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Cross-cultural invariances in the architecture of shame

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Human foragers are obligately group-living, and their high dependence on mutual aid is believed to have characterized our species' social evolution. It was therefore a central adaptive problem for our ancestors to avoid damaging the willingness of other group members to render them assistance. Cognitively, this requires a predictive map of the degree to which others would devalue the individual based on each of various possible acts. With such a map, an individual can avoid socially costly behaviors by anticipating how much audience devaluation a potential action (e.g., stealing) would cause and weigh this against the action's direct payoff (e.g., acquiring). The shame system manifests all of the functional properties required to solve this adaptive problem, with the aversive intensity of shame encoding the social cost. Previous data from three Western(ized) societies indicated that the shame evoked when the individual anticipates committing various acts closely tracks the magnitude of devaluation expressed by audiences in response to those acts. Here we report data supporting the broader claim that shame is a basic part of human biology. We conducted an experiment among 899 participants in 15 small-scale communities scattered around the world. Despite widely varying languages, cultures, and subsistence modes, shame in each community closely tracked the devaluation of local audiences (mean $r = +0.84$). The fact that the same pattern is encountered in such mutually remote communities suggests that shame's match to audience devaluation is a design feature crafted by selection and not a product of cultural contact or convergent cultural evolution.

emotion | cognition | culture | cooperation | evolutionary psychology

Evidence from behavioral ecology, hunter-gatherer archaeology, and contemporary forager societies suggests that our hominin ancestors evolved in an ecology characterized by high rates of mortality (1) and scarcity (2), high variance in food acquisition (2, 3), high incidence of disease and injury (4), and attacks by predators and conspecifics (5). To a zoologically unusual degree, humans in all foraging societies rely on the other members of their groups for the assistance necessary for survival and reproduction (6). Indeed, mutual aid has been such a universal and basic feature of forager subsistence that it is believed to be central to the evolutionary biology of our species (6–9). Among the strongest selection pressures shaping human sociality would have been the need to maintain sufficient incentives so that mates, cooperative partners, and fellow group members would be inclined to render assistance in times of hunger, incapacitation, and interpersonal conflict (4). Under these conditions, the extent to which other members of one's social group valued, helped, and refrained from exploiting an individual would have sensitively impacted whether that individual reproduced successfully, struggled, or died early (10).

In humans, decisions whether to help others are computed by an array of specialized choice architectures that implement welfare trade-off decisions given the information available to the actor about an interaction partner (11, 12). When new information is detected that reveals an individual to be less valuable or less able to enforce her interests, less weight will be placed on her welfare by the people with whom she interacts; she will have been devalued. (By "devaluation" we mean devaluation of the target individual by one or more others; we do not mean devaluation of a relationship, although that may happen as a consequence.) As a result, such an individual will be helped less and harmed more, thereby incurring fitness costs. Preventing social devaluation—and minimizing its costs if it occurs—is a major adaptive problem in this social ecology.

Here we test predictions derived from the information threat theory of shame, according to which the emotion of shame is the expression of a neurocognitive system that evolved to defend against social devaluation (13, 14; see also refs. 15–19). A system

Significance

This set of experiments shows that in 15 traditional small-scale societies there is an extraordinarily close correspondence between (*i*) the intensity of shame felt if one exhibited specific acts or traits and (*ii*) the magnitude of devaluation expressed in response to those acts or traits by local audiences, and even foreign audiences. Three important and widely acknowledged sources of cultural variation between communities—geographic proximity, linguistic similarity, and religious similarity—all failed to account for the strength of between-community correlations in the shame–devaluation link. This supplies a parallel line of evidence that shame is a universal system, part of our species' cooperative biology, rather than a product of cultural evolution.

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designed for this function should activate in response to cues indicating the prospect or actuality of devaluation, and orchestrate a suite of cognitive mechanisms that: (*i*) deters the individual from taking courses of action that would cost more in terms of social devaluation than the personal payoffs the action would otherwise yield; (*ii*) limits the extent to which others learn about and spread potentially damaging information; (*iii*) limits the degree and costs of any ensuing social devaluation; and, if devaluation occurs, (*iv*) mobilizes the individual to respond adaptively to the new social landscape.

