Bursts of Self-Conscious Emotions in the Daily Lives of Emerging Adults

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Abstract

Self-conscious emotions play a role in regulating daily achievement strivings, social behavior, and health, but little is known about the processes underlying their daily manifestation. Emerging adults (n = 182) completed daily diaries for eight days and multilevel models were estimated to evaluate whether, how much, and why their emotions varied from day-to-day. Within-person variation in authentic pride was normally-distributed across people and days whereas the other emotions were burst-like and characterized by zero-inflated, negative binomial distributions. Perceiving social interactions as generally communal increased the odds of hubristic pride activation and reduced the odds of guilt activation; daily communal behavior reduced guilt intensity. Results illuminated processes through which meaning about the self-in-relation-to-others is constructed during a critical period of development.

Keywords

emotion regulation; motivation; social; intraindividual

Self-conscious emotions, such as authentic pride, hubristic pride, shame, and guilt, reflect our social and moral standing. These emotions have profound implications for health and well-being, productivity and social success (Tracy, Robins, & Tangney, 2007) but little is known about how or why pride, shame, and guilt vary from day to day. This gap is striking because self-conscious emotions for regulating social and motivational processes in everyday life. Important individual differences also may be revealed by the within-person distributions of these emotions. In this article, using data from a daily diary study of self-conscious emotion states in emerging adults and a family of generalized linear multilevel models, we evaluate how individuals' experiences of pride, shame, and guilt are distributed

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across time and how day-to-day changes in these emotions are linked with individual differences in emotional and motivational dispositions and daily interpersonal contexts.

Self-Conscious Emotions

Functionalist theories assert that emotions arise from people's behavior, goals, and progress toward those goals (Barrett & Campos, 1987). The self-conscious emotions in particular reflect the status of the self-in-relationships and evoke actions that reinforce or alter interpersonal relations (Barrett, 2000). Pride is evoked in contexts that enhance a person's social status (Tracy, Shariff, & Cheng, 2010). Specifically, authentic pride is rooted in prestige-based status (e.g., from skill- or effort-based competence) whereas hubristic pride is rooted in dominance-based status (e.g., aggression). In contrast, shame and guilt are evoked in contexts that undermine or threaten people's status in a group (Barrett & Campos, 1987; Fessler, 2007). Shame focuses people on how their own transgressions damage their global sense of self whereas guilt focuses people on how interpersonal transgressions harm others. Collectively, these four self-conscious emotions regulate ongoing strivings to get ahead and get along in social contexts. As the motivational implications of people's daily lives change, so too should these self-conscious emotions.

The differences in how these four self-conscious emotions manifest in relation to cues embedded in the interpersonal contexts through which people travel each day should have direct implications for how often they are evoked, and thus, how they are experienced or distributed over time (within-person). As people negotiate daily life, there are abundant opportunities to acquire prestige-based status by demonstrating developmental competence. Accordingly, feelings of *authentic pride* should be relatively frequent and distributed in a Gaussian fashion. That is, individuals are likely to regularly experience moderate levels of authentic pride (central tendency) with fluctuations distributed relatively equally above and below that level reflecting fluctuations in their competence (as in a Gaussian distribution).

Emotions with less normative evoking conditions may exhibit different distributions. For example, social conventions reduce the likelihood the people will attribute success to the self globally. Thus, hubristic pride should not be normally distributed. Likewise, although people's specific moral standards can vary (Graham et al., 2011), they typically act with integrity to minimize shame and guilt. When people do transgress, these emotions motivate subsequent conformity and cooperation which should minimize future departures from the normative low-intensity or non-self-conscious state (Baumeister, Stillwell, & Heatherton, 1994; Fessler, 2007). Shame and guilt should not be normally distributed and, in fact, experience sampling research has shown that momentary guilt among emerging adults is typically mild and experienced less than 13% of the time (Baumeister, Reis, & Delespaul, 1995). The non-normative evoking conditions for hubristic pride, shame, and guilt suggests that repeated measurements of the emotions will be 'zero-inflated' (within-person over time), with most assessments indicating that the emotion had not been activated at all, and only occasional moments when the intensity of the emotion was high (negative skew).

Analytically, the shape (e.g., skew) of the within-person distribution can be an indicator of the type of dynamic process that generates individuals' emotional experiences (see Ram &

Gerstorf, 2009). To our knowledge, alternative (Gaussian vs. positively-skewed) within-person distributions of daily pride (authentic or hubristic), shame, and guilt states have not been compared. While a Gaussian distribution can be modeled as a single *statistical* process reflecting the intensity of the emotion, skewed distributions can be explicitly modeled as the confluence of two distribution-generating processes. One logistic process governs whether the self-conscious emotion is activated (the inflation part of the model – probability of staying in a non-activated state), while another process governs the intensity of the emotion in those instances when it is activated (the count part of the model – probability of increasing levels of the emotion). These processes parallel ideas about antecedent- and response-focused emotion regulation strategies which regulate the activation and intensity of emotions (Gross, 1998). Fitting alternative models to intensive repeated measures data provides a foundation for developing the appropriate model to examine the *psychosocial* processes that regulate the actual activation and/or intensification of self-conscious emotions.

Individual and Contextual Differences in Daily Experiences of Self-Conscious Emotions

The daily manifestation (or regulation) of self-conscious emotions is likely to be influenced by a variety of factors, including individual differences in emotional and motivational dispositions along with the changing interpersonal context of people's daily lives.

Emotional dispositions

Traits can be conceived as the central tendency of a within-person distribution of states (Fleeson, 2001). Trait shame and guilt ratings have been positively associated with the intensity of momentary shame at a single occasion (Gangemi, Mancini, & van den Hout, 2007; Rüsch et al., 2007). We are not aware of any research linking trait and state measures of the two pride facets although the similarity of their correlates would suggest that they are positively associated (Tracy & Robins, 2007a).

Motivational dispositions

Achievement motivation is likely to be especially relevant for self-conscious emotions because competence in everyday life shapes self-evaluations. Achievement motives such as the need for achievement and fear of failure reflect the anticipation of different self-conscious emotions – pride and shame, respectively – that people experience following perceived successes and failures (Atkinson, 1957; Conroy, Elliot, & Thrash, 2009; McClelland, Atkinson, Clark, & Lowell, 1976). The anticipatory nature of these motives suggests that they may be instrumental in *activating* emotions even if those emotions are not particularly intense. Neither motive was expected to predict the intensity of daily self-conscious emotions by itself; however, the self-evaluative sensitivities associated with achievement motives should increase people's responses to contexts that evoke self-conscious emotions. For example, fear of failure increases the magnitude of shame responses to failure so person X context interactions might be expected (McGregor & Elliot, 2005).

Interpersonal contexts

Self-conscious emotions also have close functional ties to interpersonal behavior and may therefore change in response to changes in people's interpersonal contexts. Pride (in general) has been linked with social status (i.e., getting ahead) whereas shame and guilt have been linked with cooperation (i.e., getting along; Fessler, 2007; Shariff & Tracy, 2009). These social functions have close conceptual links to the fundamental interpersonal dimensions of agency and communion (Pincus & Ansell, 2012).

To the extent that people believe they are *getting ahead* of others, they should perceive others as less agentic and experience greater authentic and hubristic pride (Wiggins, 2003). Authentic and hubristic pride involve different routes to status with the former being based on prestige (and, unlike hubristic pride, can involve cooperative efforts) and the latter being rooted in dominance and aggression (Cheng, Tracy, & Henrich, 2010; Tracy et al., 2010).To the extent that people are *not getting along* with others, they should perceive others as being more cold and less friendly. More and less communal perceptions of others may therefore be linked to processes that engender authentic and hubristic pride, respectively. They can also activate shame and guilt to motivate people to enhance their connections with group members who seem distant.

