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Daily fluctuations in social status, self-esteem, and clinically relevant emotions: Testing hierometer theory and social rank theory at a within-person level

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Abstract

Introduction: Grounded in hierometer theory and social rank theory, this research examined how within-person fluctuations in social status relate to within-person fluctuations in self-esteem and several clinically relevant emotions. Both hierometer theory and social rank theory postulate that particular psychological mechanisms help individuals to navigate social hierarchies adaptively. However, hierometer theory emphasizes *self-esteem*, whereas social rank theory emphasizes *emotions*—specifically, *depression*, *anxiety*, and *shame*.

Methods: We conducted a 10-day diary study and analyzed the data using multilevel modeling. Participants ($N = 345$) completed daily measures of their social status, self-esteem, depression, anxiety, shame, and guilt.

Results: On days when their status was higher, participants reported higher self-esteem and lower depression, anxiety, and shame. On days when their self-esteem was higher, participants reported lower depression, anxiety, and shame. These patterns persisted after controlling for baseline individual differences. Furthermore, multilevel mediation analyses indicated that daily self-esteem mediated the links between daily status, and, individually, daily depression, anxiety, and shame, but not guilt.

Conclusions: Supporting hierometer theory and social rank theory, self-esteem, and the clinically relevant emotions (except for guilt) appear to serve a status-tracking function. Self-esteem plays a more primary role, accounting for the link between status and depression, anxiety, and shame.

KEYWORDS
hierometer theory, social rank theory, social status, status, self-esteem, emotion

1 | INTRODUCTION

Social hierarchies are present across countries, cultures, and groups and take a variety of forms (Sidanius & Pratto, 1999; Weber, 1946). For example, individuals can be ranked higher or lower in terms of their *class* (traditionally defined as educational, occupational, and financial resources; Veblen, 1899) or *power* (traditionally defined as control over outcomes; Fragale et al., 2011). However, perhaps the pre-eminent form of hierarchy in human societies is *status*

(Anderson et al., 2015), traditionally defined as social respect and admiration (Magee & Galinsky, 2008). The need for status is considered to be a fundamental human motive (Anderson et al., 2015), alongside others, such as the need to belong (Baumeister & Leary, 1995). Accordingly, status has been linked to a range of cognitive, emotional, and behavioral outcomes. For example, higher status individuals receive more attention (Foulsham et al., 2010), feel less threatened by others (Gregg et al., 2018), and behave more assertively (Mahadevan et al., 2020).

1.1 | Within-person variability

Research to date has predominantly examined status differences at a *between-person level*—the extent to which one individual is more respected and admired than another on the whole. However, status differences can also be examined at a *within-person level*—the extent to which the same individual is more respected and admired on some occasions than on others. Yet, scarcely any studies have examined how within-person differences in status relate to other important within-person differences, such as self-esteem and clinically relevant emotions. Here, we sought to fill the gap. We rooted our investigation in two theories—*hierometer theory* and *social rank theory*—and tested hypotheses derived from each. Both theories postulate that psychological phenomena play a role in helping individuals to navigate social hierarchies adaptively. However, the two theories focus on distinct psychological phenomena. Hierometer theory emphasizes self-regard—principally *self-esteem* (Mahadevan et al., 2016), whereas social rank theory emphasizes various clinically relevant emotions—principally *depression*, *anxiety*, and *shame*[1] (Gilbert, 2000). We pioneered an investigation into how, over the course of several days, within-person fluctuations in social status relate to (a) within-person fluctuations in self-esteem, and (b) within-person fluctuations in depression, anxiety, shame, and guilt.

We considered the investigation of within-person variability worthwhile for several reasons. First, such variability is independently informative (Fleeson, 2001, 2004). For example, daily fluctuations in stress still predicted daily fluctuations in state self-esteem after controlling for baseline trait levels of stress and self-esteem (Giacomin & Jordan, 2016), and daily fluctuations in state extraversion and neuroticism still predicted daily fluctuations in life satisfaction after controlling for baseline trait levels of extraversion, neuroticism, and life satisfaction (Heller et al., 2007). Thus, assessing within-person variability, in addition to between-person stability, provides additional information that increases predictive validity. Second, an examination of how self-esteem and emotion vary in

relation to social situations (e.g., social status) sheds light on person-situation dynamics. It provides a more holistic and nuanced understanding of the person within the context of their social environment (Bleidorn, 2009; Fleeson, 2007). Third, findings at the between-person level do not automatically replicate at the within-person level (and vice versa), and must therefore be independently addressed (Hamaker, 2012; Wilson et al., 2017). For example, at the between-person level, more anxious people may also be more likely to see a therapist. That is, anxiety and therapy may be positively correlated when assessed at the between-person level. However, at the within-person level, a given person may be less anxious on days on which they see a therapist. That is, anxiety and therapy may be negatively correlated when assessed at the within-person level. Thus, the link between anxiety and therapy may differ, or even reverse, depending on whether one investigates it at a between-person level or at a within-person level. Links at each level of analysis, therefore, need to be independently addressed.

Furthermore, the between-person versus within-person distinction has important theoretical implications. For example, both hierometer theory and social rank theory (see below) postulate that psychological phenomena adaptively track one's position in a social hierarchy. But do they track one's position relative to that of other people in the hierarchy—thereby requiring an interpersonal comparison—or do they track one's position relative to one's own prior position in the hierarchy—thereby requiring an intrapersonal comparison? In principle, the theories could be interpreted as doing either or both. But again, one possibility is not identical to the other, and the former has primarily been investigated. Hence, investigation of the latter is warranted. All else equal, the evidence for hierometer theory, or for social rank theory, would be stronger if the hypothesized links between social status and the specific psychological phenomenon (i.e., self-esteem or clinically relevant emotion) held both between-persons and within-persons. Accordingly, we set out to test these relations. To begin, we outline hierometer theory and social rank theory, and the evidence for them, so as to furnish the theoretical rationale for our hypotheses.

1.2 | Hierometer theory and social rank theory: Outline and evidence

1.2.1 | Hierometer theory

Outline
Hierometer theory postulates that self-esteem (or self-regard more generally) serves a status-regulating function (Mahadevan et al., 2016). When a particular need is

fundamental, one or more mechanisms are likely to evolve to regulate its satisfaction. For example, hunger operates as an evolved mechanism to regulate satisfaction of the need for food (Baumeister & Leary, 1995; Leary et al., 1995). Likewise, because the need for status is fundamental, it is plausible that one or more mechanisms evolved to help individuals to regulate its attainment (Anderson et al., 2015; Gregg & Mahadevan, 2014). Hierometer theory postulates that self-esteem is a gear in one such mechanism. It helps individuals to navigate status hierarchies adaptively. But why might such a gear be needed?

The reason is that, although high status is desirable and offers many advantages, its pursuit entails potential costs as well as benefits (Anderson et al., 2008; Frank & Cook, 2013; Van Tilburg & Mahadevan, 2020). In particular, contests that come with the prospect of gaining status also come with the prospect of losing it (Ridgeway, 2014; Ridgeway & Berger, 1986). For example, an individual who quits their job to enter a high-stakes singing competition like *American Idol* risks losing, not only time and money, but also respect and admiration, if their performance is below par. Thus, the indiscriminate pursuit of status is unlikely to be beneficial; one or more mechanisms to regulate its pursuit would be adaptive.