Existing findings on shame are strongly consistent with this theory of its functional architecture. When facing the prospect or actuality of being devalued, people feel pain (20, 21), avoid taking acts that could cause or exacerbate devaluation (22, 23), and conceal damaging information (24, 25). When others discover reputation-damaging information, the individual withdraws (26), appeases (27), and produces a phylogenetically ancient stereotyped nonverbal display (16, 17, 28) that signals subordination: that is, that less weight on their welfare is acceptable (29). When the discrediting information becomes common knowledge (30), people behave in a more cooperative fashion (22, 31), a predicted response for a system designed to restore one's reputation as a good cooperative partner (32). [If cooperative overtures are not successful or cost-effective, the system can switch to aggression (33, 34) as its remaining negotiating tool; one reason why people are proud of aggressive formidability, and ashamed of weakness.] While some discrediting acts or traits can elicit devaluation among specific other individuals [e.g., an individual's refusal to help an opposite sex stranger may cause devaluation in the latter but not in the individual's mate or friends (35, 36)], others (e.g., incompetence, stinginess) can have negative affordances for, and thus have adverse reputational consequences among, broader audiences. A well-designed shame system should therefore be sensitive to partner-choice effects (37–39) and aim to minimize the total costs of devaluation arising from the actor's social world. Although data on shame and partner choice are scarce, there is some evidence consistent with those expectations (40–42). Moreover, recent cross-cultural evidence supports the hypothesis that the complementary emotion of pride is an adaptation that evolved to motivate the pursuit of courses of action where the prospective benefits of increased valuation exceed the costs, to advertise positive information about the self, and to profit from the benefits of increased valuation by others (43–45). By hypothesis, shame serves analogous functions with respect to negative information that threatens to diminish others' valuation of the individual.

Some aspects of the adaptive problem of being socially devalued are highly general and abstract while others are particular and context-dependent. The shame architecture is thus expected to incorporate both structural invariances and open parameters, which can account for differences in shame across situations, individuals, and populations (40). For example, individuals with many socially valued characteristics can both impose more costs on others before being devalued and more effectively limit the cost of devaluation when it occurs; as expected, those individuals are less prone to shame (40). There are individual differences in people's internal estimates of the cost of being socially devalued (46, 47), and a range of clinical conditions—such as psychopathy (48), social anxiety disorder (49), depression (50), and borderline personality disorder (51)—appear to be characterized, for a variety of causes, by perceptions of extreme costs (low and high) to being socially devalued. As expected, the intensity of shame covaries lawfully with those conditions (52–55).

For a member of a social group, the net benefit of taking an action (e.g., stealing) will be the sum of its direct payoff (e.g., acquiring something of value) minus the costs of the lowered welfare trade-offs others in the social world would subsequently direct toward the actor, because the act led them to devalue her. Hence, a central feature of the shame architecture should be that the aversive intensity of anticipated shame generated when considering a potential disgraceful act tracks the magnitude of devaluation that local community members would express in response to that act. This calibration is necessary if the intensity of the internal signal (aversive shame) is used prospectively to decide whether the cost of devaluation outweighs the benefit of engaging in a given act. An internal shame signal that is too strong compared with the prevalent magnitude of audience devaluation will prevent the individual from taking actions that would provide a net benefit. A shame signal that is too weak will fail to deter actions that cost more in social devaluation than the benefits they provide. To avoid these errors, the shame system should estimate the degree to which a given act would cause local audiences to devalue the individual, and calibrate the intensity of its internal signal in proportion to those estimates (scaled by the probability of observation or informational leakage). This internal signal is expected to be equally well calibrated for conditions (e.g., sickness) and traits (e.g., lack of physical attractiveness), in order for the individual to know how much to motivate precaution, prevention, repair, or cultivation of compensating virtues. Importantly, because the internal shame signal is used by the systems that decide how to act, the intensity of felt shame should track the magnitude of audience devaluation even when there is no communication between audiences and the individual who is evaluating alternative courses of action. That is, the internal signal is useful in preventing devaluation by choosing certain acts, precautions, or countermeasures over others, so the system would be severely handicapped if it needed to observe devaluation to know its magnitude, instead of computing these magnitudes in advance.