The Present Study

To date, relatively little is known about people's daily experience of the two facets of pride, shame, and guilt. Shifting our focus to how these emotions are distributed within-person over time enables hypothesis-driven research on the specific types of processes that activate and intensify self-conscious emotions. Given that identity-relevance is a precondition for self-conscious emotions, emerging adulthood, a life phase where identity development is the major developmental task, provides a crucible for understanding the micro-maturational processes that contribute to the daily ebb and flow of self-conscious emotions (Arnett, 2000; Tracy & Robins, 2007b). These emotions have also been linked to various forms of psychopathology which increase during this developmental phase. Revealing person X context interactions that influence emerging adults' self-conscious emotions can thus inform work on developmental psychopathology (Schulenberg & Zarrett, 2006). To these ends, we conducted a diary study of self-conscious emotions in the daily lives of emerging adults.

First, we sought to describe the variation in and distribution of daily self-conscious emotion experiences. Consistent with other time-varying affective phenomena that reflect ongoing adaptational struggles, we expected that less than half of the variability in daily emotion ratings would exist between persons, with the majority of the variance being distributed over time, within persons (Ahmed, van der Werf, Minnaert, & Kuyper, 2010; Merz & Roesch, 2011; Nezlek, Vansteelandt, Van Mechelen, & Kuppens, 2008). We also compared the fit of a normal distribution against 'positively-skewed' possibilities commonly used to characterize zero-inflated count data. We hypothesized that a normal distribution would fit best for authentic pride and that a skewed distribution would fit best for hubristic pride, shame, and guilt (hypothesis 1).

Second, we sought to evaluate emotional, motivational, and interpersonal influences on self-conscious emotions. We hypothesized that: (1) the activation and intensity of each daily emotion would be positively associated with its corresponding emotion disposition (hypothesis 2), (2) authentic pride would be associated with high need for achievement and perceptions of less agentic and more communal behavior from others (and the interaction between need for achievement and each individual interpersonal perception; hypothesis 3), (3) hubristic pride would be associated with perceptions of less agentic and less communal behavior from others (hypothesis 4), and (4) shame and guilt would both be associated with high fear of failure, perceptions of less communal behavior from others, and interactions thereof (hypotheses 5-6). In these "main effect" hypotheses, we do not differentiate between activating and intensifying processes, nor do we differentiate between within- and between-person associations. Exploratory analyses were conducted to examine interactions between motives and interpersonal perceptions.

In testing these hypotheses, we controlled likely between- and within-person confounds. For example, shame and guilt are moderately stronger for women than men (sex differences do not exist for either facet of pride; Else-Quest, Higgins, Allison, & Morton, 2012) ; we expected a similar difference in daily shame and guilt but not in either pride facet (hypothesis 7). From a within-person perspective, day-of-week differences have not been established as clearly for self-conscious versus other emotions (e.g., happiness) but we expected that the tendency for activation and intensity of emotions may vary across the week in a predictable manner based on the motivational significance of the days (Thrash, 2007). For example, Friday nights and Sunday nights typically serve as boundaries in the social calendar of college students so we might expect differences in self-conscious emotions between those times. We did not form directional hypotheses about specific day-of-week effects but instead sought to control for systematic day-of-week differences that may or may not be entrained to a uniform weekly cycle.

Methods

Participants and Procedures

Participants were 190 emerging adults attending college (65 men, 125 women) and enrolled in introductory psychology courses who participated in the PSU Achievement Motivation and Interpersonal Behavior study (Ram, Conroy, Pincus, Hyde, & Molloy, 2012) to fulfill a course requirement for research participation. Data from eight participants were removed due to missing or out-of-range age information (n = 2) or having only provided one or fewer daily (n = 3) or interaction reports (n = 3). Thus, the present analysis included 182 participants (63 men, 119 women; mean age = 19.1 years, SD = 1.15, range = 18-26), who were typically in their first year at college (62%) and were primarily White (84%), with some representation of American Indian or Alaska Native (6%), Hispanic or Latino (5%), African American (3%), and Mixed or Other (3%) ethnicities.

After recruitment, participants attended an evening introductory training session where a research assistant described the study and procedures. Consenting participants were given an envelope with seven color-coded booklets, each of which included eight forms on which they would answer questions about their social interactions and one 'end-of-day' form with

questions about their feelings about the day as a whole. The research assistant described each item in the diary booklet as participants completed a practice interaction report about their most recent social interaction lasting 5+ minutes. Instructions emphasized that participants should strive to complete at least 6 interaction reports every day for the following seven days, that they should only be completed following face-to-face interactions that last 5+ minutes, and that these forms should be completed as soon as possible after qualifying interactions. Participants then answered the questions in the first of their 'end-of-day' forms, reporting about their current day, and returned the completed forms to the research staff. For subsequent days, participants were instructed to complete their interaction reports throughout the day, complete the daily report at the end of each day (i.e., before bed), seal each booklet, and drop the sealed (pre-addressed) booklet into campus mail the next day. Following training on the event-contingent recording and daily diary procedures, participants completed a set of web-based baseline questionnaires that assessed their emotion dispositions and achievement motives. The speed and regularity at which the large quantity of booklets arrived back at the research office indicated that study procedures were followed well. In only a very few cases were problems encountered. In total, 182 participants provided reports about their dispositions and chronicled 1421 days (average of 6.95 per person) and 7458 social interactions (average of 40.98 per person). The data can be considered representative of a week in the daily lives of the emerging adult population in a large university setting.

Measures

Daily self-conscious emotions—*Daily authentic pride* and *daily hubristic pride* were assessed using the State Pride Facets Scale (Tracy & Robins, 2007a). Participants rated how well 14 adjectives (e.g., "successful," "conceited;" 7 items/scale) characterized their feelings that day on a Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). Using the same "Today I felt…" format, participants rated their *daily shame* and *daily guilt* using the State Shame and Guilt Scale (Marschall, Sanftner, & Tangney, 1994; Tangney & Dearing, 2002). Participants rated how well 10 statements (e.g., "I feel like I am a bad person," "I feel bad about something I have done;" 5 items/scale) described their phenomenological experience that day on a scale ranging from 1 (*not feeling this way at all*) to 5 (*feeling this way very strongly*). Items were averaged to obtain daily scores for each of the four self-conscious emotions.

Daily interpersonal context—Throughout each day, participants provided information about their social interactions, including the gender and type of interaction partner (e.g., friend, roommate, romantic partner), how long they had known the person, and whether it was their first encounter with the person. They also rated their perception of their interaction partners' communal and agentic behavior using the Interpersonal Grid – a 9×9 grid with its four edges labeled *cold-quarrelsome* and *warm-agreeable* (communal axis) and *unassured-submissive* and *assured-dominant* (agentic axis), and its four corners labeled *engaging* (high communion, high agency), *critical* (low communion, high agency), *withdrawn* (low communion, low agency), and *deferring* (high communion, low agency) (Moskowitz & Zuroff, 2005). Participants marked a single cell in this 2-dimensional space to indicate how their partner treated them in the interaction. Scores measuring perceived communal and

agentic behavior were recorded from the horizontal (1 to 9) and vertical (1 to 9) coordinates of the indicated cell (higher scores indicated more perceived communion or agency). *Daily perceived communion* and *daily perceived agency* scores were calculated as the average of the interactions an individual reported on a given day.

