008). In that last study on Olympic athletes' responses to success and failure, athletes were found to reliably narrow their chests and slump their shoulders in response to defeat, but only if they were from countries *outside* of North America and Western Europe. This cultural difference–an absence of failure-based shame displays by individuals from the most individualistic and self-expression-valuing Western nations—is consistent with the strong devaluation of shame in these cultures (Tangney & Dearing, 2002; Tangney & Tracy, 2012). The finding that congenitally blind athletes across cultures, including several from Western nations, did reliably display shame in response to loss at the Paralympic Games suggests that the observed cultural difference in sighted athletes is likely to be a result of display suppression – sighted individuals from cultures where shame is devalued inhibiting the expression in accordance with local cultural norms (Tracy & Matsumoto, 2008).

Together, the accumulated evidence suggests that the pride and shame expressions are both likely to be universal and innate behavioral responses to success or failure. It is unlikely that

these expressions would (a) be recognized so consistently and robustly, by (b) individuals who could not have learned them through cross-cultural transmission, and (c) be reliably and spontaneously displayed in pride- and shame-eliciting situations by (d) individuals who have never seen others display them, if they were not innate human universals.

The Evolutionary Function of Pride

The evolutionary function of the pride subjective experience

Pride feelings are reinforcing; there is no other emotion that not only makes individuals feel good, but good about *themselves*. Pride arises when individuals experience success in achievement or social contexts, and several lines of research are consistent with the suggestion that pride feelings are associated with the attainment of high status (see also Tracy, 2016). To take a few examples, individuals intuitively assume that people who feel pride hold high status (Tiedens, Ellsworth, & Moskowitz, 2000), agentic individuals (i.e., those who typically seek and possess power and control) tend to feel greater pride than those low in agency (Anderson & Berdahl, 2002), and individuals induced to feel pride tend to engage in high-status behaviors and be perceived by others as influential (Williams & DeSteno, 2009). In addition, pride experiences and the desire to attain these experiences motivate achievement, perseverance, and positive behavioral change in status-relevant domains (Verbeke, Belschak, & Bagozzi, 2004; Williams & DeSteno, 2008; Weidman, Tracy, & Elliot, 2016). Consequent achievements—which some studies have traced directly back to pride (Weidman et al., 2016)—are, in turn, rewarded with social approval, acceptance, and high status.

Though it seems clear that pride functions to promote status, this conclusion is complicated by the numerous studies suggesting that pride is not a singular experience. Instead, it is best characterized as consisting of two distinct facets: A hubristic facet, marked by

arrogance and conceit, and an authentic facet, fuelled by feelings of accomplishment, confidence, and success (Tracy & Robins, 2007a). These two facets are conceptualized and experienced as distinct and independent, and are associated with highly divergent personality profiles (Tracy & Robins, 2007a; Tracy & Robins, 2014; Tracy, Cheng, Robins, & Trzesniewski, 2009). Hubristic pride is the more anti-social facet, associated with disagreeableness, aggression, and a lack of conscientiousness, as well as narcissism, problematic relationships, and poor mental health outcomes. In contrast, authentic pride is the more prosocial, achievement-oriented facet, associated with extraversion, agreeableness, and conscientiousness, high self-esteem, satisfying interpersonal relationships, and positive mental health (Tracy et al., 2009). Cross-cultural studies have found evidence for the presence of both pride facets, along with their distinctive correlates, in two non-Western populations—China and South Korea—raising the possibility that both facets may be universal. Given the notably negative personality correlates of hubristic pride, it is not immediately evident why this facet would have evolved; however, there is evidence to suggest that both facets might effectively promote status, but along different avenues. While authentic pride may be ideally suited to promoting a *prestige* based status, hubristic pride may also be functional by virtue of promoting *dominance*.

