How Does Social Status Relate to Self-Esteem and Emotion? An Integrative Test of Hierometer Theory and Social Rank Theory

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Drawing together insights from two theories—hierometer theory and social rank theory—we investigated the links among social status, self-esteem, and emotion. Both theories address how individuals navigate social hierarchies. Both posit adaptive dynamics whereby a social input (status or rank) shapes one or more psychological mechanisms, which then regulate a behavioral output. However, they emphasize different psychological mechanisms. Whereas hierometer theory emphasizes self-regard—in particular, self-esteem—social rank theory emphasizes emotions—in particular, depression, anxiety, and shame. We tested hypotheses derived from these theories, examining the links among status, self-esteem, and these emotions, across six studies ($N = 1,719$). In Studies 1 and 2 (cross-sectional), status correlated positively with self-esteem, and negatively with depression, anxiety, and shame (but not guilt). Studies 3–6 established the causal pathways between these constructs for the first time. In Studies 3 and 4 (experimental), increasing status induced higher state self-esteem, and lower depression, anxiety, and shame (but not guilt). In Studies 5 and 6 (experimental), increasing self-esteem induced lower depression, anxiety, and shame. Finally, across studies, self-esteem statistically and causally mediated the links between status and depression, status and anxiety, as well as status and shame. Our research advances theoretical and empirical understanding of self-esteem and emotion as functional trackers of one's place in the social hierarchy. It points to self-esteem playing a more primary role as a tracker of status, helping to explicate how and why status is related to these clinically relevant emotions.

Keywords: hierometer theory, social rank theory, social status, self-esteem, emotions

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Recent years have seen sustained interest in the study of psychological and clinical phenomena from an evolutionary perspective (Del Giudice, 2018; Hill & Buss, 2008; Johnson et al., 2012; Nesse, 2015). In this vein, we tested hypotheses derived from two relevant theories: hierometer theory and social rank theory. Both theories pertain to how individuals navigate the hierarchies of social life. Specifically, both theories postulate adaptive dynamics whereby the social environment shapes one's psychological outlook to regulate one's behavioral inclinations. However, they

focus on different psychological mechanisms. Whereas hierometer theory focuses on self-regard—principally in the form of self-esteem (Mahadevan et al., 2016, 2020), social rank theory focuses on various emotions—principally in the form of depression, anxiety, and shame (Gilbert, 2000; Sloman, 2008).[1] Below, we outline hierometer theory and social rank theory, and discuss their similarities and differences. Drawing upon the two theories, we then offer hypotheses as to how self-esteem and these emotions track social rank or social status functionally, and test those hypotheses empirically. In so doing, the present research contributes to the literature on social status and enriches understanding of the social functions that self-esteem and emotions serve (Baumeister et al., 2007; Fischer & Manstead, 2008). Furthermore, it identifies ways in which two psychological theories—hierometer theory and social rank theory—can potentially be united. Finally, it integrates insights from the disparate research literatures of personality and social psychology, ethology, and clinical and evolutionary psychology,

[1] We use the terms depression and anxiety to refer to individual difference variables rather than to clinical conditions. This usage is consistent with the social rank theory literature, which makes reference to depressed mood as well as to depressive illness and depressive personality (Price et al., 1994, 2007). It is also consistent with taxometric analyses, which suggest that these constructs are best conceptualized as continuous rather than categorical (Hankin et al., 2005; Sowislo & Orth, 2013).

tying together their common threads (Darwin, 1872; Tooby & Cosmides, 2008).

Social Rank and Social Status

Human society is stratified (Fiske, 2010; Grusky, 2014). That is, its members find themselves differentiated by social rank—their relative position within the group hierarchy. Traditionally, individuals have been ranked along economic, political, and reputational lines (Weber, 1978). Pursuing this trichotomy, recent research has distinguished among *class* (access to material, educational, and occupational resources; Kraus & Stephens, 2012), *power* (asymmetrical control over outcomes; Galinsky et al., 2015), and *status* (being respected and admired by others; Magee & Galinsky, 2008). Such characteristics covary positively (Coburn & Edwards, 1976; Festin et al., 2017). Nonetheless, social rank in human societies (but even in some nonhuman animals; Chase & Seitz, 2011) is not solely decided by raw economic or political superiority (i.e., class and power). Rather, it is "granted as well as grabbed"—a product of reputation as well as intimidation (De Waal-Andrews et al., 2015). This may be because, as humans evolved, deference to high-ranking individuals afforded learning opportunities within cooperative groups that promoted survival and reproduction (Henrich & Gil-White, 2001; Jiminez & Mesoudi, 2019). Indeed, the pursuit of social status in the form of respect and admiration has been deemed a fundamental human motive (Anderson et al., 2015). Hence, there are good grounds for prioritizing status as an index of social rank, including as a potential antecedent of its other dimensions (Ridgeway, 2014). In short, status is a subset of rank defined by reputational regard in the form of social respect and admiration, and is of central importance in human affairs.

Social Rank Theory and Hierometer Theory: Theoretical Outline

Social Rank Theory

Social rank theory (Price et al., 2007) is one of several complementary evolutionary approaches to explaining seemingly maladaptive emotions (Allen & Badcock, 2006; Nesse, 2011). The theory proposes that "emotions and moods are substantially influenced by perceptions of one's *social status/rank* [italics added]; that is, the degree to which one feels inferior to others and looked down on" (Gilbert, 2000, p. 174). In particular, it states that clinically relevant emotions—depression, anxiety, and shame—are part of a complex psychobiological system that evolved to regulate competitive interactions between conspecifics (members of the same species). The system's operation is most apparent in the *ritual agonistic encounters* exhibited by nonhuman animals. These are defined as "interaction[s] between two (or more) individuals that start[s] with a symmetric exchange of threat signals and end[s] 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). As a contest progresses, animal antagonists must make an ongoing decision: whether to compete (e.g., fight, defend), and escalate conflict in pursuit of victory; or to yield (e.g., flee, submit), and de-escalate conflict in acceptance of defeat. Such contests usually assume a stereotypical form, consisting of displays of fighting fitness, and

typically terminate without resort to deadly violence, with one animal dominating and the other submitting (McGlone, 1986; Smith & Parker, 1976). This faux-fighting permits both parties to assess the relative likelihood of their prevailing or succumbing, and to communicate the results of those assessments reliably to one another (Hurd, 2006; Price & Sloman, 1987). Ritual agonistic encounters enable likely losers to survive and avoid injury, and likely winners to save resources by not endlessly facing off against unworthy opponents. Consequently, relatively stable quasi-linear hierarchies—or pecking orders—form (Broom, 2002; Schjelderup-Ebbe, 1975).

Social rank theory further proposes that, in the face of anticipated contest loss, an *involuntary defeat strategy* (IDS) is automatically triggered (Sloman, 2008; Sloman & Price, 1987). Its purpose is to ensure that an animal that would be better off yielding does so. Once triggered, the IDS down-regulates responses across multiple psychological and behavioral systems. In humans, where defeats take social as well as physical form (Gilbert et al., 1995), the IDS—when chronically, engaged as part of a maladaptive cycle (Bergstrom & Meacham, 2016)—may produce psychological symptoms that cluster into clinical syndromes. Such syndromes include depression (Sloman et al., 2006) and anxiety (Price, 2003), which are often accompanied by shame (Gilbert, 2003). Consistent with its ethological roots, the IDS is alleged to exert a behavioral impact too—in the form of social withdrawal, psychomotor retardation, and articulated impotence—all of which plausibly serve as signals of submission (Fessler, 2007; Price et al., 2004; Tracy & Matsumoto, 2008). Moreover, although not always explicitly claimed, the psychological effects of the IDS can be construed as causally prior to its behavioral effects (see Price, 2003; for theorizing about the complex triune character of the IDS).

Hierometer Theory

Like social rank theory, hierometer theory identifies psychological phenomena as playing a functional role in helping individuals to navigate the hierarchies of social life. Unlike social rank theory, however, it focuses on self-regard, principally in the form of self-esteem.[2] Self-esteem is defined as a global evaluation of self—the degree to which someone evaluates themselves in a favorable or unfavorable manner overall (Baumeister et al., 2003; Sedikides & Gregg, 2003). According to hierometer theory, self-esteem forms part of an evolved psychological system that helps individuals to optimize their overall position within a status hierarchy (Mahadevan et al., 2016, 2021). Hierometer theory can also be construed as a complement of *sociometer theory* (in its original form; Leary

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[2] Hierometer theory also proposes that another form of global self-regard, grandiose narcissism (Roberts et al., 2018; Sedikides & Campbell, 2017), performs a similar status-regulating function as self-esteem (Gregg et al., 2017a, 2017b; Mahadevan & Jordan, 2022). Indeed, grandiose narcissism may specifically track status and regulate assertiveness, whereas self-esteem may additionally track inclusion and regulate affiliativeness (Mahadevan et al., 2016, 2020). Nonetheless, self-esteem still constitutes the more fundamental and familiar form of self-regard, as well as serving as the common concurrency in hierometer theory and other socio-evolutionary theories such as sociometer theory (Leary et al., 1995). Hence, we focus solely on it here. Note that self-esteem and grandiose narcissism are distinct constructs, distinguishable both theoretically and empirically (Brummelman et al., 2016; Sedikides, 2021).

et al., 1995), according to which self-esteem forms part of an evolved psychological system that helps individuals to preserve a minimal level of inclusion in a communal group. Thus, whereas hierometer theory deals with "vertical" relations in the form of respect and admiration, sociometer theory deals with "horizontal" relations in the form of liking and acceptance (see Mahadevan et al., 2016, 2019a, 2019b, 2020, for a review and extensive series of parallel tests).