Emotional and motivational dispositions—Dispositions for *authentic pride* and *hubristic pride* were assessed using the 14-item Trait Pride Facets Scale (Tracy & Robins, 2007a). Participants rated how well a series of adjectives (e.g., "successful," "conceited") described them on a Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). Scores were calculated as the mean of the relevant items (α = .87 for both authentic and hubristic pride). *Shame* and *guilt* dispositions were assessed using 16 scenarios from the Test of Self-Conscious Affect-3 (Tangney, Dearing, Wagner, & Gramzow, 2000). After reading each hypothetical scenario, participants rated how likely they would be to exhibit responses characteristic of shame or guilt on a Likert scale ranging from 1 (*not likely*) to 5 (*very likely*). Scale scores were calculated as the mean of the relevant items (α = .78 and .75 for shame and guilt, respectively).

Need for achievement was assessed using the 8-item mastery and 6-item work scales from the Work-Family Orientation Questionnaire (Spence & Helmreich, 1983). Participants rated each item on a Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). The mastery and work scale scores were reversed and averaged so that higher values indicated an intrinsic, appetitive achievement motive (α = .70). *Fear of failure* was assessed using the 5-item Performance Failure Appraisal Inventory (Conroy, Metzler, & Hofer, 2003). Participants rated how strongly they believed that failure is associated with a variety of aversive consequences on a Likert scale ranging from 1 (*do not believe at all*) to 5 (*believe 100% of the time*). Responses were averaged to create a scale score (α = .76).

Social calendar and sex—We used a set of binary variables to control for *day-of-week* effects (with Friday as the reference category) and any *sex* differences.

Data Analysis

The nested nature of the data (days nested within persons) was accommodated using a generalized linear multilevel modeling framework (Snijders & Bosker, 1999) implemented in Mplus version 5.2 (Muthén & Muthén, 1998) with the small amount of missing observations (< 1%) treated as missing at random. Missing data involved need for achievement (4 people), shame or guilt ratings (13 days), authentic or hubristic pride ratings (17 days), and the absence of any interaction ratings (184 days). Repeated measures variables were person-centered, allowing us to examine between- and within-person associations separately (Bolger, Davis, & Rafaeli, 2003; Schwartz & Stone, 1998). For example, day-level interpersonal context scores were separated into person-level interpersonal context scores (e.g., overall perceived communion = within-person mean) and daily interpersonal context scores (e.g., daily perceived communion = day-today deviations from the within-person mean). All between-person variables were sample-centered to facilitate interpretation of model coefficients.

Distributions of the daily self-conscious emotions—To determine the type of distribution that best described each self-conscious emotion, we rescaled the emotion ratings to make them viable as both continuous ratings and as counts (by summing item responses and subtracting the number of items to anchor scores at zero) and fitted unconditional means multilevel models that articulated four theoretically plausible distributions: Gaussian (normal), zero-inflated Poisson (ZIP), zero-inflated negative binomial (ZINB), and zero-inflated negative binomial hurdle (Coxe, West, & Aiken, 2009; Hilbe, 2011; Hur, Hedeker, Henderson, Khuri, & Daley, 2002; Lee & Nelder, 1996; Moghimbeigi, Eshraghian, Mohammad, & McArdle, 2008). The latter three distributions vary in their assumptions about overdispersion and the source(s) of zero-inflated observations. Relative fit statistics (AIC and BIC where smaller values = better fit) were examined to select the best model for interpretation and further analysis.

Associations among dispositions, sex, interpersonal contexts and daily self-conscious emotions—Next, we fit a series of models to examine if and how day-level (e.g., interpersonal context) and person-level (e.g., emotion disposition) variables were related to day-to-day changes in each emotion. Generally, the unconditional means models used in the prior step (assuming Gaussian distribution) were expanded in a step wise fashion to:

$$
\begin{aligned}
\text{Emotion}_{di} = & \beta_{0i} + \beta_{1i}\,(\text{Saturday}_{di}) + \beta_{2i}\,(\text{Sunday}_{di}) + \beta_{3i}\,(\text{Monday}_{di}) + \beta_{4i}\,(\text{Tuesday}_{di}) + \\
& \beta_{5i}\,(\text{Wednesday}_{di}) + \beta_{6i}\,(\text{Thursday}_{di}) + \beta_{7i}\,(\text{Daily Perceived Communion}_{di}) + \\
& \beta_{8i}\,(\text{Daily Perceived Agency}_{di}) + \text{e}_{di}
\end{aligned}
\tag{1}
$$

$$
\begin{aligned}
\beta_{0i} = \gamma_{00} & + \gamma_{01}\,(\text{Sex}_i) + \gamma_{02}\,(\text{Emotion Disposition}_i) + \gamma_{03}\,(\text{Need for Achievement}_i) + \gamma_{04}\,(\text{Fear of} \\
& \text{Failure}_i) + \gamma_{05} + (\text{Overall Perceived Communion}_i) + \gamma_{06}\,(\text{Overall Perceived Agency}_i) + \\
& \text{r}_{0i}
\end{aligned}
\tag{2}
$$

$$
\beta_{(1-6)i} = \gamma_{(1-6)0}
\tag{3}
$$

$$
\begin{aligned}
\beta_{7i} = \gamma_{70} & + \gamma_{71}\,(\text{Sex}_i) + \gamma_{72}\,(\text{Emotion Disposition}_i) + \gamma_{73}\,(\text{Need for Achievement}_i) + \gamma_{74}\,(\text{Fear of} \\
& \text{Failure}_i) + \gamma_{75}\,(\text{Overall Perceived Communion}_i) + \gamma_{76}\,(\text{Overall Perceived Agency}_i) + \\
& \text{r}_{7i}
\end{aligned}
\tag{4}
$$

$$
\beta_{8i} = \gamma_{80}
\tag{5}
$$

where the emotion rating (e.g., pride) on day d for person i was modeled as a function of a person-specific average level of pride on Fridays (β_{0i}), day-specific deviations (β_{1i-6i}), a person-specific association with the day's interpersonal context as indicated by perceived communion and agency (β_{7i-8i}), and a residual score (e_{di}). In Equation 2, person-specific intercepts (β_{0i}) were modeled as a function of the sample average (γ_{00}), sex differences (γ_{01}), the corresponding emotion disposition (e.g., trait pride; γ_{02}), the two achievement motives ($\gamma_{03,}$ γ_{04}), overall perceptions of interpersonal context ($\gamma_{05,}$ γ_{06}), and residual between-person differences (r_{0i}). Note that in Equation 3, the day-of-week effects were

treated as fixed effects that did not vary between people. For illustration, Equations 4 and 5 indicate how the person-level predictors of the person-specific slopes were specified when the associated random effect was and was not significant, respectively. Following standard model building and trimming procedures, random effects were constrained to zero when non-significant, and day-of-week controls were either all eliminated (when non-significant) or carried forward as a group (when any were significant). In the Gaussian model, r_{0i}-r_{8i} were each assumed to be normally distributed, uncorrelated with each other (i.e., diagonal Level-2 covariance matrix), and uncorrelated with normally distributed e_{di}.