Henrich and Gil-White (2001) originally distinguished between dominance and prestige in their ethnographic review of rank attainment in small-scale traditional societies. They used the term dominance to refer to the attainment of rank via induced fear, typically through practices of intimidation and coercion. Prestige, in contrast, refers to social rank that is willingly granted to individuals who are recognized and respected for their skills, success, or knowledge. Experimental studies suggest that both dominance and prestige are effective means of attaining rank; individuals who wield both strategies successfully attain influence over their group (Cheng,

Tracy, Foulsham, Kingstone, & Henrich, 2013). Hubristic and authentic pride may therefore have separately evolved as the affective mechanisms that, respectively, underpin each of these systems (Cheng, Tracy, & Henrich, 2010; Tracy et al., 2010; Shariff, Tracy, Cheng, & Henrich, 2010).

More specifically, hubristic pride may facilitate the attainment of dominance by motivating individuals to behave in an aggressive and intimidating manner, and providing them with a sense of grandiosity and entitlement that allows them to take power rather than earn it, and to feel little empathy for those who get in the way. Indeed, when individuals experience hubristic pride, they evaluate themselves as superior to others, experience a subjective sense of dominance and superiority, and low empathy toward those who are different from them (Ashton-James & Tracy, 2012; Tracy et al., 2009).

In contrast, authentic pride may facilitate the attainment of prestige by motivating and reinforcing achievements and other indicators of competence, and providing individuals with the feelings of genuine self-confidence that allow them to comfortably demonstrate both social attractiveness and generosity (Cheng et al., 2010). In order to retain subordinates' respect, prestigious individuals must avoid succumbing to feelings of power and superiority, and authentic pride may allow these individuals to focus on their achievements while maintaining some sense of humility. Indeed, findings show that authentic pride is associated with helping others or give them advice, voluntary moral action, empathy toward out-group members, experiences of a pro-social "appreciative" form of humility, and a desire to work hard toward achievements (Ashton-James & Tracy, 2012; Hart & Matsuba, 2007; Tracy et al., 2009; Tracy & Robins, 2007a; Weidman, Cheng, & Tracy, in press; Weidman et al., 2016).

In addition to these lines of work, several studies provide more direct evidence for the theorized unique associations between each pride facet and each status-attaining strategy (Cheng et al., 2010). First, in a study assessing dispositional levels of authentic and hubristic pride and dominance and prestige, individuals prone to authentic pride were found to rate themselves as highly prestigious, whereas those prone to hubristic pride rated themselves as more dominant. In a second study this pattern was replicated using peer ratings of dominance and prestige; varsity athletes rated the extent to which fellow team members used each strategy. Individuals high in authentic pride were viewed as prestigious (but not dominant) by their peers, whereas those high in hubristic pride were viewed as dominant (but not prestigious). Follow-up analyses demonstrated that these effects could not be attributed to shared variance in positive affect; when controlling for authentic and hubristic pride, neither peer-rated prestige nor dominance was significantly related to generalized good feelings. These results therefore suggest that although individuals high in prestige are generally happy, likeable, and agreeable (Cheng et al., 2010), the emotion that accounts for their ability to attain high status is not generalized positive affect, but authentic pride. More broadly, these findings are consistent with the suggestion that both facets of pride function to facilitate status attainment, but through distinct mechanisms.

The evolutionary function of the pride nonverbal expression

A large body of evidence suggests that, in humans, nonverbal displays of pride send a rapidly and automatically perceived message of high status to other group members (Shariff & Tracy, 2009). The finding that pride displays lead to automatic perceptions of high status also generalizes to a small-scale traditional society on Fiji's outer islands, suggesting that pride may be a universal status signal (Tracy, Shariff, Zhao, and Henrich, 2013). Among educated Western samples, pride has been shown to signal high status more strongly than any other emotion

expression examined, and the high-status message sent by the pride expression is powerful enough to override contradicting contextual information in shaping implicit judgments of status (Shariff, Tracy, & Markusoff, 2012). Together, these findings suggest that the pride expression may have evolved as a mechanism for informing other group members of self-perceived shifts in social status.