The possession of social status, or its proxies, affords many benefits (Ridgeway, 2014). For example, health and longevity are predicted by both occupational prestige (Marmot, 2004) and self-perceptions of social standing (Singh-Manoux et al., 2005). Unsurprisingly, then, the pursuit of status has been touted as a fundamental human motive (Anderson et al., 2015; Kenrick et al., 2010). Yet, status—being a ranked characteristic—cannot be simultaneously possessed by everyone in a group to the same degree (this logically distinguishes it from, say, social inclusion where different people may belong to a group to the same degree; Gregg & Mahadevan, 2014). Accordingly, the pursuit of status is a zero-sum game: For everyone who ascends the status hierarchy, someone else must descend it. This implies that higher status, to be possessed, must be contested.

Moreover, even if status is granted rather than grabbed, its pursuit is nonetheless risky (Van Tilburg & Mahadevan, 2020). Talent and charm being limited, popularity is the preserve of the few. For example, followership on Twitter is exceptionally skewed: the most popular accounts (e.g., Barack Obama) have tens of millions of followers, whereas fewer than one in 100 accounts have more than 3,000 followers (Bruner, 2013). Many other status contests have this winner-take-most character (Frank, 1985). In particular, status-seeking enterprises often require substantial investment, such that, if rival enterprises cannot be defeated or outclassed, devastating losses may result. For example, an entrepreneur may squander their fortune and reputation if they persist in imprudently propping up an uncompetitive product (Frank et al., 2014). Thus, there is potential price to be paid for competing cavalierly. It follows that status, for all its advantages, should not be pursued indiscriminately. Specifically, whereas asserting oneself in a competitive environment may be a better strategy for high-status individuals, submitting may be a better strategy for low-status individuals. But what, psychologically speaking, connects past status achievements to future status ambitions?

Hierometer theory proposes that self-esteem acts as the key mediating mechanism. It serves two interrelated functions, labeled indicative and imperative.[3] Indicatively, self-esteem works as an intrapsychic gauge that tracks an individual's social status, rising when it is high and falling when it is low. Imperatively, self-esteem works as a dynamic gear that regulates an individual's interpersonal behavior, prompting assertiveness when self-esteem is high and submissiveness when it is low. Accordingly, self-esteem optimizes status-seeking behavior. When faced with the prospect of competing for status—raising the prospect of heavy losses as well as tempting gains—people decide to engage in or withdraw from the competition based on a key judgmental input: their overall evaluation of themselves. This input—being shaped by prior overall status—appropriately augments or diminishes their inclination to seek further status riskily. In terms of the card game, Poker, people's self-esteem lets them "know when to hold

them and know when to fold them"—based on the quality of the cards they have been dealt.

Social Rank Theory and Hierometer Theory: Empirical Evidence

Social Rank Theory

Much correlational research supports social rank theory (see Johnson et al., 2012, pp. 721–727, for a theoretically contextualized review). For example, lower socioeconomic class correlates with higher rates of depression and anxiety (Lorant et al., 2003, 2007; but see Lin et al., 1989). Perceptions of low social power (involving a perceived lack of control over outcomes) also correlate with greater depression (Guinote, 2017; Langner et al., 2012). In addition, negative social comparisons (e.g., rating oneself as less attractive, likeable, and talented than others) correlate with higher depression, social anxiety, and shame, as well as with more submissive behavior (Aderka et al., 2009; Gilbert, 2000; Wetherall et al., 2019). Furthermore, when specific indices, such as defeat and entrapment, are added to the mix, these negative social comparisons also correlate with symptoms such as anhedonia (Gilbert et al., 2002) and suicidal ideation (Taylor et al., 2011).

Longitudinal and experimental research findings also provide indirect support for social rank theory. In particular, events and situations that imply low social rank—such as dominant behavior from close others or competitive defeats—are associated with negative emotions. For example, an experience sampling study found that more depressed participants—whose IDS would have been chronically engaged—felt more acutely inferior in response to their partners acting dominantly (i.e., thereby indirectly implying that their own social rank was low; Zuroff et al., 2007). In addition, people who experienced low social power—after interacting with a more powerful partner (Langner & Keltner, 2008) or being made subordinate in a group discussion (Berdahl & Martorana, 2006)—subsequently experienced more negative emotions. Similarly, university athletes experienced more dysphoria and anxiety after a defeat than after a victory, with the pattern being moderated by prior disposition—exacerbated by neuroticism, but attenuated by self-efficacy (Sturman & Mongrain, 2008). Finally, experimentally engineered levels of success or failure at a game of Tetris evoked pride or shame, respectively, but only when participants' motivational goals were defined by their performance relative to others (i.e., again indirectly implicating social rank; Rebar & Conroy, 2013).

Hierometer Theory

Research findings to date also support hierometer theory. Higher and lower status—defined as social respect and admiration—consistently covary with assertive or submissive behavior, respectively, with higher or lower self-esteem statistically mediating the link (Mahadevan et al., 2016). The same pattern emerges at the within-person level when one examines fluctuations in people's

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[3] The term "indicative" derives from the Latin indicare "to point out." It refers to how a psychological variable informs a person that their environment has particular features. The term "imperative" derives from the Latin imperare "to command." It refers to how a psychological variable impels a person to behave in particular ways.

status, self-esteem, and assertiveness over the course of several days (Mahadevan et al., 2020). Moreover, in an investigation of a naturally occurring hierarchy in a boys' school (Fournier, 2009), a pooled index of social reputation—comprising prominence, respect, and influence—covaried positively with self-esteem and negatively with depression, even after controlling for indices of social belongingness (i.e., attachment security and social support). In so doing, it arguably furnished evidence for hierometer theory and social rank theory alike.

Experimental research findings also support hierometer theory. Specifically, in two laboratory experiments, where fictitious feedback was given with a plausible cover story, Mahadevan et al. (2019a; Studies 3–4) led participants to believe that their future would, or would not, be characterized by the respect and admiration of others. Participants' levels of state self-esteem, assessed in two different ways, became higher or lower, accordingly.[4] Such findings corroborate more tellingly the results of previous experiments, where self-esteem rose or fell as a function of manipulated outcomes indirectly linked to social respect and admiration. For example, Morse and Gergen (1970) reported that state self-esteem rose and fell, respectively, when participants encountered a rival candidate for a desirable job who was either shabbily or sharply attired. Also, Wojciszke and Struzynska-Kujalowicz (2007) reported that participants who were assigned to a superordinate role versus a subordinate one when making a hiring decision subsequently evaluated themselves, respectively, more or less favorably. Lastly, Fast et al. (2009) found that participants who recalled an incident in which they had power over others subsequently evaluated themselves more favorably than participants who recalled an incident in which someone else had power over them.

Summary

Various indices of rank correlate with negative emotion in ways generally consistent with social rank theory. However, the bulk of research adduced in favor of the theory remains correlational. Furthermore, no studies have yet investigated how status in the form of respect and admiration—a key marker of social rank in humans—correlates with different types of negative emotion (e.g., depression, anxiety, and shame); nor have any studies experimentally manipulated status to assess its causal impact on these emotions. Finally, no studies have concurrently tested hypotheses from hierometer theory and social rank theory. Hence, the interrelations among social status, self-esteem, and these emotions remain to be elucidated.

Comparing and Contrasting Hierometer Theory and Social Rank Theory

Both hierometer theory and social rank theory postulate that psychological variables serve an adaptive functional role. But are they complementary or in conflict? How might they be combined to achieve a better understanding?

Hierometer theory and social rank theory share some similarities. First, both specify a relation between a social input and a behavioral output, bridged by some psychological mechanism. Second, both specify the same sort of social input: the individual's position in a hierarchy. Third, both specify the same sort of behavioral output: a greater or lesser degree of competitive inclination.

Fourth, both claim that the behavioral output is adaptively regulated in light of the social input—that the lower an individual's position in the hierarchy, the less competitive they are inclined to be.