When articulating the other distributions (e.g., ZINB), the model changed form. For example, for a ZIP distribution, the model was separated into logistic and count parts (see e.g., Hur et al., 2002). Treating the daily emotion rating $Emotion_{di} = Y_{di}$, as a discrete count response that follows a ZIP distribution, the two part model assumes that:

$$Pr\left(Y_{di}{=}0\right)={\phi}_{di}{+}\left(1-{\phi}_{di}\right)exp\left(-{\lambda}_{di}\right)$$
$$Pr\left(Y_{di}{=}y_{di}\right)=\left(1-{\phi}_{di}\right)\frac{{\lambda}_{di}^{y_{di}}exp(-{\lambda}_{di})}{y_{di}!}, y{=}1, 2, \ldots \quad (6)$$

where φ_{di} is the probability of remaining in the zero (non-activated) state (with $0 < \varphi_{di} < 1$), $1 - \varphi_{di}$ is the probability of moving into an activated state, and λ_{di} governs the intensity of the emotion when it is activated. In parallel to the multilevel model equations above, parameters from these two parts were modeled as linear functions of the day-level and person-level variables using logit and log link functions, respectively, so that

$$logit\left[{\phi}_{di}\right]={\alpha}_{0i}{+}{\alpha}_{1i}\left(\text{Saturday}_{di}\right){+}{\alpha}_{2i}\left(\text{Sunday}_{di}\right){+}{\alpha}_{3i}\left(\text{Monday}_{di}\right){+}{\alpha}_{4i}\left(\text{Tuesday}_{di}\right){+}$$
$${\alpha}_{5i}\left(\text{Wednesday}_{di}\right){+}{\alpha}_{6i}\left(\text{Thursday}_{di}\right){+}{\alpha}_{7i}\left(\text{Daily Perceived Communion}_{di}\right) \quad (7)$$
$${+}{\alpha}_{8i}\left(\text{Daily Perceived Agency}_{di}\right), \text{and}$$

$$log\left[{\lambda}_{di}\right]={\beta}_{0i}{+}{\beta}_{1i}\left(\text{Saturday}_{di}\right){+}{\beta}_{2i}\left(\text{Sunday}_{di}\right){+}{\beta}_{3i}\left(\text{Monday}_{di}\right){+}{\beta}_{4i}\left(\text{Tuesday}_{di}\right){+}$$
$${\beta}_{5i}\left(\text{Wednesday}_{di}\right){+}{\beta}_{6i}\left(\text{Thursday}_{di}\right){+}{\beta}_{7i}\left(\text{Daily Perceived Communion}_{di}\right) \quad (8)$$
$${+}{\beta}_{8i}\left(\text{Daily Perceived Agency}_{di}\right),$$

where α_{0i} to α_{8i} and β_{1i} to β_{8i} are modeled as in Equations 2 through 5, replacing πs for the parameters governing the αs, and keeping γs for the parameters governing the βs, and with the same set of normally distributed and uncorrelated assumptions for the residuals (e.g., r_{0i}-r_{8i}).

Results

Descriptive statistics and correlations for person-level variables appear in the upper half of Table 1. Trait shame had a moderate positive association with trait guilt ($r = .39$), a moderate negative association with trait authentic pride ($r = -.31$), and a weak, but significant, positive association with trait hubris ($r = .16$). None of the other dispositional emotion tendencies were significantly correlated. People with greater need for achievement tended to report higher levels of dispositional authentic pride ($r = .32$) and guilt ($r = .33$); people with greater fear of failure tended to report higher levels of dispositional shame ($r = .47$) and guilt ($r = .24$), and lower levels of dispositional authentic pride ($r = -.29$).

At the within-person level, reported social interactions involved both men (37%) and women (54%) (9% did not report partner sex). These interactions took places in public places (29%), participants' homes (23%), school (22%), other people's homes (10%), and at work (3%) (13% of interactions did not report a location). Interaction partners included friends (55%), roommates (17%), casual acquaintances (8%), romantic partners (6%), supervisors/ instructors (3%), parents (2%), co-workers (1%), siblings (1%), and supervisees (<1%). Very few of these interactions were participants' first encounter with the interaction partner (5%). Participants knew their interaction partners for an average of 28.1 months (*SD* = 53.0) prior to the interaction and perceived that they were reasonably well acquainted with those partners (*M* = 3.56 on a scale ranging from 0 to 6; *SD* = 1.25). As seen in the density plot in Figure 1, participants typically perceived those they interacted with as moderately friendly and moderately dominant. When these interaction-level ratings were aggregated into daily context scores, between-person variance in daily perceived communion and agency scores accounted for only about 40% of total variance.

The lower half of Table 1 shows that these daily average ratings were positively correlated with each other (*r* = .34). That is, the more people perceived their interaction partners as friendly (communal), the more they also perceived them as dominant (agentic). Daily mean communion scores were negatively associated with daily shame (*r* = −.21), guilt (*r* = −.16), and hubristic pride (*r* = −.14). Daily mean agency scores were not systematically associated with daily emotion ratings (|*r*| .08). The lower half of Table 1 also presents correlations among the daily emotion ratings and the daily mean interaction grid scores. Daily authentic and hubristic pride had only a small positive association (*r* = .09), whereas within-person means for daily shame and guilt had a large positive association (*r* = .79). Both daily authentic and hubristic pride were moderately associated with daily shame and guilt (but in opposite directions; e.g., *r* = −.33 and −.22 vs. *r* = .46 and .40). Intraclass correlation coefficients indicated that the proportion of between-person variance in emotion ratings ranged from 36% (guilt) to 68% (hubris), with an average across all four self-conscious emotions of approximately 47% of total variance being between-person variance.

Distributions of the Daily Self-Conscious Emotions

Figure 2 presents raw frequency distributions for all four daily emotion ratings. Only authentic pride appeared to conform to a relatively normal (Gaussian) shaped distribution. Hubristic pride, shame, and guilt were each, as expected, positively skewed with an inflated number of ratings at the bottom of the scale range. Table 2 presents fit indices for unconditional models specified in accordance with four different distributions. For authentic pride, the normal model fit much better than the zero-inflated and hurdle distributions so we concluded that authentic pride scores should be modeled using Gaussian assumptions. This model describes the distribution of individuals' emotion scores as normally distributed deviations (with variance σ^2_e) around an individual-specific mean = $\mu_i = \beta_{0i}$ interpreted as an individual's equilibrium or usual level of emotional intensity. In contrast, the ZINB model fit best for hubristic pride, shame, and guilt. Just as with the multilevel ZIP model described above, the ZINB model has two parts (for details, see Moghimbeigi et al., 2008), with the φ parameter interpreted as governing an individuals' tendency for non-activation (note directionality: positive values = absence of emotional activation) and the μ parameter

governing the expected intensity of the emotion when it is activated. An additional 'over-dispersion' parameter, θ, is included in the negative binomial part to accommodate the non-equivalence of mean and variance (as would be required by a Poisson model) but is not interpreted substantively. Overall, these hypotheses were consistent with hypothesis 1.

Predicting Daily Self-Conscious Emotions

Next, we examined if (and how) the characteristics of individuals' distributions were related to dispositions, sex, daily interpersonal context, and day of week.

Daily authentic pride—As seen in the first column of Table 3, results from the expanded multilevel Gaussian model indicated that the average authentic pride scores were significantly higher for men ($\gamma_{01} = -1.19$) and people higher in trait authentic pride ($\gamma_{02} = 3.38$). Daily perceptions of interaction partners' communion or agency were not significantly associated with authentic pride, although there was significant variability in the effect of daily perceived agency that might be explained by other person-level factors ($\sigma^2_{r8} = 3.66$). Equilibrium levels of daily authentic pride corresponded in part with trait levels of authentic pride but day-to-day changes in daily pride intensity were not a function of achievement motivation, perceived daily interpersonal contexts, or the day-of-week. These findings were consistent with hypothesis 2 but provided no support for hypotheses 3 or 7.