The presumed phylogenetic origins of pride displays are consistent with this account. The pride expression's features of expansive posture and head tilted upward create an overall appearance that is similar to the "inflated display" shown by dominant chimpanzees who have defeated a rival, or the "bluff display" documented in these animals prior to an agonistic encounter (presumably with the goal of intimidating a rival; de Waal, 1989). Other non-human dominance displays that are visually reminiscent of the pride expression include the chest-beating intimidation displays observed in mountain gorillas (Schaller, 1963), and the "strutting [and] confident air" that characterizes dominant Catarrhine monkeys (Maslow, 1936). Animals who show these behaviors typically receive high-status benefits such as greater attention and resources (e.g., Deaner, Khera, & Platt, 2005).

If the human pride display evolved from earlier non-human dominance displays that likely functioned to indicate a direct threat or power differential, then at some point in our evolutionary history the non-human bluff display became a more indirect communicative *signal* of deserved status, and eventually ritualized into the recognizable pride expression (Eibl-Eisenfeldt, 1989; Shariff & Tracy, 2011). In other words, it is likely that these displays originated, in a non-human ancestor, as a way of intimidating rivals who threatened one's power, or of threatening others' power through the same intimidation. For high-status animals, it would be adaptive to respond to status threats with a quick display that is overtly intimidating, as this

display alone could save resources that would otherwise need to be devoted to aggressive acts every time a new individual enters the social group.

The particular components of the pride display, and of non-human bluff displays, seem well suited for this function. The expanded posture and outstretched arms in humans, and the generalized body expansion, shoulder raising, and fur piloerection in chimps, make the animal appear larger, facilitating the assertion of dominance or power, and simultaneously attracting the attention of onlookers. In addition, the potentially "handicapping" open and expanded posture may indicate the sincerity of the display. Zahavi and Zahavi (1997) have argued that the veracity of a behavioral signal is established to conspecifics on the basis of whether it is handicapping—that is, costly to the sender. If individuals display such signals despite inherent risks (e.g., revealing oneself to a predator in the process of alerting others to the danger), onlookers can trust the message's sincerity. Thus, the potentially risky open posture associated with pride and bluff displays may have originated as an honest way of conveying one's dominance, success, or status.

Given how widely and reliably recognized the pride expression is, even among young children and individuals across highly diverse cultures, it is likely that recognizing pride has adaptive benefits for perceivers as well as expressers. In this view, the tendency to display pride in response to status attainment and success may have co-evolved with a tendency to recognize the pride displays shown by high status and successful others and make functional inferences on that basis (Martens, Tracy, & Shariff, 2012). Specifically, observers may use others' pride displays to quickly and effortlessly determine which group members hold status, and thus likely to possess knowledge or expertise that should be copied or followed. If this is the case, the ability to rapidly detect and understand the pride expression would benefit observers by biasing

their social learning, such that individuals selectively copy or choose to learn from those displaying pride.

Two studies tested this account by examining whether financially motivated observers would choose to copy answers to difficult trivia questions provided by another group member (actually a confederate) if the other individual displayed pride (Martens & Tracy, 2013). Across both studies, participants copied the answers of pride-displaying confederates more frequently (approximately 80% of the time) than they copied the answers of confederates displaying neutral, shame, or—importantly-- happy expressions. This finding further supports the claim that pride's functionality cannot be attributed to more generalized positive affect. It also suggests that, to the extent that pride displays are a reliable signal of knowledge or expertise, they are likely to be functional not only for those who display them and acquire higher status, but also for those who observe and automatically interpret pride in others.

The Evolutionary Function of Shame

The evolutionary function of the shame subjective experience

Shame is one of the most painful emotions to experience (Izard, 1971), probably because it signals a flawed self. Like physical pain, which is aversive but adaptive by virtue of promoting injury avoidance, shame experiences may have evolved as a kind of alarm system, warning individuals that a drop in social rank is imminent, and that they should therefore change their behavior or depart from the situation to avoid the consequences (cf. Nesse, 1991).