Self-esteem, as the key gear in that mechanism, is theorized to serve two interrelated functions (Mahadevan et al., 2020). First, it signals to the individual what their overall status is. This function may be termed *indicative* (from the Latin *indicare*, "to point out"). Higher status, in the form of greater respect and admiration, is posited to raise self-esteem, whereas lower status, in the form of reduced respect and admiration, is posited to lower it. Second, self-esteem regulates an individual's status-seeking behavior. This function may be termed *imperative* (from the Latin *imperare*, "to command"). Higher self-esteem is posited to augment readiness to compete, in the form of interpersonal assertiveness, whereas lower self-esteem is posited to diminish it, in the form of interpersonal acquiescence.[2]

Evidence
Given its relative novelty, hierometer theory has been tested predominantly at the between-person level. Here, empirical evidence so far supports it. For example, in several cross-sectional studies, higher status (defined as respect and admiration) correlates strongly with higher trait self-esteem ($r \approx 0.60$), and this link persists even after controlling for social inclusion (defined as liking and acceptance; $r_p \approx 0.35$; Gregg et al., 2017; Huo et al., 2010; Mahadevan et al., 2016, 2019a, 2019b).[3] In addition, cross-sectional studies find that higher status correlates moderately with greater assertiveness ($r \approx 0.40$), and that trait self-esteem statistically mediates the link (Mahadevan

et al., 2016). Experimental evidence, moreover, provides more telling support for self-esteem's posited indicative function. Specifically, manipulating status to make it higher or lower causes state self-esteem to become higher or lower, respectively (Mahadevan et al., 2021). This effect, moreover, occurs independently of the orthogonal manipulation of inclusion, which exerts a parallel effect on state self-esteem (Mahadevan et al., 2019a).

One study also tested hierometer theory at the within-person level (Mahadevan et al., 2020). Adopting a daily diary design, this study found that daily fluctuations in status moved in tandem with daily fluctuations in self-esteem and assertiveness. However, this study did not aim to test social rank theory, and so it did not examine how daily fluctuations in status relate to daily fluctuations in depression, anxiety, and shame. Furthermore, the study did not examine the interrelations among daily fluctuations in status, self-esteem, and these emotions (e.g., whether daily fluctuations in self-esteem account for the links between daily fluctuations in status and daily fluctuations in depression, anxiety, and shame). Thus, how status, self-esteem, and clinically relevant emotions mutually interrelate at a within-person level remains unknown and in need of explication.

1.2.2 | Social rank theory

Outline
Social rank theory also postulates that psychological phenomena play a functional role in helping individuals to navigate social hierarchies (Gilbert, 2000). It is one of several theoretical perspectives that attempt to explain how seemingly maladaptive emotions have continued to persist within the human population (Price et al., 2007). Here, the main gears in the underlying mechanism are posited to be clinically relevant emotions—such as depression, anxiety, and shame—whose evolutionary roots can be plausibly traced to the *ritual agonistic encounters* that occur in nonhuman animals (Price et al., 1994). Such encounters are defined as "stereotyped interaction[s] between two (or more) individuals that [start] with a symmetric exchange of threat signals and [end] with escape or submission by one of the individuals … In subsequent encounters, the loser defers to the winner without contesting the issue (Sloman & Price, 1987, p. 100)."

During a ritual agonistic encounter, an organism faces an ongoing choice: to compete or to concede. Many, if not most, such encounters terminate without open combat when one party decides to submit and signals its submission (e.g., by baring its neck), with the other party duly acknowledging this submission and signaling its dominance (e.g., by strutting; Lorenz, 1981, 1996). Such a strategy

enables likely losers to survive and avoid serious injury and enables likely winners to save time and energy from fighting unworthy opponents (Smith & Parker, 1976). The collective result is the formation of hierarchies in which differentially successful organisms occupy semi-stable ranks (Broom, 2002; Schjelderup-Ebbe, 1975).

Social rank theory proposes that the negative emotions of depression, anxiety, and shame evolved in response to these ritual agonistic encounters and operate as a primitive mechanism of submission. According to this theory, many of the symptoms and behaviors exhibited by depressed, anxious, and shame-ridden individuals resemble the submissive behaviors observed in subordinate animals (e.g., social withdrawal, eye-contact avoidance, lack of motivation, timid manner, and attempts to hide and escape; Gilbert, 2000; Price et al., 1994, 2007). These particular emotions are theorized to operate as part of an evolved *involuntary defeat strategy*, which may be automatically triggered by the prospect of competitive loss and low rank. Such an involuntary defeat strategy serves to override any inclination an organism might have to keep competing, thereby preventing them from challenging stronger opponents and risking injury or death (Price & Sloman, 1987; Sloman, 2008). In this way, these negative emotions are purported to offer a potential adaptive benefit: They prevent the organism from pointlessly engaging in competitive behavior under unfavorable conditions (Bergstrom & Meacham, 2016; Price et al., 2004). Thus, depression, anxiety, and shame are said to be—at least sometimes and in part—adaptive responses to losing situations and low rank that put a brake on fruitless competitiveness (Nesse & Ellsworth, 2009; Price et al., 2004).

Evidence

Social rank theory has been tested predominantly at the between-person level. Much correlational evidence is consistent with the theory. For example, negative social comparisons (e.g., rating oneself as less attractive, likable, and competent than others) correlate with greater depression, social anxiety, and shame (Aderka et al., 2009; Gilbert, 2000). In addition, lower socioeconomic class correlates with higher rates of depression and anxiety (Lorant et al., 2003, 2007). Some experimental and experience sampling studies also provide indirect support for the theory. For instance, success versus failure feedback in a game led to pride and shame, respectively, but only when the feedback was characterized as implying social rank (Rebar & Conroy, 2013). In addition, an experience sampling study found a pattern reminiscent of an involuntary defeat strategy: depressed participants, but not non-depressed ones, felt more inferior and behaved more submissively if their partners behaved more dominantly (Zuroff et al., 2007). Finally, one ecologically valid study

examined college athletes' emotions upon winning or losing a sporting contest, finding that dysphoria and anxiety were higher in the latter case, particularly if participants were dispositionally prone to neuroticism or self-criticism (Sturman & Mongrain, 2007).

1.3 | Derivation of hypotheses

1.3.1 | The functional roles of self-esteem, depression, anxiety, and shame

Both hierometer theory and social rank theory posit that psychological phenomena help individuals to navigate social hierarchies adaptively. However, as noted above, hierometer theory focuses on self-esteem, whereas social rank theory focuses on clinically relevant emotions. In addition, the theories differ subtly in other ways. For example, hierometer theory specifies its input variable precisely (i.e., status: being respected and admired), whereas social rank theory leaves its nature open (i.e., status, class, or power can all be a type of social rank). Nonetheless, we derive the following general hypotheses. From hierometer theory: We hypothesize that self-esteem will track status at a within-person level. That is, people will experience higher self-esteem on days when their status is higher. From social rank theory: We hypothesize that depression, anxiety, and shame will track status at a within-person level. That is, people will experience greater depression, anxiety, and shame on days when their status is lower. Note that both hypotheses pertain solely to the indicative function of the psychological phenomena in question.

1.3.2 | The primacy of self-esteem

Yet an issue remains unresolved: How should status, self-esteem, and clinically relevant emotion mutually interrelate at the within-person level? Here, we propose that self-esteem operates as the more primary gear in the adaptive mechanism. In particular, we propose that fluctuations in status will trigger fluctuations in self-esteem before they trigger fluctuations in clinically relevant emotions, and, furthermore, that fluctuations in self-esteem will trigger those daily fluctuations in clinically relevant emotions. If so, then daily fluctuations in self-esteem will mediate the links between daily fluctuations in status and daily fluctuations in depression, anxiety, and shame.