These predictions were tested experimentally in three Western(ized) countries: the United States, India, and Israel (13). Subjects were given a set of scenarios that tapped situations likely to vary in how much devaluation the actions or traits they described might elicit. One group of subjects rated how negatively they would evaluate the person described in each scenario. A second, independent group of subjects rated how much shame they would feel if they were the person the situation describes. As predicted, the intensity of anticipated shame for a given act or trait closely tracked the corresponding magnitude of audience devaluation. This result replicated in each of the three countries. Moreover, shame in each country tracked the magnitude of devaluation in the other two countries, suggesting that a common, human universal grammar of social valuation informs shame and audience devaluation in tandem. Importantly, devaluation was tracked specifically by shame. Sadness and anxiety, two other negatively valenced emotions that coactivate with shame, failed to track devaluation.

Although this three-nation experiment is suggestive, it does not rule out cultural contact or convergent cultural evolution as an explanation for the cross-cultural similarities: the number of populations was small, they are mass societies, in close media contact, and WEIRD: Western(ized), industrialized, educated, rich, and democratic (56). Consequently, the goal here is twofold: (*i*) the claim being evaluated is that the shame system is a fundamental part of human biology, and so the signature of its operation should be detectable in all human societies, no matter how widely distributed and mutually unfamiliar they are; and (*ii*) by hypothesis, the shame system evolved in small-scale face-to-face social groups where people knew each other, and so it is important to assess the evidence for its operation in small coresidential social ecologies.

Is the tracking of audience devaluation by shame limited to industrial mass societies? Or does this tracking occur throughout the range of human societies, potentially reflecting the operation of a pan-human shame system? To answer this question, we conducted an experiment with 899 participants from 15 small-scale communities living in widely different physical ecologies and featuring very different languages, cultures, and modes of subsistence: (*i*) Cotopaxi, Ecuador; (*ii*) Morona-Santiago, Ecuador;

(*iii*) Coquimbo, Chile; (*iv*) Drâa-Tafilalet, Morocco; (*v*) Enugu, Nigeria; (*vi*) Chalkidiki, Greece; (*vii*) Ikland, Uganda; (*viii*) Le Morne, Mauritius; (*ix*) La Gaulette, Mauritius; (*x*) Dhading, Nepal; (*xi*) Tuva, Russia; (*xii*) Khövsgöl, Mongolia; (*xiii*) Shaanxi, China; (*xiv*) farming communities, Japan; and (*xv*) fishing communities, Japan. We created, based on ethnographic references (e.g., refs. 2 and 57–59), 12 scenarios in which someone's acts, traits, or circumstances might lead them to be viewed negatively. The scenarios were designed to elicit reactions in a variety of evolutionarily relevant domains, such as mating, generosity, social exchange, dominance contests, skills, and health. They were expressed at a level of abstraction that was not culturally particular (e.g., "He is lazy" rather than "He fishes only once a week"). The experimental design was adapted from Sznycer et al. (13). Participants were randomly assigned to either an audience condition or a shame condition. Participants in the audience condition were asked to provide their reactions to 12 scenarios involving a third-party: a same-sex individual other than themselves (e.g., "He steals from members of his community"; "He is ugly"). These participants were asked, for each scenario, to "indicate how you would view this person if this person was in those situations"; they indicated their reactions using scales ranging from 1 (I wouldn't view them negatively at all) to 4 (I'd view them very negatively). These ratings provide situation-specific measures of the degree to which members of a given population would negatively evaluate the individual described in the scenarios. Baseline evaluations of the target individual were not collected, as they were not deemed particularly meaningful or informative given the properties of the experimental paradigm. Thus, the audience condition measure does not index reductions in social valuation. However, for the purpose of using a simple descriptor, and because negativity of social evaluations should strongly correlate with reductions in social evaluations, we will refer to this measure as a measure of devaluation.