Consistent with the argument that shame warns individuals of a drop in social rank, shame typically arises when individuals experience failure in achievement or social contexts (Tangney & Tracy, 2012; Tracy & Robins, 2004): When Westerners are asked to recount shame-eliciting events, some list situations involving a public failure in an achievement domain (e.g.,

losing an athletic competition), but most list situations involving a socially unacceptable transgression (e.g., being caught cheating on an exam). This same pattern has also been noted among members of a small-scale traditional fishing village, suggesting that the propensity to feel shame in response to a deviation from culturally normative behavior may be a human universal (Fessler, 2004). Shame may therefore be functional by virtue of informing experiencers of important social information such as downward shifts in rank (Tracy et al., 2010); the resultant unpleasant feelings provide a motivational push to avoid and minimize the negative consequences associated with their lowered status.

One way shame may function to help experiencers avoid the negative consequences associated with a downward shift in rank is by motivating them to act as trustworthy group members who behave in accordance with social norms (Fessler, 2007). Ancestral humans relied heavily on their social groups for protection from external threats (Lancaster, 1976). Those without strong interpersonal connections would have failed to secure the benefits of shared cultural knowledge and resources; as a result, group membership and belongingness were crucial to survival (e.g., Hill & Hurtado, 1989; Henrich & Boyd, 1998). Fessler (2007) has suggested that individuals behave as trustworthy group members and conform to the standards of their culture, in part, to avoid the painful shame experiences which arise from not behaving in these ways (Fessler, 2007).

Furthermore, when individuals do violate social norms they risk unpleasant reactions from others (e.g., anger, retaliation), which can be dangerous (Gilbert, 2007). Shame may have evolved in part to motivate appeasement behaviors which reduce these unpleasant reactions after a social transgression has been committed. Appeasement is essential to the long-term survival of interpersonal relationships, and to the maintenance of one's place within a social group (i.e.,

avoiding social rejection). Appeasing higher status or more powerful others is a cost-efficient way of dealing with conflict; though it may come at the cost of social status, appeasing a more formidable opponent saves valuable resources that might be lost from fighting him or her (Keltner, Young, & Buswell, 1997). Furthermore, the time and energy saved by submitting and appeasing rather than fighting can be used for other pursuits that enhance fitness, such as resource and mate acquisition and retention (Gangestad & Simpson, 2000).

One study tested whether shame serves to appease by asking participants to read hypothetical scenarios about a fictitious CEO who apologised for a negative ecological incident (i.e., a chemical spill) caused by his company. Participants who learned that the CEO verbally expressed feelings of shame while apologising were more satisfied with the apology than those who learned that he communicated guilt, or no emotion (Giner-Sorolla, Castano, Espinosa, & Brown, 2008). Similarly, Proeve and Howells (2006) found that participants applied weaker penalties to fictitious sex offenders who were described as feeling ashamed than to offenders described as feeling sad and remorseful, or as feeling no emotion.

Despite the evidence suggesting that shame may serve an important adaptive function, past research also suggests that it is associated with certain problematic consequences. Shame is strongly related to anger, both at the trait level (i.e., those who are dispositionally prone to shame also tend to experience anger) and the state level (i.e., experimental inductions of shame promote anger and blame; Heaven, Ciarrochi, & Leeson, 2009; Tangney, Stuewig, & Mashek, 2007). The anger associated with shame tends to lead to numerous forms of aggression (e.g., physical, verbal, and self-directed; Tangney, Wagner, Hill-Barlow, Marschall, & Gramzow, 1996). In addition, feeling shame tends to inhibit empathy (Leith & Baumeister, 1998) and perspective taking (Yang, Yang, & Chiou, 2010) and typically promotes attempts to deny, hide, or escape

shame-inducing situations (e.g., de Hooge, Zeelenberg, & Breugelmans, 2007). In short, though shame experiences may be evolutionarily adaptive, humans' desire to counteract, suppress, and avoid these painful experiences can lead to a number of social problems.