Why should self-esteem be expected to play a more primary role? We submit that there are at least two reasons: (1) self-esteem is structurally *simpler* than emotion; and (2) self-esteem is liable to operate more *swiftly* than emotion. As regards structural simplicity, self-esteem is

typically conceptualized as a unitary and overall evaluation of the self, which is positive or negative to some degree (Rosenberg, 1965; Sedikides & Gregg, 2003). In contrast, emotions typically involve, not only an evaluation of some target (oneself, another person, or the world), but a mix of components: affective experience, physiological changes, and facial expressions (Barrett et al., 2016; Ekman & Davidson, 1994). In general, the more semi-connected parts something has, the more time and coordination is required for it to operate. As regards swiftness of operation, global evaluations, including about the self, are known to be made automatically and immediately (Chatard et al., 2017; Ferguson, 2007; Gebauer et al., 2012). In contrast, the influence of emotions on behavior is mostly cumulative and indirect (Baumeister et al., 2007; Hermans et al., 2001). Hence, self-esteem, being likely to change first, is more likely to shape emotion than vice versa. Some longitudinal evidence is consistent with this proposition. For example, trait self-esteem predicts depression considerably better than vice versa (i.e., validating the "vulnerability" as opposed to the "scar" model), although the pattern for anxiety is less pronounced (Sowislo & Orth, 2013; Steiger et al., 2015). More recent research has replicated the predictive asymmetry over time for trait self-esteem and depression, and further found that the former predicts peer victimization via the latter (Saint-Georges & Vaillancourt, 2020). As regards the link between self-esteem and emotion at the state level, we are unaware of any comparative investigations of relative directional potency. What data there are merely show that manipulations of self-esteem suffice to manipulate depressive mood (Coleman, 1975; Wilson & Krane, 1980) and vice versa (Brown & Mankowski, 1993; Smith & Petty, 1995). Nonetheless, in accord with our theoretical reasoning, we hypothesized that self-esteem would account for the link between social status and clinically relevant emotions at the within-person level.

1.3.3 | A functional role for guilt?

Hierometer theory and social rank theory both postulate that various psychological phenomena serve as gears in an adaptive mechanism that regulates competitive status-seeking (namely, self-esteem, on the one hand, and depression, anxiety, and shame, on the other). Yet neither theory specifies any adaptive role for *guilt*. Guilt is a negative emotion characterized by regret, remorse, and the motivation to make amends for one's transgressions (Tangney & Dearing, 2002). It conceptually overlaps, and empirically correlates, with shame (Tangney et al., 1992). Nonetheless, shame and guilt can be distinguished. According to one

leading formulation (Lewis, 1971), shame involves feeling small, inferior, and wanting to escape—thereby prompting interpersonal withdrawal. In contrast, guilt involves feeling remorse, empathy, and wanting to atone—thereby prompting interpersonal reparation. Thus, given the more prosocial and active character of guilt, it is a less natural candidate for featuring as part of the involuntary defeat strategy and prompting the passive behavioral acquiescence that would suppress competitive status-seeking (Gilbert, 2003). Accordingly, we did not expect guilt to track status in the same manner as shame (and depression and anxiety). We expected that daily fluctuations in status would covary negatively with daily fluctuations in shame (after the empirical overlap with guilt was taken into account), but not with daily fluctuations in guilt (after the empirical overlap with shame was taken into account). Hence, our research approach offered the possibility of examining hierometer theory and social rank theory, not only convergently in terms of the psychological variables they invoke, but also discriminantly, in terms of a cognate psychological variable they do not invoke.

2 | OVERVIEW AND HYPOTHESES

We tested 10 hypotheses derived from both hierometer theory and social rank theory at the within-person level. Based on hierometer theory, we hypothesized that (1) on days when participants' status was higher (vs. lower), they would exhibit higher (vs. lower) self-esteem. Based on social rank theory, we hypothesized that (2) on days when participants' status was lower (vs. higher), they would experience more (vs. less) depression, anxiety, and shame. We also hypothesized that (3) on days when participants' status was lower (vs. higher), they would experience more (vs. less) shame after controlling for guilt, but that (4) participants would not experience more (vs. less) guilt after controlling for shame. We further hypothesized (5) that these effects would persist even after controlling for between-person (i.e., trait-level) individual differences in the same constructs (Geiser, 2013; Lee, 2014).

Next, we hypothesized that (6) on days when participants' self-esteem was lower (vs. higher), they would exhibit more (vs. less) depression, anxiety, and shame. We also hypothesized that (7) on days when participants' self-esteem was lower (vs. higher), they would experience more (vs. less) shame after controlling for guilt, but that (8) participants would not experience more (vs. less) guilt after controlling for shame. We further hypothesized (9) that these effects would persist even after controlling for between-person (i.e., trait-level) differences in the same constructs. Finally, we hypothesized that (10) the relation between daily fluctuations in social status, on the one hand, and daily fluctuations

in depression, anxiety, and shame, on the other, would be statistically mediated by daily fluctuations in self-esteem.

We conducted a 10-day daily diary study to test these hypotheses. We analyzed the data using multilevel modeling (MLM) that incorporated multilevel mediation (Hayes, 2013). Note that this design can assess whether the patterns of association that emerge are consistent or inconsistent with these hypotheses, thereby supporting or casting doubt on them. However, it cannot establish directional causal links.

3 | METHOD

3.1 | Participants and procedure

We advertised the study on university notice boards and the university's participant recruitment intranet. The study was open to adults (aged 18 and above) who were fluent in English. Participants first completed a baseline survey online. Then, they completed short daily surveys, also online, every day for the next 10 days. All surveys were hosted on *Qualtrics™* and could be completed over the computer or mobile phone. Participants were emailed the link to each daily survey at 4 p.m. each day, followed by a reminder at 9 p.m. each day.

Participants comprised students who took part for course credit, along with non-student volunteers. In total, 345 participants completed at least one survey resulting in 2,831 observations. Of these, 328 participants (230 women, 94 men, and 4 unidentified) completed the initial baseline survey. Their ages ranged from 18 to 66 years ($M = 27.50$, $SD = 10.67$). Sixty-one percent were White, 13.1% Black, 10.1% South Asian, 1.8% Hispanic, 1.2% East Asian, and 12.8% some other ethnicity. On average, participants completed 7.26 daily surveys ($SD = 3.57$). This sample size allowed us to detect small-to-medium effects of approximately $r = 0.07$ to 0.19 with a high power of 95% at two-tailed $\alpha = 0.05$.

3.2 | Baseline measures

Participants completed the following trait measures as part of the baseline survey. We averaged item scores for all measures, with higher scores indicating higher levels of the corresponding construct.

3.2.1 | Social status

We assessed overall social status with an 8-item questionnaire (Mahadevan et al., 2016). It began with the stem, "Most of the time I feel that people ..." Sample items include: "... respect my achievements" and "... admire me" (1 = *strongly disagree*, 5 = *strongly agree*, $M = 3.20$, $SD = 0.72$, $\alpha = 0.89$). The social status questionnaire is structurally validated and shows good internal consistency (Huo et al., 2010; Mahadevan et al., 2019a, 2019b).

3.2.2 | Self-esteem

We assessed trait self-esteem with the 10-item *Rosenberg Self-Esteem Scale* (RSES; Rosenberg, 1965). The RSES is the most frequently used measure of global trait self-esteem (Donnellan et al., 2015). Its internal consistency, test–retest reliability, convergent validity, and discriminant validity have been amply demonstrated (Schmitt & Allik, 2005). Sample items include: "I feel that I have a number of good qualities" and "At times I think I am no good at all (reverse-coded)" (1 = *strongly disagree*, 5 = *strongly agree*; $M = 3.32$, $SD = 0.77$, $\alpha = 0.88$).