The above account suggests that hierometer theory and social rank theory might be readily reconciled. However, matters are a little murkier. Discrepancies in how key variables are conceptualized and operationalized—as well as ambiguities as regards how these are or should be done—impede harmonization.

What Attribute Is Ranked?

Social rank theory does not declare what attribute or attributes are ranked. True, it has latterly emphasized the role of attention-attracting appeal (Gilbert, 1997; Gilbert et al., 1995); thereby echoing recent research acknowledging that human social hierarchies are rooted in prestige as much as dominance (Cheng et al., 2013). Nonetheless, social rank theory admits many rank-determining criteria (Aderka et al., 2009; Gilbert, 2000). Notably, the Social Comparison Scale (Allan & Gilbert, 1995) includes items that assess self-perceptions of attractiveness, talent, and likeability. Accordingly, social rank theory seemingly regards "rank" as an open placeholder for any factor potentially capable of determining an individual's relative position in some hierarchy.

In contrast, hierometer theory does declare what is meant by position in the hierarchy: social status, in the form of being respected and admired. This precise conceptualization is consistent with the broader empirical literature (Anderson et al., 2015; Fiske, 2010; Magee & Galinsky, 2008). This conceptualization also permits the drawing of a productive distinction between being respected and admired (i.e., social status), and being liked and accepted (i.e., social inclusion), so as to differentiate the predictions of hierometer theory from those of its complementary predecessor, sociometer theory (Leary et al., 1995; Mahadevan et al., 2016, 2019a, 2019b, 2020). The upshot is that what is meant by position in the hierarchy is not identical for social rank theory and hierometer theory: the former is broad and unspecified, the latter narrow and specified.

What Is the Psychological Mechanism?

When it comes to the psychological variables that reflect social world and govern responses to it, hierometer theory and social rank theory also diverge. Specifically, whereas hierometer theory focuses on self-regard—in particular, self-esteem—social rank theory focuses on emotion—in particular, depression, anxiety, and shame. Nonetheless, the possibility of harmonization remains, because hierometer theory does not exclude a role for emotion, nor does social rank theory exclude a role for self-esteem. Indeed, social rank theory, in some formulations (Gilbert et al., 1995; Price et al., 1994), mentions self-esteem, at least in terms of its

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[4] This experimental research also independently corroborated sociometer theory, in that simultaneous orthogonal manipulations of how much people believed they would be liked and accepted by others in the future shaped state self-esteem similarly (Mahadevan et al., 2019a). In general, research on sociometer theory supports the proposed indicative function of self-esteem. For example, being liked by classmates prospectively predicts self-liking and self-esteem, but not vice versa (Reitz et al., 2016).

evolutionary precursor: resource holding potential (RHP; Hurd, 2006; Parker, 1974).

RHP refers to an animal's self-appraisal of its prospects when the resources that it possesses (e.g., sustenance, territory, and mates) come under threat from conspecifics. As such, it is prima facie a psychological construct—an internal evaluation—alleged to prompt the escalation or de-escalation of conflict during ritual agonistic encounters. RHP is also portrayed as stemming from a series of prior judgments where an animal assesses itself in comparison to its competitors. As Gilbert et al. (1995, p. 153) put it "[p]robably the nearest we can get in human terms to the concept of RHP is self-esteem" and "social comparison is an ancient ability that functions as a challenge and confidence regulator."

Note, however, that, because social rank theory construes self-esteem in terms of RHP, it construes self-esteem in essentially relative terms—as embodying social comparisons between self and others (i.e., between an animal and its conspecifics). However, whereas social comparison processes may, in human beings, shape self-esteem causally (Tesser, 2000; Zell & Alicke, 2020), they need not constitute it ontologically. That is, self-esteem may still essentially entail an absolute evaluation of self—whatever its antecedents might be. Indeed, such a conceptualization is long-standing within personality and social psychology (Donnellan et al., 2011; Rosenberg, 1965). This can be readily confirmed by inspecting items on standard self-esteem scales. For example, the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965)—that accounts for about half of measurement occasions in the field (Donnellan et al., 2015)—features only two items that refer to social comparisons; the remaining eight items refer to a solitary self. Furthermore, other prominent and recent instruments, such as the Self-Liking and Self-Competence scale (Tafarodi & Swann, 2001) and the Lifespan Self-Esteem Scale (Harris et al., 2018), feature absolute items only. Hierometer theory accordingly shares the prevailing absolutist conception of self-esteem, and research on it has duly used both the Rosenberg Self-Esteem Scale and the Lifespan Self-Esteem Scale (Mahadevan et al., 2016, 2019a, 2019b). The upshot is that even if social rank theory invokes self-esteem alongside emotion (its principal emphasis), social rank theory still means something different by self-esteem than hierometer theory does, such that the former's unusual conceptualization requires atypical measurement (Allan & Gilbert, 1997).

Which Variable Is Which?

Further ambiguities stem from the ethological roots of social rank theory. Among nonverbal animals, the distinctions among social, psychological, and behavioral variables are difficult to maintain given that all are ultimately operationalized via external observations (De Waal, 1997). For example, what constitutes a high-ranking "dominant" ape? One deferred to by other apes (social), one who mentally assesses their RHP to be high (psychological), or one who acts in a domineering manner (behavioral)? Understandably, these levels of analysis might not always be clearly disambiguated in human beings either. As a case in point, Gilbert (2000, p. 179) operationalized "social rank" in terms of scores on both the aforementioned Social Comparison Scale and the Submissive Behavior Scale (Allan & Gilbert, 1997), even though they might be plausibly deemed indices of psychological and behavioral constructs, respectively—neither of which could then operationalize

a social variable (the same critique applies to Aderka et al., 2009). The upshot is that only a few studies testing social rank theory have studiously observed the distinctions among social, psychological, and behavioral variables (Fournier, 2009).

Integrating and Advancing Hierometer Theory and Social Rank Theory

How should empirical research proceed on hierometer theory and social rank theory, given the discrepancies above? On the one hand, hierometer theory is precise in its conceptualization and operationalization of key constructs and articulates a clear role for self-esteem. However, it does not articulate any role for emotion. On the other hand, social rank theory is less precise in its conceptualization and operationalization of key constructs but does articulate a clear role for emotion. However, the role it articulates for self-esteem remains inchoate and idiosyncratic. Accordingly, we conducted an empirical investigation encompassing both theories, with the following features. Taking our cue from hierometer theory, we addressed status and self-esteem, adopting precise conceptualizations and operationalizations in line with the mainstream literature. Taking our cue from social rank theory, we also addressed a suite of relevant clinical emotions—depression, anxiety, and shame. We examined the indicative function potentially served by self-esteem and emotion, as opposed to the imperative function, which future research may address.

On the Primacy of Self-Esteem

The key theoretical question remains: How do self-esteem and emotion coordinate in relation to social status? Certainly, self-esteem and emotion covary. In particular, at a trait level, self-esteem covaries negatively with depression (Babore et al., 2016; Battle et al., 1988), anxiety (Greenberg et al., 1992; Rosenberg, 1962), and shame (Velotti et al., 2017; Watson et al., 1996). However, such links still fail to illuminate the nature of the nexus among social status, self-esteem, and these emotions. Accordingly, we here put forward a proposal: As a psychological mediator between social inputs and behavioral outputs, self-esteem plays a more primary role than emotion. It operates before, and accounts for (i.e., mediates), the impact of social status on depression, anxiety, and shame. Otherwise put, where both self-esteem and negative emotions are gears in an adaptive regulatory system, self-esteem is engaged first, and negative emotions second, with engagement of the latter being conditional on the engagement of the former.

There are several reasons why self-esteem might prove more primary. First, as a psychological phenomenon, we submit that self-esteem is structurally simpler than emotions like dysphoria, disquiet, and shame—not to mention the broader clinical syndromes involved whose eclectic composition remains much debated (Fried et al., 2017). Specifically, self-esteem, as predominantly defined, entails an overall evaluation of the self as a target (Rosenberg, 1965; Sedikides et al., 2015). In contrast, emotions involve, not only an evaluation of some target (oneself or the world), but also the affective experience that accompanies it, and concurrent changes in internal physiology and external physiognomy (Barrett et al., 2016; Ekman & Davidson, 1994; Mulligan & Scherer, 2012). Indeed, underscoring its greater structural simplicity, self-esteem may even be an essential component

of emotions like pride and shame, respectively; for, although one can value or devalue oneself without feeling pride or shame, one cannot feel pride or shame (at least nonvicariously) without valuing or devaluing oneself. Furthermore, even if low self-esteem is not structurally essential to depression and anxiety, it may still be a characteristic component of each.

Second—and partly due to greater structural simplicity—we submit that self-esteem operates more swiftly than emotion does. A compelling case can be made that evaluations operate automatically and near instantaneously (Chatard et al., 2017; Herring et al., 2013), including in respect to the self (Ferguson, 2007; Gebauer et al., 2012; Izuma et al., 2018; Wu et al., 2014). In contrast, any impact of emotions on behavior is mostly indirect and delayed (Baumeister et al., 2007; Hermans et al., 2001; Turner et al., 2018). Precedence being a precondition for causality, self-esteem, which is liable to change first, is more liable to shape emotion than vice versa.