In a related vein, shame may also be a core emotion underlying the larger social problems and poor health associated with addiction. One study found that the degree to which recovering alcoholics demonstrated behavioral displays of shame while discussing their past drinking significantly and substantially predicted subsequent declines in their physical and mental health, their likelihood of relapsing, and the severity of that relapse. More specifically, newly sober alcoholics' shame displays strongly predicted whether they relapsed up to 4 months later, and the number of drinks they consumed (Randles & Tracy, 2013).

In sum, although there is good reason to think that shame evolved to serve adaptive functions related to appeasement, more research is needed to demonstrate shame's positive consequences because, at present, of all the emotions that are thought to be endemic to our species, shame appears to come with the most negative and even maladaptive social and psychological consequences (see Randles & Tracy, 2015).

The evolutionary function of the shame nonverbal expression

Nonverbal expressions of shame are automatically perceived as low status (Shariff & Tracy, 2009), and such perceptions can reduce an individual's fitness in a number of ways (e.g., Barkow, 1975; Cowlishaw & Dunbar, 1991; Leary, Tambor, Terdal, & Downs, 1995). However, nonverbal displays of shame may also provide certain benefits to displayers, by appeasing onlookers after a social transgression (Keltner & Buswell, 1997). Indeed, the nonverbal expression associated with shame may have evolved as a social signal that functions to inform onlookers of: (a) a transgressing individual's awareness that social norms have been violated,

and (b) his or her respect for those norms. This communication likely increases perceptions of trustworthiness; the transgressor is choosing to openly acknowledge his or her error, rather than pretending it didn't happen, and thus indicating his or her sincere acknowledgment of, and respect for, the transgressed norm. This is an important message to send after a transgression, as those who break a social rule without communicating an admission of norm violation may be perceived as disrespectful of the group and likely to violate other norms in the future (Gilbert, 2007).

Consistent with this logic, displaying shame after a transgression may indirectly promote fitness by facilitating the formation of cooperative social ties (Barkow, 1989; Baumeister & Leary, 1995; Gilbert, 1997). Further, by openly deferring to higher status individuals through the display of an expression readily recognised as conveying low-status, individuals may effectively gain greater access to powerful and knowledgeable others who might otherwise be threatened by them (i.e., if they were perceived as potentially high-status competitors). Access to high-status prestigious individuals is crucial to social learning, given the important role that expert social models play in the transmission of cultural knowledge (Henrich & Gil-White, 2001).

A growing body of research is consistent with this account of shame displays as appeasement and deference signals. Behaviours associated with the human shame expression have been observed in a number of nonhuman animals during situations of submissive appeasement, suggesting that shame displays may have originated as appeasing submission displays in our nonhuman ancestors. Submissive chimpanzees have been observed to lower their bodies or crouch toward more dominant conspecifics during agonistic encounters (de Waal, 1989; van Hooff, 1973), and similar constricted body postures have been observed in the

submissive displays of stumptail macaques, and hamadryas and yellow baboons (Adams, 1981; Kummer, 1968; Leresche, 1976; Silk, 1987).

Several studies have more directly examined whether the shame display appeases observers after a failure or transgression has been committed. In one, Keltner and colleagues (1997) found that participants were more sympathetic toward hypothetical students who failed a class presentation when those students displayed shame than when they displayed embarrassment (unlike shame displays, embarrassment displays include a smile and face touching; Keltner, 1995). In a subsequent mock-trial study, these researchers found that a hypothetical convicted drug dealer was judged as less guilty and given a weaker penalty when displaying shame and embarrassment compared to contempt or a neutral expression. Together, these results suggest that shame displays are more appeasing than an absence of emotional displays or contemptuous displays.