3.2.3 | Depression

We assessed depression with the 20-item *Centre for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977). The CES-D is a reliable and well-validated measure of depression in non-psychiatric populations (Cosco et al., 2017). Sample items include: "I felt depressed" and "I felt that I could not shake off the blues even with help from my family or friend" (1 = *never or hardly ever*; 2 = *occasionally, now, and then*; 3 = *a good deal of the time*; 4 = *mostly or all of the time*; $M = 2.05$, $SD = 0.64$, $\alpha = 0.93$).

3.2.4 | Anxiety

We assessed anxiety with the 20-item trait version of the *State-Trait Anxiety Inventory* (STAI; Spielberger et al., 1983). The STAI is a reliable and well-validated measure of anxiety (Spielberger, 1989). Sample items include: "I feel tense" and "I worry over possible misfortunes" (1 = *not at all*; 2 = *a little*; 3 = *somewhat*; and 4 = *very much so*; $M = 2.27$, $SD = 0.65$, $\alpha = 0.94$).

3.2.5 | Shame and guilt

We assessed general proneness to shame and guilt with the 16-item *Guilt and Shame Proneness Scale* (GASP; Cohen et al., 2011). The GASP presents participants with 16 hypothetical scenarios along with possible reactions to each one. It asks participants to indicate the likelihood that they

would react in each way described. The GASP exhibits good internal consistency, construct validity, and predictive validity (Cohen et al., 2011). Sample items include: "A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend?" and "You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law?" (1 = *very unlikely*, 7 = *very likely*; shame: $M = 4.87$, $SD = 1.31$, $\alpha = 0.66$; guilt: $M = 5.97$, $SD = 1.47$, $\alpha = 0.74$).

3.3 | Daily diary measures

Participants completed the following short daily measures each day. They received the instruction: "Now, we would like you to reflect upon your day today. Think about what occurred and how you felt and acted. There are no right or wrong answers. Please answer honestly. Your responses are strictly confidential."

3.3.1 | Daily status

We assessed daily status with seven items (Giacomin & Jordan, 2016; Mahadevan et al., 2020): "Were you assigned to an important role in a group?", "Did you receive any recognition?", "Did you feel that people respected you?", "Did you feel that someone admired you?", "Did people treat you as someone important?", "Did people seem to think highly of your abilities and talents?", and "Did you feel that people saw you as someone successful?" (1 = *yes*, 0 = *no*; $M = 0.54$, $SD = 0.36$, $\alpha_{mean} = 0.87$, $\alpha_{range} = 0.77–0.91$).[4]

3.3.2 | Daily self-esteem

We assessed daily self-esteem with three items: "How do you feel about yourself?" (1 = *very negative*, 8 = *very positive*), "How do you feel about yourself?" (1 = *very bad*, 8 = *very good*), and "I have high self-esteem" (1 = *strongly disagree*, 8 = *strongly agree*; $M = 5.41$, $SD = 1.85$, $\alpha_{mean} = 0.95$, $\alpha_{range} = 0.92–0.96$). These items have been used in previous research and found to be reliable and valid measures of state self-esteem (Mahadevan et al., 2020; Robins et al., 2001).

3.3.3 | Daily depression and anxiety

We assessed daily depression and anxiety with the *Profile of Mood States - Revised* (POMS-R; McNair et al., 1992).

Six items referred to depression: "unhappy," "miserable," "depressed," "downhearted," "sad," and "gloomy" (1 = *not at all*, 7 = *extremely*; $M = 2.25$, $SD = 1.61$, $\alpha_{mean} = 0.97$, $\alpha_{range} = 0.96–0.98$). Seven items referred to anxiety: "worried," "nervous," "anxious," "panicky," "on edge," "tense," and "stressed" (1 = *not at all*, 7 = *extremely*; $M = 2.44$, $SD = 1.68$, $\alpha_{mean} = 0.96$, $\alpha_{range} = 0.93–0.97$).

3.3.4 | Daily shame and guilt

We assessed daily shame and guilt using the 10-item *State Shame and Guilt Scale* (SSGS; Marschall et al., 1994). Five items referred to shame: "I want to sink into the floor and disappear," "I feel small," "I feel like I am a bad person," "I feel humiliated, disgraced," and "I feel worthless, powerless" (1 = *not feeling this way at all*, 7 = *feeling this way very strongly*; $M = 1.91$, $SD = 1.51$, $\alpha_{mean} = 0.94$, $\alpha_{range} = 0.92–0.96$). Another five items referred to guilt: "I feel remorse, regret," "I feel tension about something I have done," "I cannot stop thinking about something bad I have done," "I feel like apologizing, confessing," and "I feel bad about something I have done" (1 = *not feeling this way at all*, 7 = *feeling this way very strongly*; $M = 1.81$, $SD = 1.47$, $\alpha_{mean} = 0.96$, $\alpha_{range} = 0.93–0.98$).

3.4 | Data analytic approach

The data in this study followed a nested structure such that the daily surveys (Level 1) were nested within participants (Level 2). Accordingly, we used multilevel modeling (MLM) to analyze the data. This analytic approach was also theoretically motivated. We aimed to examine (a) whether and to what extent daily within-person fluctuations in three types of variable—social status, self-esteem, and emotion—existed, and (b) whether and to what extent these daily within-person fluctuations corresponded with hypotheses derived from hierometer theory and social rank theory. We did not formulate hypotheses regarding the durability or time onset of effects (e.g., the impact of status on depression from one day to the next), nor did we hypothesize specific trends over time (e.g., a linear or quadratic increase in status as days progressed). Accordingly, MLM represented the most appropriate analytic technique to test our hypotheses (as opposed to, say, cross-lagged analyses or growth modeling). In addition, there was no minimum number of daily surveys that participants needed to have completed in order to be included in the analyses, given that MLM allows for

the analysis of all available data and is capable of handling participants with missing data (weaknesses that can compromise other analytic techniques, such as cross-lagged analyses; Kearney, 2017; Snijders & Bosker, 2004). The use of MLM, moreover, was consistent with past research that has addressed similar questions (Giacomin & Jordan, 2016; Mahadevan et al., 2020; Wilson et al., 2017).

We used random-intercept MLM analyses (Singer, 1998), which allowed us to partition variance in a dependent variable (e.g., anxiety) at the between-person level and at the within-person level. Between-person variance reflects the distribution of people's scores relative to the population average, whereas within-person variance reflects the distribution of people's daily scores relative to their overall score. Specifically, random-intercept models, illustrated here with a single predictor, follow the structure:

$$\text{Level 1 } Y_{ij} = \gamma_{0j} + \gamma_{10} X_{ij} + e_{ij} \text{ where } e_{ij} \sim N\left(0, \sigma^{2.}\right)$$

$$\text{Level 2 } \gamma_{0j} = \gamma_{00} + u_{0j} \text{ where } u_{0j} \sim N\left(0, \tau^2\right)$$

We treated the participant-level intercept as a random effect (i.e., we included a variance component to represent the effect of participants; Singer, 1998). We entered all covariates as fixed effects.[5]

Following an approach recommended by Simmons et al. (2011), we tested our hypotheses in three stages. First, we computed the zero-order daily within-person associations by regressing the relevant outcome variables on the relevant predictor variables (e.g., daily anxiety on daily status) in the multilevel analysis. Second, for daily shame and guilt, we additionally controlled for daily fluctuations in the other emotion (i.e., the association between daily status and daily shame controlled for daily guilt, and the association between daily status and daily guilt controlled for daily shame). Third, we computed all the daily within-person associations further controlling for participants' baseline scores on the relevant trait measures to determine whether within-person fluctuations in daily status continued to predict within-person fluctuations in daily self-esteem and emotion after taking these into account (Geiser, 2013; Lee, 2014). Finally, using multilevel mediation (Hayes, 2013), we tested whether daily fluctuations in self-esteem mediated the associations between daily fluctuations in status and daily fluctuations in depression, anxiety, and shame. In all analyses, we controlled for measurement day (1–10) to account for the possibility that some days might be systematically linked to different responses (e.g., people responding more positively on the last day; Bolger & Laurenceau, 2013; Snijders & Bosker, 2004).