What does the extant empirical record indicate? Going beyond cross-sectional designs, a few experiments suggest that shifts in state self-esteem can shape momentary mood (Coleman, 1975; Heatherton & Polivy, 1991; Wilson & Krane, 1980), although the reverse has also been reported (Brown & Mankowski, 1993; Smith & Petty, 1995). In addition, longitudinal studies have tested whether, over time, self-esteem better predicts an affective disorder (the "vulnerability" model) than an affective disorder predicts self-esteem (the "scar" model; Orth & Robins, 2013). Overall, self-esteem predicts depression better than vice versa, although self-esteem and anxiety predict one another about equally (Sowislo & Orth, 2013; Steiger et al., 2015). Furthermore, other findings align with a positive or negative identity being at the root of advantageous or disadvantageous emotional cascades (Saint-Georges & Vaillancourt, 2020). Thus, the empirical record so far, modest as it is, accords better with the causal primacy of self-esteem.

On the Role of Guilt

As discussed, hierometer theory emphasizes self-esteem, whereas social rank theory emphasizes depression, anxiety, and shame, as psychological variables that assist individuals in navigating status hierarchies adaptively. In contrast, neither theory articulates a functional role for guilt. Guilt, being a close cousin of shame, merits investigation alongside it. Under scrutiny, however, the two emotions split (Tangney & Dearing, 2002). Whereas shame involves inferiority, self-disgust, and the desire to hide or escape, guilt involves remorse, regret, and the desire to make amends (Tangney et al., 1992, 1996). Moreover, according to leading formulations, guilt may be distinguished from shame in both focus of attention and pattern of action (Lewis, 1971; Tangney et al., 2007). Specifically, whereas shame involves focusing on oneself as the wrongdoer, prompting interpersonal withdrawal, guilt involves focusing on the wrongs one has committed, thereby prompting interpersonal reparation. Hence, only shame, and not guilt, is liable to feature as a component of the IDS (Gilbert, 2000, 2003). Thus, we anticipated that, unlike shame (as well as self-esteem, depression, and anxiety), guilt would not serve a status-indicative function. It would fail to track status, whether cross-sectionally measured or experimentally manipulated.

The Current Research: Theoretical and Empirical Contribution

The current research makes substantive theoretical and empirical contributions to the field. First and foremost, it provides a theoretically grounded examination of social status and psychological experience (self-esteem and emotion). We tested two theories, hierometer theory and social rank theory, concurrently, for the first time. In so doing, we synthesized insights from disparate literatures that rarely reference one another—specifically, those of personality and social psychology, ethology, and clinical and evolutionary psychology—and tied together their common threads.

Second, we specified the feature of the social environment that serves as the input variable. We took our cue from hierometer theory, which isolates social status (i.e., being respected and admired by others) as a crucial aspect of rank in human societies (Anderson et al., 2015; Fiske, 2010; Magee & Galinsky, 2008).

Third, we specified the features of people's psychological outlook postulated to serve this status-regulating function. In line with hierometer theory, we operationalized self-esteem via leading measures that conceptually construe it as an absolute (i.e., noncomparative) evaluation of self (Rosenberg, 1965). In so doing, we rendered our findings relevant to a vast personality and social psychological literature that standardly relies on such measures. At the same time, in line with social rank theory, we operationalized depression, anxiety, and shame using leading measures thereof (Mauss & Robinson, 2009). In consequence, we were able to test the link between self-esteem and these emotions in the context of social status.

Fourth, we examined the connections among the relevant variables at the level of both longstanding traits and transient states using multiple well-established measures and manipulations. In particular, we investigated how overall social status relates to trait self-esteem, levels of depression and anxiety, and dispositional proneness to shame and guilt. We also addressed how manipulating social status relates to state self-esteem, depressed mood, anxious mood, and state shame and guilt. Testing whether our theoretically derived hypotheses held across both trait and state levels enhanced the potential replicability and generalizability of findings, while providing support for both internal and external validity.

Fifth, we explicitly addressed—for the first time—the causal impact of social status on the emotions of depression, anxiety, shame, and guilt. We examined the links between social status and the relevant variables, using not only cross-sectional designs, but also experimental ones. This practice permitted us to draw stronger causal inferences about the impact of the former on the latter.

Sixth, we articulated theoretically, and investigated empirically, the potential primacy of self-esteem as the psychological mechanism that operates before, and accounts for, the impact of social status on emotion. Our designs afforded a test of causal mediation by self-esteem. Specifically, we followed the recommendations of Spencer et al. (2005). Our experimental studies adopted a step-by-step experimental-causal-chain approach designed to establish all the component parts of a causal sequence among three constructs: A (status), B (self-esteem), and C (emotion). Addressing the A → B and A → C links, Study 3 tested the impact of status on state self-esteem, depressed mood, and anxious mood; and Study 4 tested the impact of status on state self-esteem, state

shame, and state guilt. Addressing the remaining B → C links, Study 5 tested the impact of self-esteem on depressed and anxious mood, and Study 6, the impact of self-esteem on state shame and guilt. Thus, Studies 3 and 4 tested whether the independent variable (status) causally impacted the mediator (self-esteem), and Studies 5 and 6 whether the mediator (self-esteem) causally impacted the dependent variables (depression, anxiety, shame, and guilt). Spencer et al. (2005) argue that this particular design "can often provide the most compelling case for a theoretical account of a psychological process" such that "[i]f the process can be both easily measured and manipulated [it] is usually the optimal strategy (p. 850)."

Seventh and finally, we examined the status-indicative function of self-esteem and emotion, not just convergently, but also discriminantly. We did so by concurrently assessing the emotion of guilt in addition to depression, anxiety, and shame. Specifically, we tested the link between status and guilt, hypothesizing that, unlike shame (as well as depression and anxiety), guilt would fail to covary negatively with status, whether status was cross-sectionally measured or experimentally manipulated.

Overview and Hypotheses

Drawing upon hierometer theory and social rank theory, we hypothesized the following: (a) self-esteem would track social status, such that higher status would predict higher self-esteem; (b) depression, anxiety, and shame would also track social status, such that lower status would predict higher depression, anxiety, and shame; (c) guilt would not track social status, such that lower status would not predict higher guilt; and (d) self-esteem would statistically and causally mediate the links between social status on the one hand, and depression, anxiety, and shame, on the other.

To test these hypotheses, we conducted six studies: two cross-sectional and four experimental. Studies 1 and 2 featured cross-sectional designs. Here, we examined the covariations among social status, trait self-esteem, depression, and anxiety (Study 1), and among social status, trait self-esteem, and dispositional proneness to shame and guilt (Study 2). Studies 3 and 4 featured experimental designs in which we manipulated social status. Here, we examined the causal impact of status on state self-esteem, depressed mood, and anxious mood (Study 3), and on state self-esteem, state shame, and state guilt (Study 4). Studies 5 and 6 featured experimental designs in which we manipulated self-esteem. Here, we examined the causal impact of self-esteem on depressed mood and anxious mood (Study 5), and on state shame and state guilt (Study 6). All studies were approved by the relevant university's research ethics committee.

We determined sample sizes before data analysis. All studies were well-powered, designed to detect small-to-medium effects with 90% power (two-tailed $\alpha = .05$). For Study 1, a sample size of 301 afforded detection of effect sizes of $\rho \geq .19$ (Pearson's r in the population). For Study 2, a sample size of 676 afforded detection of effect sizes of $\rho \geq .12$. For Study 3, a sample size of 221 (~110 per condition) afforded detection of effect sizes of $\delta \geq .44$ (Cohen's d in the population). For Study 4, a sample size of 169 (~85 per condition) afforded detection of effect sizes of $\delta \geq .50$. For Study 5, a sample size of 170 (~85 per condition) afforded detection of effect sizes of $\delta \geq .50$. For Study 6, a sample size of 200 (~100 per condition) afforded detection of effect sizes of $\delta \geq .46$.

Study 1

We initiated our investigation with a cross-sectional study designed to examine how social status covaried with trait self-esteem, depression, and anxiety. In accord with hierometer theory, we hypothesized that self-esteem would track status, such that higher status would covary with higher self-esteem. In accord with social rank theory, we hypothesized that depression and anxiety would track status, such that lower status would covary with higher depression and anxiety. We further hypothesized that, consistent with its primacy as a tracker of status, self-esteem would statistically mediate the link between social status, on the one hand, and depression and anxiety, on the other.