Daily hubristic pride—When predictors were incorporated to the ZINB model of hubristic pride, we encountered unexpected non-convergence issues due to the extent of zero inflation and the extremely skewed distribution of non-zero scores (i.e., this distribution was effectively binary with the emotion either not being activated or being minimally activated with limited variation). Thus, we recoded the hubristic pride scores as a binary variable that indicated, for each day, if an individual did not endorse any of the 7 hubristic pride items (62% of days = 0) or did endorse one or more items anywhere above the scale minimum (38% of days = 1) above the scale minimum. Conceptually, the intercept parameter for the resulting multilevel logistic regression should be interpreted in an *inverse* manner to the parameter for the logistic part of the in the ZINB multilevel regression. That is, parameters indicate influences on a tendency for emotional activation (as opposed to non-activation).

As seen in the second column of Table 3, hubristic pride was more likely to be activated in men ($\pi_{01} = -1.60$), individuals with higher levels of trait hubristic pride ($\pi_{02} = 3.41$), and in individuals' who generally saw others as being less communal ($\pi_{05} = -0.68$). Fear of failure also moderated the association between daily perceptions of communion and daily hubris ($\pi_{74} = -0.24$). Figure 3 illustrates this interaction: People with lower fear of failure scores (left side of the x-axis) had more positive associations between their daily communal contexts and their odds of activating hubristic pride; people with higher fear of failure scores (right side of the x-axis) had more negative associations between their daily communal contexts and their odds of activating hubristic pride. In other words, people who were low in fear of failure were more likely to report hubristic pride when they perceived others being warm and friendly (higher communion) whereas people who were high in fear of failure were more likely to report hubristic pride when they perceived others being cold and distant (lower communion). From these results, we concluded that activation of hubristic pride was

more likely for men, people who reported greater trait hubristic pride, and people who generally perceived others as less communal. Additionally, we concluded that fear of failure moderated the association between daily perceived communion and activation of hubristic pride. We found no support for our hypothesis that hubristic pride would be related to perceived agency. These findings provided support for hypothesis 2, mixed support for hypothesis 3, and no support for hypothesis 7.

Daily shame—As seen in the third column of Table 3, none of the individual difference or daily variables being examined were significantly associated with between-person differences in the inflation (logistic part) or count (negative binomial part) parameters used to describe the ZINB distribution of daily shame. Thus, there was no evidence supporting our hypothesis that the (non-)activation or intensity of daily shame would be associated with trait shame, achievement motives, or perceptions of daily interpersonal contexts (contrary to hypotheses 2, 5, and 7).

Daily guilt—As seen in the final column of Table 3, there were not significant sex differences in either the likelihood of guilt remaining non-activated or the intensity of guilt once activated. Individuals who perceived others as being more communal in general were less likely to activate feelings of guilt ($\pi_{05} = 0.69$), although perceiving interactions as more communal than usual on a given day increased the likelihood of guilt activation on that day ($\pi_{70} = -0.34$). Neither dispositional guilt, achievement motives, nor perceived agency (at the person or daily levels) were associated with the odds of daily guilt activation. Once activated, daily guilt was more intense for people who generally viewed their interaction partners as less communal ($\gamma_{05} = -0.33$), and perceived them as less-communal-than-usual that day ($\gamma_{70} = -0.18$). From these results we concluded, as hypothesized, that the processes governing activation and intensity of daily guilt were both sensitive to individuals' perceptions of communion in their daily interpersonal contexts. We found no support for our hypotheses that either the activation or intensity of daily guilt would be associated with guilt proneness or fear of failure. These findings provided partial support for hypothesis 6 but no support for hypotheses 2 or 7.

Discussion

This study provided a novel perspective on self-conscious emotions in emerging adults by examining the extent to which these emotions varied from day-to-day, how they were distributed over time within-persons, and what daily- and person-level factors influenced their manifestation. All four self-conscious emotions exhibited significant within-person variance across days. The proportion of within-person variation in daily authentic pride, shame and guilt – roughly 40% of total variation – fell within the expected range based on previous reports of affective states (Ahmed et al., 2010; Merz & Roesch, 2011; Nezlek et al., 2008). Hubristic pride differed from the other emotions in that it had a considerably larger between-person component (ICC = 68%). This finding could indicate that the processes driving hubristic pride proceed more slowly than those driving other emotions (Shiyko & Ram, 2011). It may also indicate that hubristic pride, compared to the other emotions, is driven by rather stable factors (e.g., self-concept) that serve to reduce within-person variation over time (i.e., it may be more trait-like than its counterparts). The weak

correlations (r = .09 across all days) between the two facets of pride also indicated that these two emotions can be differentiated as both states and traits. Whereas previous results have differentiated pride facets cross-sectionally, this study is the first to do so longitudinally at the within-person level of analysis (Carver, Sinclair, & Johnson, 2010; Cheng et al., 2010; Orth, Robins, & Soto, 2010; Tracy, Cheng, Robins, & Trzesniewski, 2009; Tracy & Robins, 2007a).

Within-Person Distributions of Self-Conscious Emotions

Daily reports of authentic pride were best characterized by a within-person Gaussian model, supporting hypothesis 1 which was based on the proposition that the evoking conditions for authentic pride are plentiful and often encountered in daily life. In contrast, daily reports of hubristic pride, shame, and guilt were all better characterized by a ZINB model where the distribution of scores results from the confluence of separable processes that jointly govern the activation (on/off) and intensity of emotional experience. These findings confirmed our hypothesis that the rarity of evoking conditions for these three emotions would necessitate that they are distributed in an asymmetrical, positively-skewed manner over time.

Authentic pride—The Gaussian within-person distribution of authentic pride supports claims that this emotion is adaptive in daily life (Tracy et al., 2010; Williams & DeSteno, 2008, 2009). Pushing the notion that the shape of the within-person distribution is an indicator of the dynamic process generating the data stream (i.e., that different shaped distributions are generated by different types of processes, see Ram & Gerstorf, 2009), authentic pride should be Gaussian distributed for most people. The absence of at least a moderate level of authentic pride would likely undermine people's persistence in goal pursuit, long-term achievement, and social capital (Bodolica & Spraggon, 2010; Carver et al., 2010; Michie, 2009; Williams & DeSteno, 2008, 2009). Indications that a person's authentic pride distribution is not Gaussian may signal important motivational or functional differences. For example, impaired functioning may be marked by positively-skewed distributions or superior functioning may be marked by negatively-skewed distributions. We recommend further examination of how skew and other higher-order moments of within-person distributions may be related to between-person and between-context differences in these emotion states.

Hubristic pride, shame, and guilt—In contrast, hubristic pride, shame, and guilt were all better characterized by ZINB distribution models (i.e., asymmetrical and positively-skewed distributions over time). In line with the rarity of their evoking conditions, these three emotions are relatively rare. At the daily level of experience, individuals' hubristic pride, shame and guilt usually remained non-activated, and only occasionally manifested with any intensity.

This pattern of emotional experience resembles broader patterns of human dynamics, such as the decision-based queuing process that prioritizes most human transactions so "very long periods of inactivity…separate bursts of intensive activity" (Barabási, 2005, p. 208). Most human behavior is moral and it should only be the occasional lapses in morality that will give rise to "bursts" in these self-conscious emotions. It seems likely that other emotions

share this burst-like quality (e.g., anger, joy). Articulated in terms being used in work on affective dynamics, such as the DynAffect model (Kuppens, Oravecz, & Tuerlinckx, 2010), our findings suggest that people have an affective set point which may be determined by (individual) moral codes. In the case of the self-conscious emotions, the set point would be a total absence of hubristic pride, shame, and guilt. As people go about their everyday lives, internal and external contexts sometimes pass a threshold that perturbs the system and drives them away from the set point. Individual morality, the emotion's action tendencies, and the social consequences of the emotion should serve as forces that keep people in the non-activated attractor state and help them quickly regulate back there after perturbation.