Participants in the shame condition were asked to "indicate how much shame you would feel if you were in those situations" (that is, in each of the 12 scenarios; e.g., "You steal from members of your community"; "You are ugly"), with scales ranging from 1 (no shame at all) to 4 (a lot of shame). The prompts of the shame measure featured local translations of the term "shame"; these prompts did not contain any reference to how other people might view the participant. Thus, any conceptual connection between feelings of shame and others' negative evaluations of the target individual would be generated endogenously (as predicted by the theory), without facilitation by the prompts. Four-point Likert scales were employed because their psychometric properties tend to be adequate (60, 61) and, critically, many researchers believed that scales with finer divisions would be beyond the discrimination abilities of participants, many of whom are nonliterate (the one exception was Drâa-Tafilalet, Morocco, where seven-point Likert scales were used). The stimuli in the audience condition and the shame condition were identical on a scenario-by-scenario basis, the only difference being the perspective from which the events are described.

Results

Within-Community Results. First, we report the devaluation and shame results for each community (Fig. 1, Table 1, and *SI Appendix*, *Supplementary Note 3* and Tables S1–S2*o*). There was widespread agreement in each community on how discrediting these situations are relative to one another: mean intraclass correlation (ICC) for the 15 communities: ICC (2,*n*) = 0.83 (*SI Appendix*, Table S3). In other words, participants in each community agreed about the extent to which they would negatively view the individual described in these scenarios. Participants agreed also about the extent to which they would feel shame in each of these specific situations within a given community: mean ICC (2,*n*) = 0.83 (*SI Appendix*, Table S3).

The main functional prediction is that shame for each act should closely track the devaluation of local audiences, because shame intensities are hypothesized to be the product of the cognitive map of the devaluation cost of each act in the minds of the members of the local community. To test this key prediction, we calculated, for each scenario, the mean shame ratings provided by participants in the shame condition and the mean devaluation ratings provided by participants in the audience condition. As predicted by the hypothesis that shame is calibrated to track the devaluation of local audiences, the mean shame ratings were highly correlated with the mean devaluation ratings within each of the 15 communities, with a mean $r = 0.84$ (SD = 0.08; minimum $r = 0.69$; maximum $r = 0.94$; n rs = 15); Ps = 10^{-5} to 0.013 (Fig. 2 and *SI Appendix*, Table S4, diagonal values). All of these 15 correlations remain significant after applying a false-discovery rate (FDR) correction (62) of $P < 0.05$. Recall that the shame ratings and the devaluation ratings originate from different participants. Consequently, these high correlations cannot be attributed to individual participants matching their shame and devaluation ratings.

Between-Community Results. The shame system evolved for making decisions in—and tracking the values of—one's local group (13; see also ref. 63), and so cultures could potentially differ from each other to an arbitrarily large degree in what is shameful and devalued. Indeed, some actions, traits, and situations elicit devaluation in some cultures but not others (13, 64). Furthermore, a rich literature in anthropology and cultural psychology exists on cultural differences in emotion, although this work seldom addresses cross-cultural similarities or questions of functional

Fig. 1. Map of the 15 field sites.

Table 1. Demographic information (samples A–O)