Method

Participants

We recruited participants from the United States via the online research platform, Amazon Mechanical Turk (MTurk). Although crowdsourcing typically provides high-quality data (Buhrmester et al., 2011), we carefully scrutinized our sample to eliminate suspect cases (Gregg et al., 2017a, 2017b). Of the initial 400 cases, we excluded 99 (24.8%) where participants did the following: (a) reported being aged below 18 (0.5%); (b) reported having poor or very poor English proficiency (1.5%); (c) completed the study multiple times (5.5%); (d) completed the study too quickly (i.e., in less than half the median completion time; 6.8%); (e) omitted to answer more than 5% of questionnaire items (7.0%); or (f) provided invariant responses to questionnaires containing both forward-coded and reverse-coded items (11.5%). The final sample ($N = 301$) comprised 184 women, 116 men, and one undeclared ($M_{age} = 38.69$, $SD_{age} = 13.15$). Their ethnic backgrounds were White (77.9%), Black (10.4%), Hispanic (5.4%), East Asian (3.0%), South Asian (1.0%), and other (2.3%).

Procedure

We ran the study online using iSurvey. In this and all subsequent studies, participants clicked on a link to the study, read an online information sheet, and gave their consent to take part by checking a box. Next, they filled out the relevant measures. Finally, they read an online debriefing statement.

Measures

Participants completed measures of social status, self-esteem, depression, and anxiety.

Social Status. We assessed social status with an eight-item questionnaire with established structural validity and internal consistency (Huo et al., 2010; Mahadevan et al., 2019a, 2019b). All items featured the stem "Most of the time I feel that people ..." and ended as follows: "... respect my achievements," "... value my opinions and ideas," "... think highly of my abilities and talents," "... admire me," "... consider me a success," "... look up to me," "... see me as an important person," and "... consider me a high-status individual" (1 = *strongly disagree*, 5 = *strongly agree*).

Self-Esteem. We assessed self-esteem with the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965; 1 = *strongly disagree*, 5 = *strongly agree*), which is the most widely used measure of trait self-esteem (Schmitt & Allik, 2005). It exhibits high internal consistency and test–retest reliability, as well as good convergent and discriminant validity (Robins et al., 2001). Sample items: "I take a positive attitude toward myself" and "At times I think I am no good at all (reverse-scored)."

Depression. Consistent with previous research (Gilbert, 2000), we assessed depression with two measures: the Beck Depression Inventory-II (BDI-II; Beck et al., 1996) and the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).

The 21-item BDI-II is appropriate for use with psychiatric or nonpsychiatric populations, and exhibits high internal consistency, test–retest reliability, and diagnostic utility (Wang & Gorenstein, 2013). Respondents indicate how severely they experience a range of symptoms, such as pessimism, loss of energy, and sadness, in terms of bespoke response options (e.g., SADNESS: 1 = *I do not feel sad*; 2 = *I feel sad some of the time*; 3 = *I am sad all the time*; and 4 = *I am so sad or unhappy I cannot stand it*).

The 20-item CES-D is designed to assess depressive symptoms in nonpsychiatric populations. Respondents rate how often they experience a range of key symptoms, described in simple sentences, such as "I felt sad" or "My sleep was restless" (1 = *never or hardly ever*; 2 = *occasionally, now and then*; 3 = *a good deal of the time*; 4 = *mostly or all of the time*). The CES-D exhibits good internal consistency, test–retest reliability, and structural validity (Cosco et al., 2017).

Anxiety. Consistent with previous research (Mahadevan et al., 2019b), we assessed anxiety with two measures: the Beck Anxiety Inventory (BAI; Beck et al., 1988) and the trait version of the State Trait Anxiety Inventory (STAI; Spielberger et al., 1983).

The 21-item BAI is a reliable and well-validated measure of anxiety, appropriate for use with adolescents and adults (Beck et al., 1988). Respondents report how affected they are by a range of listed symptoms, including nervousness, trembling hands, and an inability to relax (1 = *NOT AT ALL: It didn't bother me in the slightest*; 2 = *MILDLY: It didn't bother me much*; 3 = *MODERATELY: It was not pleasant at times*; and 4 = *SEVERLY: It bothered me a lot*).

The 20-item STAI is a common, reliable, and valid measure of anxiety (Marteau & Bekker, 1992). Respondents rate how much they generally experience a range of key symptoms described in simple sentences, such as worry, indecisiveness, and strain (1 = *not at all*; 2 = *a little*; 3 = *somewhat*; and 4 = *very much so*).

Results

We present in Table 1 the descriptive statistics, internal consistencies, and intercorrelations for all measures. All measures exhibited high internal consistency ($\alpha s > .90$). Consistent with prior work, we standardized scores on the BDI-II and CESD (intercorrelation: $r(299) = .87$, $p < .001$), and averaged them to create a composite index of depression (Choi et al., 2014). Likewise, consistent with prior work, we standardized scores on the BAI and the STAI (intercorrelation: $r(299) = .68$, $p < .001$), and averaged them to create a composite index of anxiety (Mahadevan et al., 2019b).

The zero-order correlations that emerged offered support for both hierometer theory and social rank theory (see Table 1). First, status covaried positively with self-esteem. Second, status covaried negatively with depression and anxiety. This pattern is consistent with all three psychological variables serving the indicative function of tracking levels of status. Moreover, self-esteem covaried negatively with depression and anxiety, underlining their interconnection.

Next, to assess the potential primacy of self-esteem as a tracker of status, we tested whether self-esteem statistically mediated the links between (a) status and depression, and (b) status and anxiety. We duly constructed two structural equation models, in which we standardized all variables and estimated all effects with 5,000 bias-corrected bootstraps (Hayes, 2013; Kline, 2005). In both models, we entered status as the predictor variable and self-esteem as the mediator variable. In the first model, we entered depression as the outcome variable; in the second, we entered anxiety as the outcome variable.

In the case of status and depression, status showed a significant total effect on depression, $\beta = -.59$, $SE = .05$, $p < .001$, 95% confidence interval (CI) $[-.686, -.481]$, such that lower status predicted greater depression (Figure 1). Higher status predicted higher self-esteem, $\beta = .66$, $SE = .05$, $p < .001$, 95% CI [.562, .740], and lower self-esteem predicted greater depression, $\beta = -.79$, $SE = .04$, $p < .001$, 95% CI $[-.864, -.705]$. The indirect effect, indicative of mediation, was significant: Self-esteem statistically mediated the link between status and depression, $\beta = -.52$, $SE = .04$, $p < .001$, 95% CI $[-.604, -.433]$. Moreover, upon inclusion of self-esteem in the model as mediator, the direct effect of status on depression disappeared, $\beta = -.07$, $SE = .05$, $p = .124$,

Table 1
Study 1: Descriptive Statistics and Intercorrelations for the Main Variables

Variable	M	SD	α	1	2	3	4
1. Social status	3.23	.80	.93	1	—	—	—
2. Self-esteem	3.67	.91	.93	.66***	1	—	—
3. Depression	—	—	—	−.59***	−.83***	1	—
4. Anxiety	—	—	—	−.53***	−.75***	.86***	1

Note. We assessed social status using the structurally validated questionnaire adapted from Huo et al. (2010). We assessed trait self-esteem using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). We assessed depression using the Beck Depression Inventory-II (BDI-II; Beck et al., 1996; $M = 1.62$, $SD = .61$, $\alpha = .95$) and the Center of Epidemiological Studies Depression Scale (CESD; Radloff, 1977; $M = 1.84$, $SD = .67$, $\alpha = .94$). We assessed anxiety using the Beck Anxiety Inventory (Beck et al., 1988; $M = 1.57$, $SD = .62$, $\alpha = .95$) and the trait version of the State Trait Anxiety Inventory (Spielberger et al., 1983; $M = 2.07$, $SD = .79$, $\alpha = .97$). We combined the BDI-II and the CESD into a single measure of depression by creating standardized scores of each and computing the mean of the standardized scores. We combined the BAI and the STAI into a single measure of anxiety by creating standardized scores of each and computing the mean of the standardized scores.
*** $p < .001$.

95% CI [−.166, .018]. Self-esteem accounted for the status–depression link.