Our results also demonstrate that it is possible to articulate the different processes that may be responsible for activating and intensifying these relatively rare self-conscious emotions. The ZINB models in particular provided a modeling framework with parameters that mapped directly onto a Bernoulli (logistic part) process that governed the threshold for activation of the emotions, and an over-dispersed Poisson process (negative binomial part) that governed the intensity of the emotion once activated. Further evidence for the distinction of the two processes is provided by how these parameters related to between-person and day-to-day context differences. Our initial efforts in establishing the distinction provided mixed evidence. In the ZINB model for shame, we did not identify any significant predictors of the parameters governing either the activation or intensity processes. For guilt, we found that individuals' overall perceptions of others as warm and friendly (higher communion) was associated with both a reduced likelihood of activating guilt (logistic part) and less intense guilt when activated (NB part). At a within-person level, on days when an individual perceived others as more communal than usual, there was a greater likelihood of his or her guilt being activated, but less intense guilt upon activation. In sum, we found that interpersonal perceptions had distributed, rather than specific, influences on the activation and intensity of guilt. Although the underlying mechanisms are not yet clear, this study is the first to articulate a modeling framework that allows for a straightforward differentiation and examination of these two key processes (i.e., activation and intensification). To the extent that other emotions share this burst-like quality, multiple parameters will be needed to model within-person variation in those emotions as well.

We underscore that although the zero-inflated distributions indicate the relative rarity of hubristic pride, shame, and guilt, these emotions can have important behavioral consequences. For example, shame is a core affective feature of many forms of psychopathology and doubles borderline personality disorder patients' risk for self-inflicted injury (i.e., suicide attempts and non-suicidal self-injury; Brown, Linehan, Comtois, Murray, & Chapman, 2009) – a burst of shame could lead to significant harm for a person and her or his loved ones. In corporate chief executives, hubris has been linked with overpayment in corporate acquisitions (Hayward & Hambrick, 1997) – an untimely burst of hubris could distort executive decision-making and cost shareholders considerable value. Explicitly separating the activation and intensity processes seems a necessary step in articulating when and how these emotions are evoked. Future research should evaluate whether the action tendencies of these emotions are linked to their activation or intensity parameters (or both). This type of within-person, intensive, repeated sampling of emotion will be valuable for advancing understanding of self-conscious emotions.

Emotion Dispositions as Within-Person Distributions of Daily Self-Conscious Emotions

Emotion dispositions positively predicted both daily pride facets (i.e., intensity of authentic pride, activation of hubristic pride) but failed to predict either shame or guilt at the daily level despite identifying the appropriate parameters that characterized within-person distributions in each emotion. The trait pride facets measure included identically-structured items to the state pride facets measure whereas the measure of trait shame and guilt was scenario-based and did not correspond directly to the daily state shame and state guilt items. The failure of trait shame to predict either the activation or intensity of shame states could reflect people's tendency to withdraw and hide their shame (Barrett & Campos, 1987). Although guilt motivates approach rather than avoidance behavior, shame and guilt covaried substantially at both the trait and state levels so the avoidance tendencies of shame may have contributed to the failure of trait guilt to predict state guilt as well. A third possibility is that the distinction between dispositional evaluative tendencies and action tendencies matters and our measure was insensitive to this distinction (Cohen, Wolf, Panter, & Insko, 2011). At this point, we conclude that, in contrast to emotion traits (as assessed by self-ratings), emotion propensities (as assessed by scenario-based measures of behavioral responses) do not necessarily correspond to the central tendency of within-person distributions of emotion states.

Motivational and Interpersonal Associations with Daily Self-Conscious Emotions

From a motivational perspective, achievement strivings have long-standing links with shame and pride that were generally not replicated in this study (Heckhausen, 1984; Lewis, Alessandri, & Sullivan, 1992; Stipek, Recchia, & McClintic, 1992). Previous research assessed emotions in the context of episodic achievement behavior so these effects may be short-lived and wash out as people's daily accomplishments and shortcomings accumulate. From this perspective, it may be necessary to understand people's evaluations of their effectiveness at the end of the day to predict their daily pride and shame. With respect to achievement motives themselves, the anticipatory affect associated with these motives also appears to be situation-specific and not present at the daily level. Alternatively, spontaneous daily emotions may be more closely linked with implicit motives than with the explicit motives assessed in this study.

The noteworthy exception to this pattern involved fear of failure moderating the association between perceptions of daily communion and hubristic pride. People who had low fear of failure were more likely to experience hubristic pride when they perceived others as warm and friendly. Communal behaviors may be misperceived as a status signal, and hubris could represent an *over*reaction to that warmth (and perceived status). In contrast, people high in fear of failure were less likely to experience hubristic pride when they perceived others as being warm and friendly. Fear of failure has been linked with rejection sensitivity so hubristic pride could be a preemptive defense against perceived interpersonal rejection (Conroy & Pincus, 2011). Fear of failure also has links with expectations that others are less affiliative so it may represent a strategic effort to win communion through claimed status (Conroy, 2003). Unfortunately, this strategy is short-sighted and unlikely to lead to lasting social success (e.g., Paulhus, 1998).

Of the four self-conscious emotions investigated, guilt had the strongest links to daily interpersonal contexts, and specifically to perceived communion. These associations revealed both between- and within-person processes for guilt activation and intensity. These findings reinforce the special role of guilt for maintaining social relations (Baumeister et al., 1994; Fessler, 2007) – a function that distinguishes guilt from the other self-conscious emotions.

Contrary to our expectations, none of the self-conscious emotions were associated with variation in the agentic quality of these emerging adults' interpersonal contexts. At least two possible explanations for this finding come to mind. First, the vast majority of interactions assessed in this study (from which the daily interpersonal context scores were derived) were between individuals with similar social status (e.g., friends, roommates). These findings reflect the daily lives of college students so it will be important to extend this work to community samples with (presumably) more agentic role variation. Second, agentic behaviors may vary more across interactions with partners with role-based status differences (or possibly even within interactions) than communal behaviors which appear to be more normative across interaction partners (e.g., Moskowitz, Ho, & Turcotte-Tremblay, 2007). It is possible that agentic variation across interactions throughout the day may be more informative than our day-level 'mean' measure of agency that aggregated interaction reports into a daily context score. Future work should investigate links between momentary self-conscious emotions and momentary interpersonal context.

Limitations

While pushing forward our understanding of the self-conscious emotions, our study was limited in its ability to fully examine the latent processes underlying authentic and hubristic pride, shame, and guilt. The sample provided the necessary crucible of homogeneity needed for a first look at how alternative distributions might be used to model relatively rare emotional states, but precluded generalization to other developmental stages or to emerging adults who are not enrolled in college. Further, although the age homogeneity provided a view into a period of the lifespan that appears to be critical for the self (Orth et al., 2010), we were unable to examine or draw conclusions about how the experience (or non-experience) of self-conscious emotions contributed to identity and interpersonal maturation and development.

Measurement of dispositions, daily emotions, and daily interpersonal context were all assessed using self-report. This method is better suited to assessing subjective experiences than physiological responses or action tendencies. The paper-and-pencil diary procedures used in this study also did not provide a means to verify compliance in real time. Although our granular tracking of booklets indicated no problems, we strongly recommend electronic data collection methods with real-time data tracking – also to ease the burden of data entry.