4 | RESULTS

4.1 | Within-person variability

Before proceeding to the main analyses, we quantified the extent to which each of the six key constructs fluctuated within-person over the 10-day period. A significant proportion of the variance in all constructs occurred within-person (status: 50%, self-esteem: 42%, depression: 45%, anxiety: 36%, shame: 37%, guilt: 43%). Thus, participants experienced considerable fluctuation in their status, self-esteem, and emotions on a day-to-day basis, above and beyond between-person differences in the same variables. We report the zero-order correlations between the baseline trait variables and the daily state variables in Supporting Information (Tables S1–S10).

4.2 | Main analyses I: Status, self-esteem, and emotion

In the first set of analyses, we examined the links among daily status, self-esteem, and emotion at the within-person level to test hypotheses from hierometer theory and social rank theory. Specifically, we tested whether daily fluctuations in status covaried positively with daily fluctuations in self-esteem and negatively with daily fluctuations in depression, anxiety, and shame.[6]

4.2.1 | Zero-order associations

Daily status covaried positively with daily self-esteem. It covaried negatively with daily depression, anxiety, and shame (Table 1, upper panel). Thus, hypotheses (1) and (2) received support. In addition, daily status covaried negatively with daily guilt.

4.2.2 | Adjusted associations I

Shame and guilt overlap considerably, both theoretically and empirically. Hence, we sought to determine the independent association of daily status with daily shame and the independent association of daily status with daily guilt. After controlling for daily guilt, daily status still covaried negatively with daily shame. In contrast, after controlling for daily shame, daily status no longer covaried negatively with daily guilt; instead, a small positive association emerged between the two (Table 1, middle panel). Thus, shame and guilt did not relate to status in the same manner. Hypotheses (3) and (4) received support.

TABLE 1 Within-person associations among daily status, daily self-esteem, and daily emotions

Covariates	Predictor–dependent variable	γ	SE	t	p	95% CI
None	Daily status–daily self-esteem	1.80	0.09	20.28	<0.001	[1.63, 1.97]
	Daily status–daily depression	−1.06	0.08	−12.82	<0.001	[−1.22, −0.90]
	Daily status–daily anxiety	−0.75	0.08	−9.40	<0.001	[−0.91, −0.60]
	Daily status–daily shame	−0.87	0.07	−12.11	<0.001	[−1.01, −0.73]
	Daily status–daily guilt	−0.42	0.08	−5.58	<0.001	[−0.57, −0.27]
Daily indices[a]	Daily status–daily shame	−0.63	0.06	−11.13	<0.001	[−0.75, −0.52]
	Daily status–daily guilt	0.15	0.06	2.50	0.012	[0.03, 0.27]
Daily indices and baselines[b]	Daily status–daily self-esteem	1.70	0.09	18.61	<0.001	[1.52, 1.88]
	Daily status–daily depression	−0.95	0.08	−11.33	<0.001	[−1.12, −0.79]
	Daily status–daily anxiety	−0.66	0.08	−8.20	<0.001	[−0.82, −0.50]
	Daily status–daily shame	−0.61	0.06	−10.29	<0.001	[−0.72, −0.49]
	Daily status–daily guilt	0.19	0.06	3.06	0.002	[0.07, 0.31]

[a] Controlling for daily covariation in the concurrently assessed daily index (i.e., the association between daily status and daily shame controlled for daily guilt, and the association between daily status and daily guilt controlled for daily shame).

[b] Additionally controlling for between-person trait levels of the relevant indices assessed at baseline (e.g., the association between daily status and daily shame controlled for baseline levels of status, trait shame, and trait guilt).

4.2.3 | Adjusted associations II

We then added a further layer of statistical adjustment. Specifically, we examined the above set of associations, but after additionally controlling for participants′ baseline scores on the relevant trait measures. Once again, the same pattern of findings persisted (Table 1, bottom panel). Thus, hypothesis (5) received support.

4.2.4 | Summary

Supporting hierometer theory, on days when participants′ status was higher (vs. lower), their self-esteem was higher (vs. lower) too. Supporting social rank theory, on days when participants′ status was higher (vs. lower), their depression, anxiety, and shame were lower (vs. higher) too. These patterns also held after controlling for baseline individual differences in the same constructs.

4.3 | Main analyses II: Self-esteem and emotion

In the second set of analyses, we examined the links between daily self-esteem and emotion at the within-person level to test hypotheses from hierometer theory and social rank theory. Specifically, we tested if daily fluctuations in self-esteem covaried negatively with daily fluctuations in depression, anxiety, and shame.

4.3.1 | Zero-order associations

Daily self-esteem covaried negatively with daily depression, anxiety, and shame (Table 2, upper panel). Thus, hypothesis (6) received support. In addition, daily self-esteem covaried negatively with daily guilt.

4.3.2 | Adjusted associations I

Again, given the overlap between shame and guilt, we sought to determine the independent association of daily self-esteem with daily shame and the independent association of daily self-esteem with daily guilt. After controlling for daily guilt, daily self-esteem still covaried negatively with daily shame. In contrast, after controlling for daily shame, daily self-esteem no longer covaried negatively with daily guilt (Table 2, middle panel). Thus, shame and guilt did not relate to self-esteem in the same manner. Hypotheses (7) and (8) received support.

4.3.3 | Adjusted associations II

We then added a further layer of statistical adjustment. In particular, we examined the above set of associations, but after additionally controlling for participants′ baseline scores on the relevant trait measures. Once again, the same pattern of findings persisted (Table 2, bottom panel). Thus, hypothesis (9) received support.

TABLE 2 Within-person associations between daily self-esteem and daily emotions

Covariates	Predictor–dependent variable	γ	SE	t	p	95% CI
None	Daily self-esteem–daily depression	−0.49	0.02	−32.79	<0.001	[−0.52, −0.46]
	Daily self-esteem–daily anxiety	−0.39	0.02	−25.57	<0.001	[−0.42, −0.36]
	Daily self-esteem–daily shame	−0.40	0.01	−30.14	<0.001	[−0.43, −0.37]
	Daily self-esteem–daily guilt	−0.27	0.02	−18.28	<0.001	[−0.30, −0.24]
Daily indices[a]	Daily self-esteem–daily shame	−0.27	0.01	−23.01	<0.001	[−0.29, −0.25]
	Daily self-esteem–daily guilt	−0.02	0.01	−1.26	0.208	[−0.05, 0.01]
Daily indices and baselines[b]	Daily self-esteem–daily depression	−0.46	0.02	−29.68	<0.001	[−0.49, −0.43]
	Daily self-esteem–daily anxiety	−0.37	0.02	−23.34	<0.001	[−0.40, −0.33]
	Daily self-esteem–daily shame	−0.26	0.01	−21.28	<0.001	[−0.28, −0.23]
	Daily self-esteem–daily guilt	−0.01	0.02	−0.74	0.460	[−0.04, 0.02]

[a]Controlling for daily covariation in the concurrently assessed daily index (i.e., the association between daily self-esteem and daily shame controlled for daily guilt, and the association between daily self-esteem and daily guilt controlled for daily shame).