Community	Economy	Religion	Language	*n*	Age, y (SD)
Cotopaxi, Ecuador	Subsistence agriculture, pastoralism	Evangelism	Quechua	40	38 (18)
Morona-Santiago, Ecuador	Foraging, horticulture, hunting, fishing	Catholic–Indigenous syncretism	Shuar	41	37 (16)
Coquimbo, Chile	Artisanal fishing, wage labor	Christian and nonreligious	Spanish	44	45 (15)
Drâa-Tafilalet, Morocco	Subsistence agriculture	Sunni Islam	Amazigh	75	32 (13)
Enugu, Nigeria	Subsistence agriculture	Catholicism	Igbo	80	33 (8)
Chalkidiki, Greece	Fishing, farming, mining, service sector	Orthodox Christianity	Greek	60	47 (15)
Ikland, Uganda	Horticulture, hunting	Animism, Christianity	Icé-tód	96	31 (12)
Le Morne, Mauritius	Fishing, farming, wage labor	Catholicism	Mauritian Creole	80	35 (15)
La Gaulette, Mauritius	Fishing, farming, service sector	Hinduism	Marathi	80	37 (15)
Dhading, Nepal	Farming, trade	Hinduism, Buddhism	Nepali	42	31 (10)
Tuva, Russia	Seminomadic pastoralism	Shamanism, Buddhism	Tuvanian	53	38 (16)
Khövsgöl, Mongolia	Nomadic pastoralism, foraging, fishing	Shamanism, Buddhism	Mongolian	40	41 (13)
Shaanxi, China	Farming	Mostly nonreligious	Northern Mandarin	65	N/A
Farming communities, Japan*	Farming, wage labor	Buddhism, Shintoism	Japanese	60	65 (13)
Fishing communities, Japan†	Fishing, farming, wage labor	Buddhism, Shintoism	Japanese	43	68 (11)

Means (SDs in parentheses). Age was not registered in Shaanxi, China.
*Participants sampled from 12 communities in 3 prefectures where at least 25% of the residents are farmers.
†Participants sampled from nine communities in three prefectures where at least 25% of the residents are fishers. See Fig. 1 for a map of the communities.

design (65–67; but see refs. 16 and 68). However, if there is a human universal system of social valuation, then scenarios that tap this system may elicit agreement across cultures about what is shameful and devaluing, and shame in a given culture may track devaluation in another culture, despite a lack of contact. Are there situations that provoke devaluation and elicit shame across cultures? To explore the existence of between-community agreement in devaluation, in shame, and in the shame–devaluation link, we computed the extent to which the mean devaluation ratings and the mean shame ratings were correlated across communities.

There was a high degree of between-community agreement on the extent to which a given situation would elicit devaluation: mean $r = 0.72$ (SD = 0.16; minimum $r = 0.36$; maximum $r = 0.99$; n rs = 105); Ps = 10^{-8} to 0.26; 76 of these 105 correlations (72% of them) remain significant at FDR $P < 0.05$ (*SI Appendix*, Table S5). There was also high between-community agreement on the extent to which a given situation would elicit shame: mean $r = 0.69$ (SD = 0.17; minimum $r = 0.15$; maximum $r = 0.95$; n rs = 105); Ps = 10^{-5} to 0.64; 83 of these 105 correlations (79% of them) remain significant at FDR $P < 0.05$ (*SI Appendix*, Table S6). Furthermore, the shame elicited in each of the 15 communities was positively correlated with the devaluation from the other 14 communities: mean $r = 0.69$ (SD = 0.15; minimum $r = 0.21$; maximum $r = 0.95$; n rs = 210); Ps = 10^{-5} to 0.52; 166 of these 210 correlations (79% of them) remain significant at FDR $P < 0.05$ (*SI Appendix*, Table S4, off-diagonal values). In other words, the shame elicited by these scenarios in one community (e.g., Shuar forager-horticulturalists of the Ecuadorian Amazon) tracked how negatively people viewed these scenarios in each of the other 14 communities (e.g., pastoralists from Tuva, Amazigh farmers from Morocco, farmers from Nepal).

By hypothesis, the intensity of the shame signal reflects estimates of devaluation by local audiences. Accordingly, the correlations between shame and devaluation were descriptively higher for local than foreign audiences in 81% of cases (170 of 210; zs = 0.006 to 7.17; 95 of these 170 pairwise comparisons remain significant at FDR $P < 0.05$). In the remaining 19% of cases, shame-devaluation correlations were descriptively higher for foreign than local audiences (zs = −0.005 to −2.30), but only one of these 40 comparisons was significant at FDR $P < 0.05$. The proportion of variance in shame accounted for by the devaluation of local audiences (mean: 71%) was higher than that accounted for by the devaluation of foreign audiences (mean: 48%) (*SI Appendix*, *Supplementary Note 1* and Tables S7*a* and S7*b*).