In the case of status and anxiety, status showed a significant total effect on anxiety, $\beta = −.53$, $SE = .05$, $p < .001$, 95% CI [−.625, −.419], such that lower status predicted greater anxiety (Figure 2). Higher status predicted higher self-esteem, $\beta = .66$, $SE = .05$, $p < .001$, 95% CI [.562, .740], and lower self-esteem predicted greater anxiety, $\beta = −.71$, $SE = .05$, $p < .001$, 95% CI [−.798, −.616]. The indirect effect was significant: Self-esteem statistically mediated the link between status and anxiety, $\beta = −.47$, $SE = .04$, $p < .001$, 95% CI [−.546, −.394]. Moreover, upon inclusion of self-esteem in the model as mediator, the direct effect of status on anxiety disappeared, $\beta = −.06$, $SE = .06$, $p = .256$, 95% CI [−.173, −.048]. Self-esteem accounted for the status–anxiety link.[5]
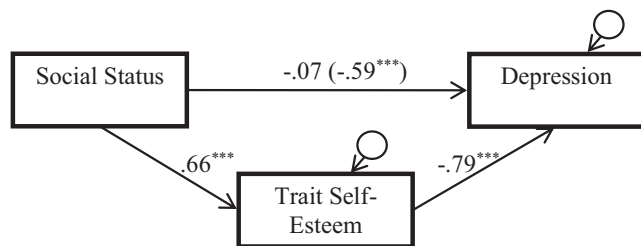
Discussion

Study 1 found that, consistent with prior research, status covaries positively with self-esteem, in accord with hierometer theory. Furthermore, it showed, for the first time, that status—in the form of respect and admiration—covaries negatively with two clinically relevant emotions, namely, depression and anxiety, in accord with social rank theory. Finally, Study 1 demonstrated, also for the first time, that the link between both status and depression, and between status and anxiety, can be accounted for by self-esteem.[6] This finding is consistent with self-esteem playing a more primary role as a tracker of status—explaining the link between social status, on the one hand, and depression and anxiety, on the other.

Study 2

We continued our investigation with another cross-sectional study designed to examine how social status covaried with trait

Figure 1
Study 1: Mediation of the Link between Status and Depression by Self-Esteem
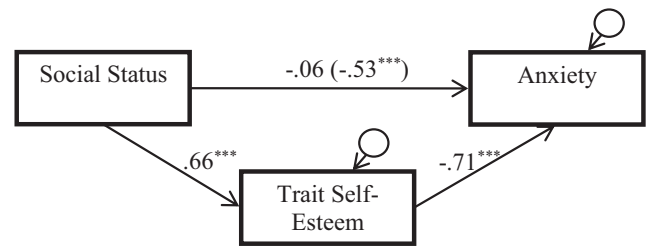

Note. In all models, we estimated effects using 5,000 bias-corrected bootstraps with standardized scores of the variables. Values in the models represent beta coefficients. Values in parentheses represent the strength of the link between the predictor and outcome variable before the mediator was included in the model, whereas values outside parentheses represent the strength of the link when the mediator was included in the model. We entered the predictor (social status) as an exogenous variable. We entered the mediator (self-esteem) and outcome variables (depression, anxiety, shame) as endogenous variables and indicated them with error terms. Goodness-of-fit indices are inapplicable because the models are saturated with zero degrees of freedom (Kline, 2005, p. 133).
*** $p < .001$.

Figure 2
Study 1: Mediation of the Link between Status and Anxiety by Self-Esteem

Note. In all models, we estimated effects using 5,000 bias-corrected bootstraps with standardized scores of the variables. Values in the models represent beta coefficients. Values in parentheses represent the strength of the link between the predictor and outcome variable before the mediator was included in the model, whereas values outside parentheses represent the strength of the link when the mediator was included in the model. We entered the predictor (social status) as an exogenous variable. We entered the mediator (self-esteem) and outcome variables (depression, anxiety, shame) as endogenous variables and indicated them with error terms. Goodness-of-fit indices are inapplicable because the models are saturated with zero degrees of freedom (Kline, 2005, p. 133).
*** $p < .001$.

self-esteem and with dispositional proneness to shame and guilt. In accord with hierometer theory, we once again hypothesized that self-esteem would track status, such that higher status would covary with higher self-esteem. In accord with social rank theory, we hypothesized that shame would track status, such that lower status would covary with higher shame. In contrast, we hypothesized that guilt would not track status, such that lower status would

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[5] In view of the theoretical possibility that clinically relevant emotions might mediate the link between status and self-esteem, we also comparatively assessed two alternative mediation models where depression and anxiety served as mediators. We did so using Akaike's Information Criterion (AIC), a goodness-of-fit indicator for a given model and the observed data (Akaike, 1974; Kline, 2005). In both cases, the hypothesized models with self-esteem as mediator fit the data considerably better than the alternative mediation models with depression and anxiety as mediators. These results are consistent with self-esteem playing a more primary role as a tracker of status (see online supplemental materials for details), insofar as nonexperimental data can address this issue (Kearney, 2017; Thoemmes, 2015).

[6] The same mediational pattern emerged when we repeated the analyses on the disaggregated indices, both for depression (i.e., the BDI-II and CESD, separately), and for anxiety (i.e., the BAI and STAI, separately). Status correlated negatively with both measures of depression (BDI-II: $\beta = −.56$, $SE = .06$, $p < .001$, 95% CI [−.664, −.448]; CESD: $\beta = −.57$, $SE = .05$, $p < .001$, 95% CI [−.667, −.476]), as did self-esteem (BDI-II: $\beta = −.75$, $SE = .05$, $p < .001$, 95% CI [−.832, −.655]; CESD: $\beta = −.78$, $SE = .05$, $p < .001$, 95% CI [−.865, −.683]). Self-esteem mediated the link between status and depression (BDI-II: $\beta = −.49$, $SE = .04$, $p < .001$, 95% CI [−.580, −.406]; CESD: $\beta = −.51$, $SE = .05$, $p < .001$, 95% CI [−.601, −.423]). Likewise, status correlated negatively with both measures of anxiety (BAI: $\beta = −.36$, $SE = .06$, $p < .001$, 95% CI [−.475, −.232]; STAI: $\beta = −.61$, $SE = .04$, $p < .001$, 95% CI [−.693, −.519]), as did self-esteem (BAI: $\beta = −.61$, $SE = .06$, $p < .001$, 95% CI [−.733, −.496]; STAI: $\beta = −.69$, $SE = .04$, $p < .001$, 95% CI [−.770, −.599]). Self-esteem mediated the link between status and anxiety (BAI: $\beta = −.40$, $SE = .04$, $p < .001$, 95% CI [−.496, −.324]; STAI: $\beta = −.45$, $SE = .04$, $p < .001$, 95% CI [−.530, −.378]).

not covary with higher guilt. Finally, we hypothesized that, consistent with its primacy as a tracker of status, self-esteem would statistically mediate the link between social status, on the one hand, and shame, on the other.

Method

Participants

We recruited participants from Western countries (Australia, Canada, Ireland, New Zealand, United Kingdom, and United States) via the online platform CrowdFlower. We prescreened our data, as in Study 1. Of the 789 initial cases, we excluded 113 (14.3%) for the same reasons as before (underage: 1.0%; poor English proficiency: 1.4%; multiple completions: 2.9%; overly rapid completion: 5.8%; missing data: 4.7%; invariant responses: 3.7%). The final sample ($N = 676$) comprised 411 women, 262 men, and three undeclared ($M_{age} = 32.31$, $SD_{age} = 12.76$). Their ethnic backgrounds were White (75.9%), Black (7.1%), Hispanic (5%), East Asian (4.6%), South Asian (3.7%), other (3.3%), and undeclared (0.4%).

Procedure

We ran the study via iSurvey, following the same general procedure as in Study 1.

Measures

Participants completed measures of social status, self-esteem, shame, and guilt.

Social Status. As in Study 1, we assessed social status with the eight-item questionnaire adapted from Huo et al. (2010).

Self-Esteem. Also as in Study 1, we assessed trait self-esteem with the Rosenberg Self-Esteem Scale (Rosenberg, 1965).

Shame and Guilt. We assessed general proneness to shame and guilt with the Test of Self-Conscious Affect (Tangney et al., 1989). It presents participants with 15 scenarios: five positive, 10 negative. These scenarios are based on emotional experiences recounted by a large and diverse sample of adolescents and adults. Participants rate the likelihood ($1 = not\ likely$, $5 = very\ likely$) of their showing several possible reactions to each scenario, later coded to reflect shame and guilt, as well as detachment, blame externalization, alpha pride, and beta pride (the last four categories being irrelevant for present purposes). For example, one scenario reads: "While out with a group of friends, you make fun of a friend who's not there." The four possible responses are: "You would think: "It was all in fun; it's harmless" (detachment)"; "You would feel small . . . like a rat (shame)"; "You would think that perhaps that friend should have been there to defend himself/herself (blame externalization)"; and "You would apologize and talk about that person's good points (guilt)." The Test of Self-Conscious Affect exhibits good internal consistency, as well as good concurrent, discriminant, and predictive validity (Tangney et al., 1996; Woien et al., 2003).

Results

We present in Table 2 the descriptive statistics, internal consistencies, and intercorrelations for all measures. All measures exhibited good internal consistency ($\alpha s > .75$). The zero-order correlations

that emerged offered support for both hierometer theory and social rank theory. Replicating Study 1, status covaried positively with self-esteem. Status also covaried negatively with shame. This pattern is consistent with both psychological variables serving the indicative function of tracking status. Self-esteem furthermore covaried negatively with shame, underlining their interconnection. In contrast, neither status nor self-esteem covaried negatively with guilt, counterindicating any such functional role. This is noteworthy, as guilt did covary strongly and positively with shame.