[b]Additionally controlling for between-person trait levels of the relevant indices assessed at baseline (e.g., the association between daily self-esteem and daily shame controlled for baseline levels of trait self-esteem, trait shame, and trait guilt).

4.3.4 | Summary

As hypothesized, on days when participants' self-esteem was higher (vs. lower), their depression, anxiety, and shame were lower (vs. higher) too. These patterns also held after controlling for baseline individual differences in the same constructs.[7]

4.4 | Main analyses III: Mediations by self-esteem

In the final set of analyses, we examined how daily status, daily self-esteem, and daily emotions interrelate at the within-person level. Specifically, using multilevel mediation (Hayes, 2013), we tested whether daily fluctuations in self-esteem statistically mediated the link between daily fluctuations in status, on the one hand, and daily fluctuations in depression, anxiety, and shame, on the other.

4.4.1 | Did daily self-esteem mediate the daily status–daily depression link?

We examined the mediating role of daily self-esteem in a model with daily status as the predictor, daily self-esteem as the mediator, and daily depression as the outcome variable. We treated paths *a* (from the predictor to the mediator) and *b* (from the mediator to the outcome) as fixed effects and used the MCMED macro to construct 95% Monte Carlo confidence intervals (CI) for the indirect effect (Hayes, 2013).

Daily fluctuations in status covaried negatively with daily fluctuations in depression, $\gamma = -1.08$, $SE = 0.08$, $t(2,488) = -12.93$, $p < 0.001$, 95% CI [−1.24, −0.91]. Daily fluctuations in self-esteem covaried negatively with daily fluctuations in depression, over and above daily fluctuations in status, $\gamma = -0.47$, $SE = 0.02$, $t(2,487) = -28.87$, $p < 0.001$, 95% CI [−0.50, −0.44], and vice versa, $\gamma = -0.24$, $SE = 0.08$, $t(2,487) = -3.01$, $p = 0.003$, 95% CI [−0.39, −0.08]. As a final step, we tested the indirect effect, indicative of mediation, of daily fluctuations in status on daily fluctuations in depression through daily fluctuations in self-esteem. The indirect effect (denoted as *ab*) was significant, $ab = -0.84$, 95% CI = [−0.94, −0.74].[8] Thus, daily fluctuations in self-esteem statistically mediated the link between daily fluctuations in status and daily fluctuations in depression.

4.4.2 | Did daily self-esteem mediate the daily status–daily anxiety link?

We then examined the mediating role of daily self-esteem in a model with daily status as the predictor, daily self-esteem as the mediator, and daily anxiety as the outcome variable. Daily fluctuations in status covaried negatively with daily fluctuations in anxiety, $\gamma = -0.76$, $SE = 0.08$, $t(2,463) = -9.49$, $p < 0.001$, 95% CI [−0.92, −0.61]. In addition, daily fluctuations in self-esteem covaried negatively with daily fluctuations in anxiety, over and above daily fluctuations in status, $\gamma = -0.38$, $SE = 0.02$, $t(2,462) = -23.17$, $p < 0.001$, 95% CI [−0.42, −0.35], and vice versa, $\gamma = -0.10$, $SE = 0.08$, $t(2,462) = -1.22$, $p = 0.224$, 95% CI [−0.25, 0.06]. Importantly, the indirect effect was significant, $ab = -0.69$, 95% CI = [−0.78, −0.60]. Thus, daily fluctuations in self-esteem statistically mediated the

link between daily fluctuations in status and daily fluctuations in anxiety.

4.4.3 | Did daily self-esteem mediate the daily status–daily shame link?

We then examined the mediating role of daily self-esteem in a model with daily status as the predictor, daily self-esteem as the mediator, and daily shame as the outcome variable. Moreover, to examine the independent influences of shame and guilt, we controlled for daily guilt in all analyses. Daily fluctuations in status covaried negatively with daily fluctuations in shame, $\gamma = -0.64$, $SE = 0.06$, $t(2,488) = -11.16$, $p < 0.001$, 95% CI [−0.75, −0.52]. Daily fluctuations in self-esteem covaried negatively with daily fluctuations in shame, over and above daily fluctuations in status, $\gamma = -0.25$, $SE = 0.01$, $t(2,487) = -19.94$, $p < 0.001$, 95% CI [−0.27, −0.23], and vice versa, $\gamma = -0.22$, $SE = 0.06$, $t(2,487) = -3.92$, $p = 0.003$, 95% CI [−0.33, −0.11]. Importantly, the indirect effect was significant, $ab = -0.41$, 95% CI = [−0.47, −0.35]. Thus, daily fluctuations in self-esteem statistically mediated the link between daily fluctuations in status and daily fluctuations in shame.

4.4.4 | Did daily self-esteem mediate the daily status–daily guilt link?

Finally, for exploratory purposes, we examined the mediating role of daily self-esteem in a model with daily status as the predictor, daily self-esteem as the mediator, and daily guilt as the outcome variable. Moreover, to examine the independent influences of shame and guilt, we controlled for daily shame in all analyses. Daily fluctuations in status did not covary negatively with daily fluctuations in guilt; instead, a positive association emerged, $\gamma = 0.15$, $SE = 0.06$, $t(2,488) = 2.53$, $p = 0.011$, 95% CI [0.04, 0.27]. Daily fluctuations in self-esteem also did not covary negatively with daily fluctuations in guilt, over and above daily fluctuations in status, $\gamma = -0.03$, $SE = 0.02$, $t(2,487) = -1.79$, $p = 0.074$, 95% CI [−0.06, −0.003], nor vice versa, $\gamma = 0.19$, $SE = 0.06$, $t(2,487) = 2.96$, $p = 0.003$, 95% CI [0.06, 0.32]. Finally, the indirect effect was not significant, $ab = -0.04$, 95% CI = [−0.07, 0.003]. Thus, daily fluctuations in self-esteem did not statistically mediate the link between daily fluctuations in status and daily fluctuations in guilt.

4.4.5 | Summary

These mediational findings provide insight into how daily status, self-esteem, and clinically relevant emotions interrelate at the within-person level. Specifically, they indicate that daily social status relates to daily depression, anxiety, and shame via daily self-esteem. Thus, hypothesis (10) received support. The pattern is consistent with self-esteem acting as the primary gear, and clinically relevant emotions as the subsequent ones, in the regulatory mechanism jointly implied by hierometer theory and social rank theory. The findings show that self-esteem and emotion not only relate to social status as these theories would predict, but also that self-esteem and these clinically relevant emotions relate to one another in theoretically meaningful ways, with self-esteem accounting for the link between social status and these clinically relevant emotions at the within-person level.

5 | GENERAL DISCUSSION

The need for status, regarded as a fundamental human motive, has been linked to a range of cognitive, emotional, and behavioral outcomes (Anderson et al., 2015; Magee & Galinsky, 2008). However, research to date has focused predominantly on *between-person* differences in status (i.e., the extent to which one person is, on the whole, more respected and admired than another) as opposed to *within-person* differences in status (i.e., the extent to which the same person is, on some occasions than on others, more respected and admired). Here, we examined, for the first time, how social status, self-esteem, and several emotions—depression, anxiety, shame, and guilt—interrelate at the within-person level. Moreover, we rooted our investigation in two theories pertaining to social hierarchies—hierometer theory and social rank theory—and tested hypotheses derived from each.