There were, of course, some cross-society differences in the rank order of scenarios for devaluation, which can lower shame-devaluation correlations for foreign compared with local audiences. (For local audiences, 100% of shame-devaluation correlations were equal to or greater than $r = 0.69$, with mean $r = 0.84$.) Even so, the mean correlation between shame and foreign audiences was high ($r = 0.69$) and the SD indicates that 84% of values were greater than $r = 0.54$. These high correlations make sense for scenarios (like ours) designed to tap a universal system of social valuation. (Obviously, correlations with foreign audiences would be lower for culturally idiosyncratic scenarios, as shown in ref. 13.)

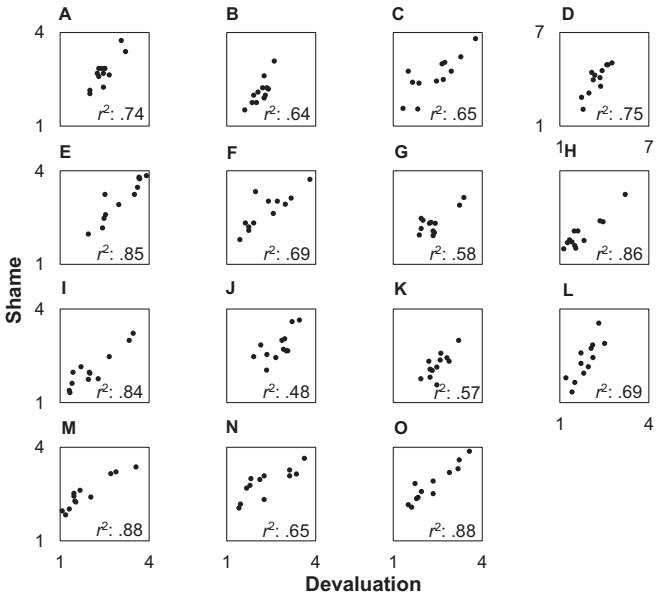

Fig. 2. Scatter plots: Shame as a function of devaluation (samples A–O). Each point represents the mean shame rating and mean devaluation rating of one scenario. Shame ratings and devaluation ratings were given by different participants. Number of scenarios = 12. Effect size: r^2 linear. (A) Cotopaxi, Ecuador; (B) Morona-Santiago, Ecuador; (C) Coquimbo, Chile; (D) Drâa-Tafilalet, Morocco; (E) Enugu, Nigeria; (F) Chalkidiki, Greece; (G) Ikland, Uganda; (H) Le Morne, Mauritius; (I) La Gaulette, Mauritius; (J) Dhading, Nepal; (K) Tuva, Russia; (L) Khövsgöl, Mongolia; (M) Shaanxi, China; (N) farming communities, Japan; (O) fishing communities, Japan.

Importantly, three major and widely acknowledged sources of cultural variation between communities—geographic proximity, linguistic similarity, and religious similarity (69)—all failed to account for the strength of between-community correlations in shame, devaluation, and the shame–devaluation link (*SI Appendix, Supplementary Note 2* and Table S8). This indicates that the 15 communities in our sample represent largely independent cultural contexts with respect to shame and devaluation. Therefore, it is unlikely that the strong correlations we observe result from cultural contact creating shared social norms.