Other studies have examined the adaptive benefits of observing others' displays of shame. Given that shame displays are not as reliably or cross-culturally recognised as other emotions expressions (Haidt & Keltner, 1999; Tracy & Robins, 2008), it is possible that recognising these displays is, in fact, ultimately less adaptive compared to recognising displays of pride. However, there are several benefits that would likely accrue to those who can effectively infer shame in others. First, because shame displays communicate an individual's commitment to social norms and trustworthiness, observers may use these displays to quickly decipher which group members would make the best interaction partners. Observers who do so would reap the many benefits associated with cooperating with a trustworthy and committed group member (Fessler, 2007). Consequently, there may be survival-related benefits to effectively observing shame in others, using it to infer their level of commitment to the group,

and choosing interaction partners on this basis. It may be for this reason that shame expressions are one of the most sexually attractive emotion expressions shown by both men and women (Tracy & Beall, 2011; but see Beall & Tracy, 2014).

Another benefit likely accrued by observers who reliably identify others' shame displays is conflict avoidance. Just as processes of appeasement reduce conflict for those who display shame, they may also reduce conflict for those who observe it. Even if observers are higher status than the shamed other, and thus likely to win an agonistic encounter, they will still save valuable resources by recognising that the other is willing to submit, and therefore that no fight is necessary.

Finally, reliably recognising shame displays in others can be vitally beneficial for gaining knowledge about the social hierarchy. For group cooperation to be effective, individuals need to determine who has the power to make decisions; having a clearly delineated status hierarchy aids group coordination (Van Vugt, Hogan, & Kaiser, 2008). Thus, a quick and reliable means for higher status leaders to identify subordinates who are likely to support their decisions rather than fight them, and follow orders rather than question them, allows for a streamlined decision-making process and more effectively functioning group. Knowing who subordinates are may also facilitate leaders' ability to keep followers happy, an essential part of maintaining influence (Van Vugt et al., 2008).

Future Directions in Research on the Evolution of Pride and Shame

What are the biological and physiological responses associated with pride and shame?

Given that distinct emotions are thought to be critically involved in the orchestration of coordinated suites of biological and physiological responses (e.g., Al-Shawaf, Conroy-Beam, Asao, & Buss, 2015; Beall & Tracy, under review), the subjective experiences of both pride and

shame may be associated with measurable biological and physiological reactions which facilitate their respective adaptive goals. For example, some past research suggests that feeling shame is associated with increases in cortisol (Dickerson, Mycek, & Zaldivar, 2008) and proinflammatory cytokine activity (Dickerson, Kemeny, Aziz, Kim, & Fahey, 2004) which may facilitate adaptive behaviors such as submission and withdrawal during shame-eliciting situations (Dickerson, Gruenewald, & Kemeny, 2009). Feeling pride, on the other hand, may be associated with physiological responses—such as increased Testosterone—that facilitate gaining or maintaining prestige and/or dominance over peers. More work is needed which directly investigates the biological and/or physiological markers of pride and shame, and how these associated responses may help to facilitate status-seeking and appeasement behaviors respectively.

In addition to the subjective experiences of distinct emotions, a growing body of research also suggests that the prototypical nonverbal displays of distinct emotions may have adaptive biological functions (see Shariff & Tracy, 2011). The fear expression provides a useful illustration: The widened eyes of individuals instructed to pose a fearful facial expression were found to increase the scope of their visual field and the speed of their eye movements, allowing expressers to better identify potentially threatening objects in their periphery (Susskind & Anderson, 2008). This line of reasoning has led some researchers to explore whether the physical configurations of the prototypical pride and shame nonverbal displays may serve adaptive biological and physiological functions beyond communication. For example, the open and expansive chest associated with the pride display may help to increase lung capacity, which, in turn, could prepare the displayer for success in status-driven agonistic encounters. Conversely, if shame's adaptive function is the reduction of harm by appeasing high-status others, its prototypical components (e.g., shoulders slumped, head-tilt downward) may effectively hide

bodily targets from potential attack in agonistic encounters (see Shariff & Tracy, 2011). Though these hypotheses are somewhat speculative, examining the non-communicative functions of the physical properties of pride and shame displays is an important direction for future research.