5.1 | Summary of results

The results of a 10-day diary study showed that status, self-esteem, depression, anxiety, shame, and guilt all exhibited considerable within-person fluctuation across different days. Importantly, these daily within-person fluctuations covaried in a manner consistent with both hierometer theory and social rank theory. Specifically, in line with hierometer theory, daily fluctuations in status covaried positively with daily fluctuations in self-esteem. Also, in line with social rank theory, daily fluctuations in status covaried negatively with daily fluctuations in depression, anxiety, and shame. In addition, providing some discriminant, as well as convergent validation, daily fluctuations in status covaried negatively with daily fluctuations in shame (after accounting for daily fluctuations in guilt), but not with daily fluctuations in guilt (after accounting

for daily fluctuations in shame). Moreover, all foregoing patterns remained even after controlling for baseline individual differences in the relevant constructs. Finally, tests of multilevel mediation indicated that daily fluctuations in self-esteem explained the links between daily fluctuations in status, on the one hand, and daily fluctuations in depression, anxiety, and shame (but not guilt), on the other. This is consistent with self-esteem playing the more primary role as a tracker of status.

5.2 | Implications

Our findings highlight the fruitfulness of examining status, self-esteem, and clinically relevant emotions at a within-person level. First, each of our six constructs exhibited considerable observable fluctuation across different days (about one-third to one-half of the available variance). This indicates that there is meaningful within-person variability present in each construct, available to be examined.[9] Second, as we illustrated empirically, such within-person variability can prove predictive above and beyond between-person differences (i.e., Hypothesis [5] was confirmed). Third, our findings show that, at a within-person level, daily fluctuations in status, self-esteem, and clinically relevant emotions are far from incoherent; rather, just like their between-person analogs, they exhibit intelligible patterns of covariation. Fourth, these intelligible patterns are theoretically relevant. In particular, our findings add meaningfully to the growing body of evidence that self-esteem and some clinically relevant emotions play a functional role as intrapsychic trackers of social status. This is especially important because—as highlighted in the Introduction—findings at a within-person level need not replicate findings at a between-person level. Accordingly, parallel findings at each level are logically non-redundant and mutually confirming.

As it turned out, our findings provided good independent support for both hierometer theory and social rank theory. To reiterate, hierometer theory posits that self-esteem plays a functional role in helping individuals to navigate social hierarchies. It assumes that current levels of status—specifically defined as respect and admiration—are a good predictor of the utility of additional status pursuit. Accordingly, it predicts that higher levels of status will ultimately augment assertiveness, and lower levels diminish it.[10] As a precondition for achieving this imperative function, however, self-esteem must function to indicatively track status. Likewise, social rank theory posits that emotions like depression, anxiety, and shame play a similar functional role. Specifically, it assumes that these emotions operate as part of an involuntary defeat strategy,

established over the course of evolution, and triggered by competitive losses that lower one's rank in some hierarchy. Thus, as one's rank declines, levels of demotivating depression, anxiety, and shame should grow. To date, both theories have been tested mostly at a between-person level (Mahadevan et al., 2016; Gilbert, 2000; but see Mahadevan et al., 2020). One might argue, however, that an equally stringent test of their validity can be achieved by looking at the same person across time rather than at different people at the same time. Accordingly, our research conducted such a within-person test of both hierometer theory and social rank theory.

As it happened, the results that emerged fully supported both hierometer theory and social rank theory at the within-person level (given that status is one key form of social rank). Specifically, on days when their status was higher or lower, the same participants in our study experienced higher or lower levels of self-esteem—just as in prior research on hierometer theory, different participants, whose status had been higher or lower, had exhibited higher or lower levels of self-esteem (Mahadevan et al., 2016, 2019a, 2019b, 2021). Moreover, on days when their status was higher or lower, the same participants experienced lower or higher levels of depression, anxiety, and shame—just as in prior research on social rank theory, different participants, who had ranked themselves higher or lower relative to others on a range of dimensions (e.g., attractiveness and likeability), had reported lower and higher levels of depression, anxiety, and shame (Gilbert, 2000).

Moreover, our findings have further implications, because they also addressed, for the first time at the within-person level, how status, self-esteem, and clinically relevant emotions interrelate, thereby helping to theoretically integrate hierometer theory and social rank theory. Specifically, we posited that self-esteem—being structurally simpler than clinically relevant emotions and liable to operate more swiftly—would respond to levels of status earlier, and would trigger clinically relevant emotions later. Stated otherwise, we posited that, although self-esteem and clinically relevant emotions would both ultimately bridge that gap between social status or rank, and interpersonal assertiveness or submission, self-esteem would serve as the first part of that bridge, and clinically relevant emotions as the second. Consistent with self-esteem playing this more primary role, we found that daily fluctuations in self-esteem statistically mediated the links between daily fluctuations in status and daily fluctuations in depression, anxiety, and shame. Although experimental designs are required to settle the issue, our current findings nonetheless add usefully to the cumulative findings bearing on the causal priority of self-esteem and clinically relevant emotions (Sowislo & Orth, 2013).

Finally, our findings suggest that the emotions of shame and guilt, despite their similarities, are unlikely to serve the same psychological function. Shame related to status and self-esteem in the same way as depression and anxiety (i.e., covaried negatively with it, day by day), whereas guilt showed a different pattern, at least when controlling for its overlap with shame. One possibility is that shame is a functional emotion when it comes to the regulation of status or rank because it promotes interpersonal withdrawal, whereas guilt is a functional emotion when it comes to the regulation of inclusion or belongingness because it promotes interpersonal reconciliation (Lewis, 1971; Tangney & Dearing, 2002). That is, where shame may be triggered by a loss of status, in a manner addressed by social rank theory, guilt may be triggered by a loss of inclusion, in a manner addressed by sociometer theory (Leary et al., 1995). This theory (at least in its original form: see Mahadevan et al., 2016, 2019a, 2019b, 2020, for further discussion) postulates that self-esteem indicatively tracks inclusion and then imperatively prompts affiliative behavior if inclusion falls below a critical value. Prima facie then, guilt would appear well-suited to act as an emotional gear in a sociometer mechanism (Baumeister et al., 1994), perhaps intervening causally between decreases in social inclusion and increases in interpersonal affiliation.

5.3 | Strengths, limitations, and future directions

The current research had several strengths. Theoretically, it began by synthesizing disparate literature on social status, self-esteem, and emotion, to provide a theoretically-grounded investigation of how they interrelate. It proceeded to concurrently test hypotheses systematically derived from two theories—hierometer theory and social rank theory—at a novel within-person level, including after controlling for baseline individual differences in a multilevel model. The daily diary design also provided an ecologically valid way to study the links among social status, self-esteem, and emotion as they unfolded in the course of people's everyday lives. Furthermore, the study was highly powered.

Yet the current research was also not without its limitations. The daily diary design relied on self-reports that can be vulnerable to assorted response biases, including social desirability and shared method variance (Podsakoff et al., 2003). Although we attempted to minimize the likelihood of such response biases (e.g., by emphasizing confidentiality of responses and adopting different response formats for different measures), future research would do well to implement additional methods beyond self-reports,

such as other reports or observational methods. In addition, we did not assess or control for the number of social interactions that participants had on a given day. It is possible that the number of social interactions people have bears some relationship to the constructs we measured, and that having social interactions might be a vehicle that allows people to obtain the status that subsequently grants them higher self-esteem and more positive emotional states. Accordingly, we recommend that future studies take this into account. Another limitation was that the daily diary design, not being experimental, precluded conclusions about causality. That is, although the correlational and mediational patterns we observed were consistent with the causal hypotheses derived from hierometer and social rank theory, alternative explanations involving reverse causality or causal confounds cannot be ruled out. Note, however, that although correlational and mediational tests cannot conclusively test causal hypotheses (Maxwell & Cole, 2007), they can assist in corroborating them, especially when potentially falsifiable patterns are theoretically specified in advance (Baumeister et al., 2003; Fiedler et al., 2011). Finally, the cross-cultural generalizability of our research was limited. Although our study included participants of different ages, genders, and ethnicities, the majority of its participants were White, female, and resident in Western countries. Future research could address these associations in non-White and non-Western samples to improve generalizability.