Discussion

A cross-culturally replicable, close quantitative correspondence between anticipated shame and the devaluation of local audiences is what one expects of a computational system that is well-designed for countering the threat of being devalued. Features causing this close calibration assist the individual in balancing the competing demands of effectiveness and economy by steering between oversensitivity to devaluation (which would, for example, deter one from taking actions that produce benefits exceeding the probable costs of devaluation) and a weak shame signal that would insufficiently deter discrediting acts, leading one to be devalued to an injurious degree: reckless disregard of devaluation. These data show that the same evolutionarily functional relationship between devaluation and shame intensity found in three Western(ized) mass societies is also found in every one of the 15 additional small-scale populations tested. These populations were selected to be from widely different cultures, subsistence modes, institutions, and languages. This supports the hypothesis that this functional relationship originates in a human universal adaptation designed by natural selection, and is unlikely to have been produced by inheritance from a common cultural ancestor or by convergent cultural evolution arising from similarity in ecologies, subsistence modes, exposure to markets, religions, or ideologies (70, 71). Moreover, the shame system is hypothesized to have evolved in the mutual-aid context of ancestral small-scale forager communities, so it is instructive to see that the same relationships are obtained in small-scale societies as in mass societies.

Finally, the agreement across cultures, and not just within them, on shame, devaluation, and their interrelationship is noteworthy. According to some accounts, different cultures are in all their dimensions richly and arbitrarily different from each other (72), subserved by only a minimal common psychological architecture of cultural learning. If this were true, then what cultures devalue and what makes members of different cultures ashamed should be radically different. An alternative view is that the evolved architecture of human emotional and motivational systems is richly structured, so that humans in all cultures are similar, with differences arising when emotional, motivational, and cognitive systems have open parameters that are set by the local environment (73). So, although substantial cultural differences in various aspects of shame exist, it remains possible that these are adaptively patterned (13), rather than arbitrary. This view also suggests that there will be strong commonalities across cultures in what is valued, devalued, and shameful. Indeed, this is just what we find: Local within-community correlations between shame and devaluation are very high, because the shame system is designed to track the devaluative dispositions of local audiences. However, there are surprisingly high correlations in devaluation and shame across far distant, never-encountered communities. This is just what one would expect if there is a cross-culturally universal psychology of human valuation. These data contribute to a growing body of findings indicating that theories of adaptive function are a powerful tool for identifying regularities in the structure and content of human emotion.

Methods

The study procedures were approved by the Institutional Review Boards at the University of California, Santa Barbara, University of Oregon, Rutgers University, East China Normal University, University of Nigeria, Nsukka, and Universidad San Francisco de Quito, and the Research Ethics Committee of the Institute of Psychology, Russian Academy of Sciences. All of the participants gave informed consent. The data and study materials are included in Dataset S1 and *SI Appendix*, respectively.

Participants. We collected data from 899 participants from Cotopaxi, Ecuador (sample A), Morona-Santiago, Ecuador (sample B), Coquimbo, Chile (sample C), Drâa-Tafilalet, Morocco (sample D), Enugu, Nigeria (sample E), Chalkidiki, Greece (sample F), Ikland, Uganda (sample G), Le Morne, Mauritius (sample H), La Gaulette, Mauritius (sample I), Dhading, Nepal (sample J), Tuva, Russia (sample K), Khövsgöl, Mongolia (sample L), Shaanxi, China (sample M), farming communities, Japan (sample N), and fishing communities, Japan (sample O). The numbers of participants are: 40 (sample A), 41 (sample B), 44 (sample C), 75 (sample D), 80 (sample E), 60 (sample F), 96 (sample G), 80 (sample H), 80 (sample I), 42 (sample J), 53 (sample K), 40 (sample L), 65 (sample M), 60 (sample N), and 43 (sample O). For demographic information, see Table 1; for descriptions of the communities, see *SI Appendix, Supplementary Note 3*.

Procedure. The 12 scenarios are shown in *SI Appendix*, Tables S2*a*–S2*o*. Participants were randomly assigned to either the audience condition or the shame condition. The language in the scenarios was gendered according to the participant's sex, except for the two Japan sites. In both Japan sites, data collection was through self-administered questionnaires sent by mail; here we used gender-neutral pronouns and instructed respondents in the audience condition to imagine the target individual was someone of their same sex and age. Sample size, order in which the scenarios were administered, method of stimuli administration, language of stimuli, method of stimuli translation, and geographic location are listed in *SI Appendix*, Table S1.

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