Given the theoretical and empirical overlap between shame and guilt, we deemed it informative to examine the independent links among status, self-esteem, shame, and guilt. After controlling for guilt, status still covaried negatively with shame, $r(673) = -.24$, $p < .001$, as did self-esteem, $r(673) = -.47$, $p < .001$. In contrast, after controlling for shame, status did not covary negatively with guilt; instead, a positive association emerged, $r(673) = .13$, $p = .001$. Likewise, after controlling for shame, self-esteem did not covary negatively with guilt; instead, a positive association emerged, $r(673) = .25$, $p < .001$. Thus, despite their strong positive association, shame and guilt did not operate in the same manner in regard to status. Status covaried negatively with shame, but not with guilt.

Finally, to assess the potential primacy of self-esteem as a tracker of status, we tested whether self-esteem statistically mediated the link between status and shame, constructing a structural equation model as in Study 1. We entered status as the predictor variable, self-esteem as the mediator variable, and shame as the outcome variable. Status showed a significant total effect on shame, $\beta = -.20$, $SE = .04$, $p < .001$, 95% CI [$-.288$, $-.113$], such that lower status predicted greater shame (see Figure 3). Higher status predicted higher self-esteem, $\beta = .61$, $SE = .03$, $p < .001$, 95% CI [.544, .670], and lower self-esteem predicted greater shame, $\beta = -.45$, $SE = .04$, $p < .001$, 95% CI [$-.540$, $-.363$]. The indirect effect was significant: Self-esteem statistically mediated the link between status and shame, $\beta = -.28$, $SE = .03$, $p < .001$, 95% CI [$-.338$, $-.217$]. Moreover, upon inclusion of self-esteem in the model as mediator, the direct effect of status on shame disappeared, $\beta = .08$, $SE = .05$, $p = .113$, 95% CI [$-.020$, .174]. Self-esteem accounted for the status–shame link.[7]

Discussion

Study 2 found, once again, that status covaried positively with self-esteem—in accord with hierometer theory. Furthermore, it showed, for the first time, that status—in the form of respect and admiration—covaried negatively with one clinically relevant emotion, namely shame, but not another, namely guilt, in accord with social rank theory. Finally, Study 2 demonstrated, also for the first time, that the link between status and shame was accounted for by self-esteem. This finding is consistent with self-esteem playing a more primary role as a tracker of status, explaining the link between social status, on the one hand, and shame, on the other.

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[7] As in Study 1, we statistically compared the fit of the hypothesized mediation model (status–self-esteem–shame) to the alternative mediation model (status–shame–self-esteem). Once again, the hypothesized model fit the data considerably better (Akaike, 1974; Kline, 2005), consistent with self-esteem playing a more primary role as a tracker of status (see online supplemental materials for details).

Table 2
Study 2: Descriptive Statistics and Intercorrelations for the Main Variables

Variable	M	SD	α	1	2	3	4
1. Social status	3.32	.75	.91	1	—	—	—
2. Self-esteem	3.61	.79	.91	.61***	1	—	—
3. Shame	3.10	.72	.81	−.20***	−.41***	1	—
4. Guilt	3.90	.55	.77	.01	−.01	.50***	1

Note. We assessed social status using the structurally validated questionnaire adapted from Huo et al. (2010). We assessed trait self-esteem using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). We assessed general proneness to shame and guilt using the Test of Self-Conscious Affect (Tangney et al., 1989).
*** $p < .001$.

Study 3

Studies 1 and 2 showed that status correlated positively with self-esteem, and negatively with depression, anxiety, and shame (but not guilt), and that self-esteem statistically mediated the link between status and depression, anxiety, and shame. However, given their cross-sectional designs, these studies could not definitively establish the presence or direction of causal links between the constructs, merely testing whether the patterns of covariance obtained were consistent, as opposed to inconsistent, with those causal links. Studies 3–6 tested the causality of those links, as an ensemble, for the first time.
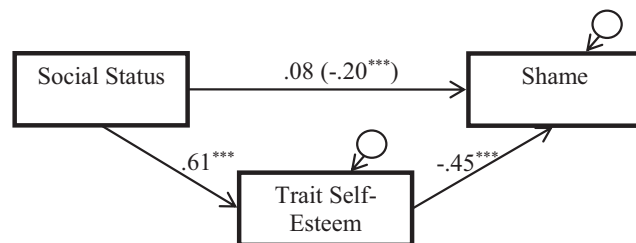
To reiterate, Studies 3–6 adopted an experimental-causal-chain approach (Spencer et al., 2005) to establish all parts of the causal sequence among A (status), B (self-esteem), and C (emotion). Studies 3 and 4 addressed the A → B and A → C links, with Study 3 examining the causal impact of status on state self-esteem, depressed mood, and anxious mood, and Study 4, the causal impact of status on state self-esteem, state shame, and state guilt. Studies 5 and 6 addressed the remaining B → C links, with Study 5 testing the causal impact of self-esteem on depressed mood and anxious mood, and Study 6, the causal impact of self-esteem on

Figure 3
Study 2: Mediation of the Link between Status and Shame by Self-Esteem

Note. In all models, we estimated effects using 5,000 bias-corrected bootstraps with standardized scores of the variables. Values in the models represent beta coefficients. Values in parentheses represent the strength of the link between the predictor and outcome variable before the mediator was included in the model, whereas values outside parentheses represent the strength of the link when the mediator was included in the model. We entered the predictor (social status) as an exogenous variable. We entered the mediator (self-esteem) and outcome variables (depression, anxiety, shame) as endogenous variables and indicated them with error terms. Goodness-of-fit indices are inapplicable because the models are saturated with zero degrees of freedom (Kline, 2005, p. 133).
*** $p < .001$.

state shame and state guilt. Thus, Studies 3 and 4 assessed the causal links between the independent variable (status) and the mediator (self-esteem), and Studies 5 and 6 between the mediator (self-esteem) and the dependent variables (depression, anxiety, shame, and guilt). According to Spencer et al. (2005), this approach is one of the strongest ways to establish causal mediation.

Studies 3–6 served an additional important goal. They tested the predictions of hierometer theory and social rank theory at the level of transient states. That is, they tested whether state self-esteem, depressed mood, anxious mood, and state shame (but not state guilt) respond to temporary fluctuations in status, with higher status predicting higher state self-esteem and lower depressed mood, anxious mood, and state shame (but not state guilt). Thus, whereas Studies 1 and 2 examined the links among status, self-esteem, and these clinically relevant emotions at the level of longstanding traits, Studies 3–6 examined them at the level of transient states. If the hypothesized patterns were to emerge here too, this would constitute further evidence for the generality of both hierometer theory and social rank theory.

Accordingly, Study 3 was an analogue of Study 1. It differed mainly in that participants' status was experimentally manipulated rather than measured. This enhanced the internal validity of the study, enabling stronger conclusions to be drawn about the causal impact of status. Specifically, Study 3 tested whether manipulating status causally affects (a) state self-esteem and (b) depressed mood and anxious mood. In addition, mirroring the approach taken in Study 1, Study 3 assessed whether the effect of manipulated status on depressed mood and anxious mood was statistically mediated by state self-esteem. Statistical mediation would provide ancillary support for state self-esteem causally mediating the impact of manipulated status—something that the causal chain tests across Studies 3–6 would establish more conclusively.

Method

Participants

We recruited participants from the United States via the online research platform, MTurk. We prescreened our data as in previous studies. Of the 282 initial cases, we excluded 61 (21.6%), either for multiple completions (8.2%) or for providing senseless or void responses to experimental instructions (18.8%). The final sample ($N = 221$) comprised 121 women and 100 men ($M_{age} = 37.48$, $SD_{age} = 11.09$). Their ethnic backgrounds were White (82.4%),

Black (6.8%), East Asian (4.5%), Hispanic (4.1%), South Asian (1.8%), and other (0.5%).

Procedure

We carried out the study via iSurvey, following the same general procedure as in prior studies. We used an online manipulation developed by Gregg et al. (2018). We randomly assigned participants either to a high status ($n = 108$) or a low status ($n = 113$) condition. Specifically, we instructed them to think about an aspect of their lives (an event, occasion, or setting) in which they felt they were either (a) particularly respected by others, much admired by others, and considered important by others [high status], or (b) not particularly respected by others, not much admired by others, and not considered important by others [low status]. Participants then listed three keywords related to this aspect of their lives, and wrote about it in more detail for at least three minutes.

Measures

Manipulation Check. To test the effectiveness of the status manipulation, we used the eight-item status questionnaire of Studies 1 and 2 (1 = *strongly disagree*, 5 = *strongly agree*; $M = 3.43$, $SD = .87$, $\alpha = .94$).