6 | CONCLUSIONS

Some individuals generally enjoy higher status than other individuals, but each individual also enjoys higher status on some occasions than on others. The current research examined how these within-person fluctuations in status relate to within-person fluctuations in self-esteem and clinically relevant emotions. The patterns obtained were consistent with the predictions of both hierometer theory and social rank theory: daily levels of self-esteem, depression, anxiety, and shame rose and fell in tandem with daily levels of status, suggestive of a functional tracking mechanism. Moreover, daily levels of self-esteem accounted for the link between status and these clinically relevant emotions, consistent with self-esteem playing a more primary role. Accordingly, ups and downs in how much respect and admiration others accord us go hand in hand with, and may be responsible for, ups and downs in our self-esteem and emotions.

AUTHOR CONTRIBUTIONS
Nikhila Mahadevan and Aiden P. Gregg developed the original theoretical framework with input from Constantine Sedikides. Nikhila Mahadevan designed and ran the study, analyzed the data, and wrote the first draft

of the manuscript. Nikhila Mahadevan, Aiden P. Gregg, and Constantine Sedikides all contributed to revisions of the manuscript.

CONFLICT OF INTEREST

All authors consented to the submission of this manuscript. The authors declare no conflict of interest. The reported research and analyses were not preregistered in an independent, institutional registry. The data and analyses code will be deposited in a trusted digital repository upon publication.

ETHICS STATEMENT

All study procedures involving human participants were in accordance with the ethical standards of the Institutional Research Board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all participants.

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ENDNOTES

[1] We use the terms *depression* and *anxiety* to refer to individual differences that are continuous rather than to clinical conditions that are categorical. The results of taxometric analyses generally support such a continuous conceptualization (Hankin et al., 2005; Sowislo & Orth, 2013). The social rank literature, which, for example, refers to depression as *depressed mood*, *depressive personality*, and *depressive illness*, evidently shares this conceptualization (Price et al., 1994, 2007).

[2] Hierometer theory differs from another theory of self-esteem's function, namely, *sociometer theory* (Leary et al., 1995). Whereas hierometer theory focuses on status (i.e., respect and admiration) and status-optimizing behavior (i.e., assertiveness), sociometer theory focuses on inclusion (i.e., liking and acceptance) and inclusion-optimizing behavior (i.e., affiliativeness; Leary et al., 1998). Status and inclusion are conceptually and empirically distinct (Anderson et al., 2015). Status is agentic—it involves 'getting ahead'—whereas inclusion is communal—it involves 'getting along' ("The Big Two"; Abele & Wojciszke, 2014; Mahadevan & Jordan, 2022). Hierometer theory posits that self-esteem serves a status-regulating function, and that this function is consolidatory. Higher status promotes higher self-esteem, which fosters greater assertiveness, which serves to consolidate an individual's position within the hierarchy. In contrast, sociometer theory posits that self-esteem serves an inclusion-regulating function, and that this function is compensatory. Lower inclusion promotes lower self-esteem, which fosters greater affiliativeness, which serves to restore an individual's level of inclusion to an optimum level. (See Mahadevan et al., 2016, 2019a, 2020, for an extensive discussion and series of parallel tests of hierometer theory and sociometer theory.)

[3] Cross-sectional studies also show that higher inclusion correlates strongly with higher trait self-esteem ($r \approx 0.60$), and that this link persists after controlling for status ($r_p \approx 0.30$; Huo et al., 2010; Mahadevan et al., 2016, 2019a, 2019b).

[4] We calculated Cronbach's alphas separately for each daily survey. We report the average alpha (across the 10 daily surveys) along with the range.

[5] Level 1 of this model deals with within-person differences. Y_{ij} refers to observed scores on day i of participant j. This observed score is estimated with a regression function where γ_{0j} is the intercept of that participant and γ_{10} represents the regression slope for the predictor variable, X_{ij}. The random-effect (error) term e_{ij} captures the deviation from the predicted score for a specific day and person, normally distributed with an average of 0 and variance of σ^2. Level 2 of this model deals with between-person differences. Each person's regression intercept γ_{0j} is a function of the overall regression intercept γ_{00} plus a person's deviation from this overall intercept expressed as u_{0j}. This deviation, also called the random-intercept, is normally distributed with a mean of 0 and variance of τ^2.

[6] Prior research has established—on both theoretical and empirical grounds—that social status and self-esteem are distinct constructs (Anderson et al., 2015; Huo et al., 2010). For example, the status measures focus on others, whereas the self-esteem measures focus on the self. These items also factor analyze on separate factors (Mahadevan et al., 2021). Nonetheless, we examined whether the status and self-esteem measures used in the current study were empirically distinct. We conducted two exploratory factor analyses: on the baseline trait measures of status and self-esteem, and on the daily state measures of status and self-esteem (Day 1). We used principal axis factoring with direct oblimin rotation—a method that avoids artificially imposing a fixed number of factors and factorial independence (Costello & Osborne, 2005). For the baseline trait measures, three factors emerged with eigenvalues greater than one. All the status items loaded highest on Factor 1 (average = 0.71, range = 0.58 to 0.80), whereas all the self-esteem items loaded highest on Factors 2 and 3 (average = 0.64, range = 0.43 to 0.84). (*Note*: the precise factor structure of the Rosenberg Self-Esteem scale can vary, with more than one factor sometimes emerging [e.g., for forward-scored vs. reverse-scored items; Marsh et al., 2010]). Cross-loadings were low (status items on Factors 2 and 3: average = 0.01, range = −0.12 to 0.11; self-esteem items on Factor 1: average = 0.05, range = −0.06 to 0.14). For the daily state measures, two factors emerged with eigenvalues greater than one. All the daily status items loaded highest on Factor 1 (average = 0.55, range = 0.37 to 0.70), whereas all the daily self-esteem items loaded highest on Factor 2 (average = 0.90, range = 0.75 to 0.98). Cross-loadings were low (status items on Factor 2: average = −0.04, range = −0.25 to 0.06; self-esteem items on Factor 1: average = −0.01, range = −0.05 to 0.06). Thus, in line with previous findings, the status and self-esteem measures loaded on separate factors, consistent with their being empirically distinct constructs.

[7] We additionally analyzed these data using different analytical approaches and report the results of these analyses in Supporting Information. Specifically, in one set of analyses, we analyzed the data using multilevel modeling with all predictor variables person mean-centered. In the other set of analyses, we analyzed the data using dynamic structural equation modeling with autoregressions. In both cases, the same pattern of findings emerged.

[8] We treated the paths *a* and *b* as fixed effects; therefore, there was no Level 2 covariance between these parameters. The simple *ab* product was sufficient to quantify the indirect effect (Hayes, 2013).

[9] Or, to misquote John Donne, they illustrate how "No man is a constant, fixed in itself; each is a variable, deviating from the mean."

[10] The consolidatory dynamic postulated here is reminiscent of that articulated in Luke 13:12 (King James' Version): "For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath."

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.