What is the evolutionary function of the shame experience?

Although self-conscious emotions have received increased empirical attention over the past few decades, the majority of significant scholarly advances have concerned the evolution and function of pride; continued research is thus needed to further examine shame. One recently proposed sociocultural account might explain the evolutionary persistence of shame despite its seemingly maladaptive consequences. In their "socio-dynamic model of emotions" Mesquita and Boiger (2014) suggest that emotions are more likely to emerge in certain sociocultural environments if they positively contribute to social cohesion within those contexts. An implication of this account is that emotions are experienced and displayed more frequently in certain social contexts where they produce better outcomes; in contrast, experiencing and displaying these emotions in social contexts where they are not highly valued could lead to various dysfunctions.

In the United States—a country with a highly individualistic culture that emphasizes independence and maintaining high self-esteem—shame is considered to be an undesirable emotional experience (Boiger, Mesquita, Uchida, & Barrett, 2013); feelings of shame are typically discouraged among American youth (e.g., Miller, Wang, Sandel, & Cho, 2002), and avoided in American literature (Cohen, 2003). However, in Japan—a country with a culture that emphasizes interdependence and monitoring/overcoming personal shortcomings—shame is valued (Boiger, Mesquita, Uchida, & Barrett, 2013); feelings of shame are encouraged among Japanese youth (Lewis, 1995) and are considered to be important to self-improvement (Heine,

Lehman, Markus, & Kitayama, 1999). Consistent with the socio-dynamic model of emotions, shame is more frequently experienced in Japan than in the U.S. (Kitayama, Mesquita, & Karasawa, 2006). Furthermore, in the cross-cultural study of Olympic athletes' expressions of shame in response to loss, mentioned earlier, participants from countries holding similar values as Japan (e.g., collectivism) were more likely to display shame than participants from more individualistic countries like the United States (Tracy & Matsumoto, 2008). This past work implies that shame may not be generally dysfunctional; instead, the dysfunction observed may be an artifact of a Western cultural emphasis on extreme individualism and self-enhancement at the expense of caring about one's group (Mesquita & Karasawa, 2004). That said, however, additional cross-cultural work is needed to further test this account.

What is the evolutionary function of the shame nonverbal expression?

Few studies have directly examined the functionality of shame's nonverbal display and whether it actually serves to appease observers after a transgression has been committed. As noted above, preliminary evidence suggests that shame displays are more appeasing than an absence of emotional displays or contemptuous displays (e.g., Keltner et al., 1997), but more research is needed. For example, it remains unclear whether shame displays in particular lead to reductions in punishment and whether these displays would more powerfully trigger forgiveness than other potentially appeasing displays such as sadness. It is also unclear whether shame displays serve an appeasing function across cultures. Future studies are needed to manipulate the various appeasing emotion expressions separately, in a range of populations, to determine the extent to which shame uniquely and universally functions to appease.

Conclusion

This chapter reviewed considerable evidence suggesting that pride and shame are likely to be adaptations (i.e., evolved to serve particular functions relevant to enhancing fitness) and that their displays should also be considered evolved (e.g., Ekman, 1992). Research findings suggest that the prototypical pride and shame non-verbal expressions are: (a) recognized consistently and robustly, (b) by individuals who could not have learned them through cross-cultural transmission (i.e., films, television, magazines), and are (c) reliably and spontaneously displayed in pride- and shame-eliciting situations by individuals who have never seen others display them. Pride and shame are therefore likely to be universal and innate affective responses to success and failure that each serve adaptive functions; Pride may aid in reproductive fitness by motivating status-related goal pursuit and shame may aid in reproductive fitness by facilitating appeasement after a status-lowering event. However, there are still many questions that remain unanswered about the functions of these universal emotions, and much room for continued programmatic research regarding their evolution.

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