Our study used over 1000 person-days worth of emotion ratings to examine how self-conscious emotions were related to dispositions and daily interpersonal contexts; however, the time span of experience for any single individual did not span beyond 8 days. This sampling period limited our ability to fully characterize the shape of the distributions for any single individual. Making use of the multilevel modeling framework, we were able to

"borrow" between-person information that could inform the structure of the within-person associations, but suggest some caution in interpretation of null findings as the models had limited power to draw strong inferences about how between-person differences in dispositions were or were not related to the activation and intensity processes captured by the alternative distribution models. Further research is needed on the types of sampling frames needed for strong within-person inferences regarding repetition of rare events. While very excited about the possibilities that the computational speed on today's personal computers and the incorporation of numerical integration methods into statistics software are providing for examination of non-linearity, our experiences here with estimation of alternative distribution models also underscore the necessity of study designs with longer sampling periods, higher frequency sampling frequencies, and use of multiple sampling frameworks (e.g., experience sampling, event-contingent). We are pushing the available data to its limits.

Conclusions

This study extended understanding of self-conscious emotions by illuminating how these emotions varied from day to day. With the notable exception of authentic pride, the remaining self-conscious emotions were relatively rare although occasional bursts of each were observed. This burst-like quality of emotion indicates the need to consider unconventional parameters when modeling within-person emotional variation. Guilt and hubristic pride, in particular, seemed especially sensitive to interpersonal communion and may be instrumental in regulating (or dysregulating) cooperative social behavior.

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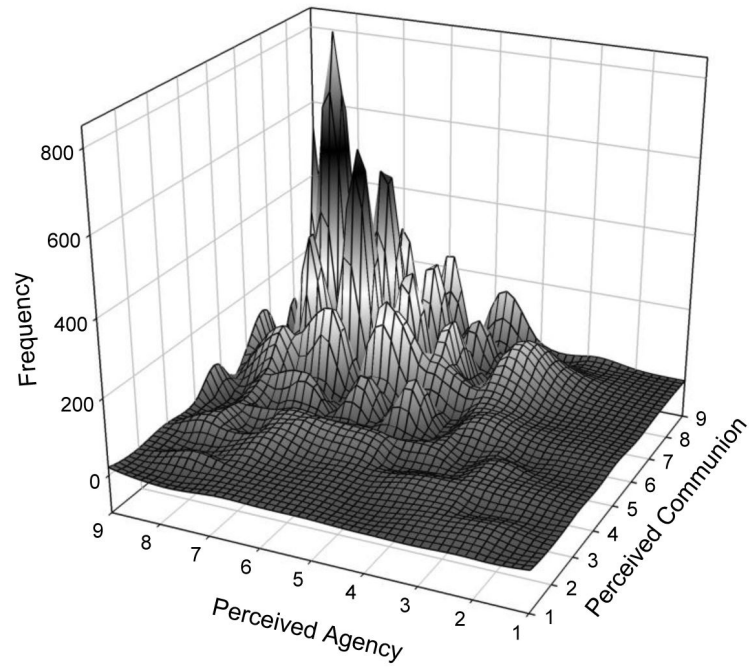
Figure 1.
Overall frequency of interpersonal ratings indicated that most interpersonal situations were perceived as being relatively high in both communion and agency.
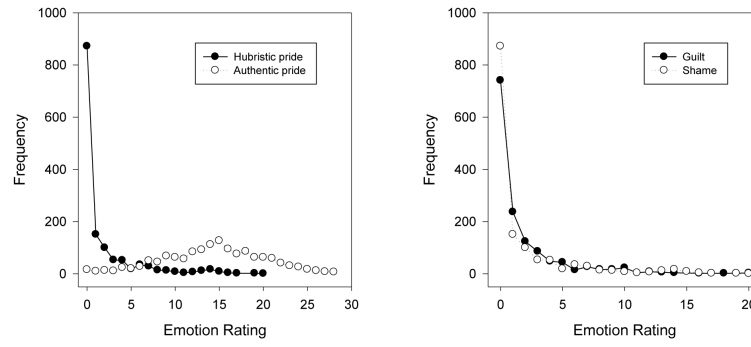
Figure 2.
Overall frequency distributions for daily authentic and hubristic pride (left), and guilt and shame (right). The distribution of authentic pride is distributed in a relatively Gaussian manner, while the distributions of hubristic pride, guilt and shame are all highly skewed.
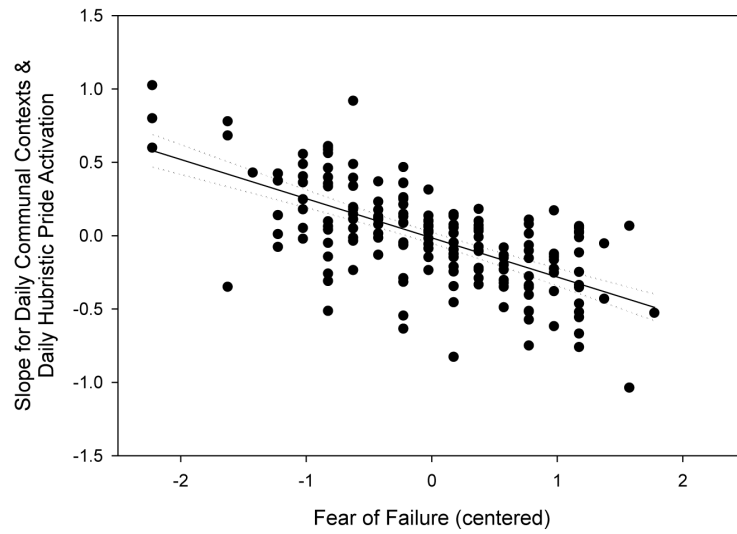
Figure 3.
Fear of failure moderates the association between daily perceived communion and daily hubristic pride activation ($\pi_{74} = -0.238$; dotted line represents the 95% confidence interval). Hubristic pride was more likely on days with more communal interactions for people who were low in fear of failure than for people who were high in fear of failure.

Table 1

Descriptive Statistics and Correlations for Between-Person, Emotional and Motivational Dispositions and Within-Person, Interpersonal and Emotional Experiences

Variable	M	SD	Range	1	2	3	4	5	6
Between-Person Measures									
1. Trait Authentic Pride	3.52	0.61	1.71 – 5.00	(.87)					
2. Trait Hubristic Pride	1.47	0.57	1.00 – 4.14	.09	(.87)				
3. Trait Shame	2.91	0.60	1.00 – 4.33	$-.31^{**}$	$.16^{*}$	(.78)			
4. Trait Guilt	3.94	0.46	2.25 – 4.75	$-.05$	$-.14$	$.39^{**}$	(.75)		
5. Need for Achievement	3.74	0.38	2.46 – 4.81	$.32^{**}$	$-.01$	$-.03$	$.33^{**}$	(.70)	
6. Fear of Failure	3.22	0.81	1.00 – 5.00	$-.29^{**}$	$.07$	$.47^{**}$	$.24^{**}$	$.06$	(.76)
Within-Person Measures									
1. Daily Mean Perceived Communion	7.05	0.74	5.14 – 9.00	(.43)	$.34^{**}$	$.11$	$-.18^{*}$	$-.27^{**}$	$-.27^{**}$
2. Daily Mean Perceived Agency	6.68	0.70	4.95 – 8.44	$.28^{**}$	(.44)	$.03$	$-.08$	$.05$	$.02$
3. Daily Authentic Pride	3.05	0.56	1.59 – 4.43	$.07^{*}$	$.04$	(.40)	$.07$	$-.33^{**}$	$-.23^{**}$
4. Daily Hubristic Pride	1.24	0.41	1.00 – 3.25	$-.14^{**}$	$-.01$	$.09^{**}$	(.68)	$.46$	$.40$
5. Daily Shame	1.34	0.42	1.00 – 3.20	$-.21^{**}$	$-.03$	$-.36^{**}$	$.31^{**}$	(.42)	$.79^{**}$
6. Daily Guilt	1.48	0.48	1.00 – 3.60	$-.16^{**}$	$-.05$	$-.26^{**}$	$.29^{**}$	$.71^{**}$	(.36)

Note. For the between-person measures in the top half of the table, internal consistency estimates appear on the diagonal of the correlation matrix. N = 182 except for correlations with need for achievement (N = 178). For the within-person measures, intraclass correlation coefficients appear on the diagonal of the correlation matrix. Coefficients below the diagonal represent correlations among scores across all person-days disregarding dependencies between-days (N = 1421 days). Coefficients above the diagonal represent correlations among within-person means disregarding within-person variation from day to day (N = 182 persons).

* $p < .05$,

** $p < .01$.

Table 2

Fit Indices for Generalized Linear Multilevel Models Articulating Five Alternative Distributions for Daily Authentic Pride, Hubristic Pride, Shame, and Guilt Reports

Variable	Fit Index	Normal (Gaussian)	Zero-Inflated Poisson	Zero-Inflated, Negative Binomial	Negative Binomial Hurdle
Authentic Pride					
	AIC	8465.01	9482.00	8610.48	8610.82
	BIC	8480.76	9492.49	8631.47	8631.81
Hubristic Pride					
	AIC	6284.21	5186.48	3821.41	4153.47
	BIC	6299.95	5196.98	3842.39	4174.46
Shame					
	AIC	6590.65	5487.40	4458.08	4640.08
	BIC	6606.40	5497.90	4479.08	4661.08
Guilt					
	AIC	7311.78	6342.31	5305.40	5439.70
	BIC	7327.53	6352.81	5326.40	5460.70

Note: AIC = Akaike Information Criteria, BIC = Bayes Information Criteria.

Table 3

Results from Final Generalized Multilevel Models for the Four Self-Conscious Emotions

Self-Conscious Emotion:	Authentic Pride	Hubristic pride	Shame	Guilt
Selected Model:	Gaussian Model	Logistic Model	ZINB Model	ZINB Model
Variable	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
	--	Logistic	Logistic (Inflation)	Logistic (Inflation)
Logistic Part				
Intercept, π_{00}	--	-8.471* (3.831)	-5.492 (16.99)	-9.228* (4.311)
Sex, π_{01}		-1.595* (0.503)	0.643 (0.766)	-0.249 (0.638)
Emotion disposition, π_{02}		3.405* (0.548)	-1.398 (1.966)	0.610 (0.723)
Need for achievement, π_{03}		-1.097 (0.592)	0.371 (2.939)	1.165 (0.658)
Fear of failure, π_{04}		-0.254 (0.283)	-0.260 (0.905)	-0.137 (0.274)
Overall perceived communion, π_{05}		-0.681* (0.322)	1.087 (1.396)	0.687* (0.317)
Overall perceived agency, π_{06}		0.468 (0.357)	-0.164 (1.433)	-0.140 (0.356)
Residual, $\sigma^2 \nu_0$		5.893 (1.225)	--	--
Saturday, π_{10}		-0.013 (0.378)	--	0.017 (0.747)
Sunday, π_{20}		-0.762* (0.385)	--	1.688* (0.688)
Monday, π_{30}		-0.505 (0.371)	--	1.843* (0.731)
Tuesday, π_{40}		-0.284 (0.376)	--	1.366 (0.702)
Wednesday, π_{50}		-0.955* (0.378)	--	1.560* (0.723)
Thursday, π_{60}		-0.446 (0.396)	--	1.796* (0.713)
Daily perceived communion, π_{70}		-1.851 (2.155)	0.639 (0.483)	-0.343 (0.174)
Sex, π_{71}		-0.267 (0.220)	--	--
Emotion disposition, π_{72}		-0.278 (0.191)	--	--
Need for achievement, π_{73}		0.381 (0.349)	--	--
Fear of failure, π_{74}		-0.238* (0.113)	--	--
Overall perceived communion, π_{75}		0.063 (0.150)	--	--
Overall perceived agency, π_{76}		0.082 (0.204)	--	--
Residual, $\sigma^2 r_7$		0.002* (0.001)	--	--
Daily perceived agency, π_{80}		0.064 (0.167)	0.582 (1.038)	-0.160 (0.183)

Self-Conscious Emotion:	Authentic Pride	Hubristic pride	Shame	Guilt
Selected Model:	Gaussian Model	Logistic Model	ZINB Model	ZINB Model
Variable	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Residual, $\sigma^2 r_8$		0.460 (0.381)	--	--
Gaussian or Count Part	*Gaussian*	--	*Negative Binomial*	*Negative Binomial*
Intercept, γ_{00}	12.989* (3.819)		1.319 (2.805)	1.332 (1.617)
Sex, γ_{01}	−1.194* (0.493)		0.104 (0.271)	−0.150 (0.232)
Emotion disposition, γ_{02}	3.376* (0.499)		0.378 (0.326)	0.302 (0.283)
Need for achievement, γ_{03}	0.550 (0.620)		−0.208 (0.492)	−0.095 (0.274)
Fear of failure, γ_{04}	−0.648 (0.337)		0.196 (0.203)	0.205 (0.138)
Overall perceived communion, γ_{05}	0.268 (0.393)		−0.375 (0.235)	−0.328* (0.140)
Overall perceived agency, γ_{06}	0.050 (0.443)		0.084 (0.323)	0.033 (0.157)
Residual, $\sigma^2 r_0$	7.617* (1.204)		1.165* (0.207)	1.261* (0.252)
Saturday, γ_{10}	--		−0.115 (0.159)	--
Sunday, γ_{20}	--		−0.319* (0.136)	--
Monday, γ_{30}	--		−0.532* (0.158)	--
Tuesday, γ_{40}	--		−0.279 (0.180)	--
Wednesday, γ_{50}	--		−0.318 (0.174)	--
Thursday, γ_{60}	--		−0.341 (0.195)	--
Daily perceived communion, γ_{70}	0.307 (0.194)		−0.071 (0.096)	−0.176* (0.046)
Residual, $\sigma^2 r_7$	0.618 (0.433)		0.110 (0.077)	0.000 (0.000)
Daily perceived agency, γ_{80}	0.846 (5.577)		−0.130 (0.167)	−0.150 (0.083)
Sex, γ_{81}	−0.636 (0.546)		--	--
Emotion disposition, γ_{82}	0.324 (0.390)		--	--
Need for achievement, γ_{83}	0.103 (0.899)		--	--
Fear of failure, γ_{84}	0.029 (0.383)		--	--
Overall perceived communion, γ_{85}	0.129 (0.495)		--	--
Overall perceived agency, γ_{86}	−0.379 (0.462)		--	--
Residual, $\sigma^2 r_8$	3.655* (1.811)		0.156 (0.119)	0.122 (0.104)

Self-Conscious Emotion:	Authentic Pride	Hubristic pride	Shame	Guilt
Selected Model:	Gaussian Model	Logistic Model	ZINB Model	ZINB Model
Variable	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Residual, σ^2_e or Dispersion, θ	15.802* (1.077)		0.485* (0.214)	0.462* (0.129)
Log Likelihood	−3531	−503	−1812	−2129
AIC	7080	1054	3680	4315
BIC	7196	1176	3822	4457

Note. N = 1198 days nested within 178 persons; AIC = Aikake Information Criteria, BIC = Bayes Information Criteria;

*
$p < .05$