State Self-Esteem. We assessed state self-esteem with three items: (a) "How do you feel about yourself now?" (1 = *very bad*, 8 = *very good*); (b) "How do you feel about yourself now?" (1 = *very negative*, 8 = *very positive*); and (c) "Right now, I have high self-esteem" (1 = *strongly disagree*, 8 = *strongly agree*). These items correlate well with established self-esteem measures, and have been used in prior work to assess state self-esteem (Mahadevan et al., 2020; Robins et al., 2001; $M = 6.01$, $SD = 1.76$, $\alpha = .96$).

Depressed Mood and Anxious Mood. We assessed depressed mood and anxious mood with an item subset drawn from the Profile of Mood States-Revised (McNair et al., 1992), with established construct and criterion validity (Terry et al., 2003). Six items assessed depressed mood: "unhappy," "miserable," "depressed," "downhearted," "sad," "gloomy" (1 = *not at all*, 5 = *extremely*; $M = 1.68$, $SD = .96$, $\alpha = .96$). Seven items assessed anxious mood: "worried," "nervous," "anxious," "panicky," "on edge," "tense," and "stressed" (1 = *not at all*, 5 = *extremely*; $M = 1.71$, $SD = .93$, $\alpha = .96$).

Results

Manipulation Check

The manipulation of status was effective, $F(1, 218) = 41.25$, $p < .001$, $\eta_p^2 = .159$. Participants rated their status significantly higher in the high-status condition ($M = 3.79$, $SD = .77$) than in the low-status condition ($M = 3.09$, $SD = .83$).

Direct Effects

State Self-Esteem. Manipulated status exerted a significant effect on state self-esteem, $F(1, 217) = 10.77$, $p = .001$, $\eta_p^2 = .047$. Participants reported higher state self-esteem in the high-status condition ($M = 6.40$, $SD = 1.55$) than in the low-status condition ($M = 5.64$, $SD = 1.87$). This finding supports the hypothesis that self-esteem tracks status, as hierometer theory predicts.

Depressed Mood. Manipulated status exerted a significant effect on depressed mood, $F(1, 217) = 7.21$, $p = .008$, $\eta_p^2 = .032$. Participants reported feeling more depressed in the low-status condition ($M = 1.85$, $SD = 1.04$) than in the high-status condition ($M = 1.51$, $SD = .84$). This finding supports the hypothesis that depression tracks status, as social rank theory predicts.
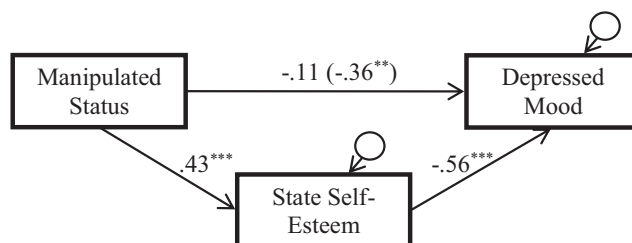
Anxious Mood. Manipulated status also exerted a significant effect on anxious mood, $F(1, 217) = 6.34$, $p = .013$, $\eta_p^2 = .028$. Participants reported feeling more anxious in the low-status condition ($M = 1.86$, $SD = 1.04$) than in the high-status condition ($M = 1.55$, $SD = .78$). This finding supports the hypothesis that anxiety tracks status, as social rank theory predicts.

Indirect (Mediated) Effects

Once again, to assess the presumed primacy of self-esteem as a tracker of status, we tested whether self-esteem statistically mediated the respective links between (a) manipulated status and depressed mood, and (b) manipulated status and anxious mood. As in Study 1, for each clinically relevant emotion in turn, we constructed two structural equation models. We dummy-coded manipulated status, standardized all other variables, and estimated effects using 5,000 bias-corrected bootstraps (Hayes, 2013; Kline, 2005). In both models, we entered manipulated status as the predictor variable and state self-esteem as the mediator variable. In the first model, we entered depressed mood as the outcome variable; in the second, we entered anxious mood as the outcome variable.

In the case of manipulated status and depressed mood, manipulated status had a significant total effect on depressed mood, $\beta = -.36$, $SE = .13$, $p = .004$, 95% CI $[-.622, -.099]$, such that lower status predicted more depressed mood (Figure 4). Higher manipulated status predicted higher state self-esteem, $\beta = .43$, $SE = .13$, $p = .001$, 95% CI $[.173, .697]$, and lower state self-esteem predicted more depressed mood, $\beta = -.56$, $SE = .07$, $p < .001$, 95%

Figure 4

Study 3: Mediation of the Effect of Status on Depressed Mood by State Self-Esteem

Note. In all models, we estimated effects using 5,000 bias-corrected bootstraps. We dummy-coded manipulated status and standardized all other variables. Values in the models represent beta coefficients. Values in parentheses represent the strength of the link between the predictor and outcome variable before the mediator was included in the model, whereas values outside parentheses represent the strength of the link when the mediator was included in the model. We entered the predictor (manipulated status) as an exogenous variable. We entered the mediator (state self-esteem) and outcome variables (depressed mood, anxious mood, state shame) as endogenous variables and indicated them with error terms. Goodness-of-fit indices are inapplicable because the models are saturated with zero degrees of freedom (Kline, 2005, p. 133).
** $p < .01$. *** $p < .001$.

CI [−.697, −.413]. The indirect effect was significant: State self-esteem statistically mediated the link between manipulated status and depression mood, $\beta = -.25$, $SE = .09$, $p = .001$, 95% CI [−.434, −.097]. Moreover, upon inclusion of state self-esteem in the model as mediator, the direct effect of manipulated status on depressed mood disappeared, $\beta = -.11$, $SE = .11$, $p = .274$, 95% CI [−.321, .092]. State self-esteem accounted for the effect of status on depressed mood.
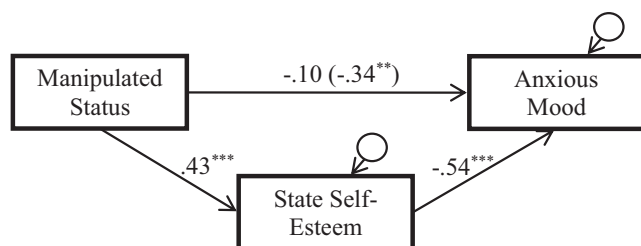
In the case of manipulated status and anxious mood, manipulated status had a significant total effect on anxious mood, $\beta = -.34$, $SE = .13$, $p = .011$, 95% CI [−.605, −.076], such that lower status predicted more anxious mood (Figure 5). Higher manipulated status predicted higher state self-esteem, $\beta = .43$, $SE = .13$, $p = .001$, 95% CI [.173, .697], and lower state self-esteem predicted more anxious mood, $\beta = -.54$, $SE = .07$, $p < .001$, 95% CI [−.668, −.404]. The indirect effect was significant: State self-esteem statistically mediated the link between manipulated status and anxious mood, $\beta = -.23$, $SE = .08$, $p = .001$, 95% CI [−.403, −.091]. Moreover, upon inclusion of state self-esteem in the model as mediator, the direct effect of manipulated status on anxious mood disappeared, $\beta = -.10$, $SE = .12$, $p = .376$, 95% CI [−.333, .122]. State self-esteem accounted for the effect of status on anxious mood.

Discussion

In Study 3, status causally impacted self-esteem, in line with it serving the indicative function specified by hierometer theory. Furthermore, the study showed, for the first time, that status—in the form of respect and admiration—causally impacted two clinically relevant emotions, namely depression and anxiety, in line with social rank theory. Hence, we established the A → B and A → C elements of the overall causal chain, for two of our four dependent

Figure 5

Study 3: Mediation of the Effect of Status on Anxious Mood by State Self-Esteem

Note. In all models, we estimated effects using 5,000 bias-corrected bootstraps. We dummy-coded manipulated status and standardized all other variables. Values in the models represent beta coefficients. Values in parentheses represent the strength of the link between the predictor and outcome variable before the mediator was included in the model, whereas values outside parentheses represent the strength of the link when the mediator was included in the model. We entered the predictor (manipulated status) as an exogenous variable. We entered the mediator (state self-esteem) and outcome variables (depressed mood, anxious mood, state shame) as endogenous variables and indicated them with error terms. Goodness-of-fit indices are inapplicable because the models are saturated with zero degrees of freedom (Kline, 2005, p. 133).
** $p < .01$.   *** $p < .001$.

variables. Finally, we demonstrated, for the first time, how the causal impact of status on depression, and the causal impact of status on anxiety, can each be accounted for by self-esteem, consistent with self-esteem playing a more primary role as a tracker of status.

Study 4

Study 4 was an analogue of Study 2. It differed mainly in that participants' status was now experimentally manipulated rather than merely measured. Specifically, we tested whether manipulating status causally affects (a) state self-esteem and (b) state shame. Put otherwise, we tested the A → B and A → C elements of the overall causal chain, for our remaining two dependent variables. In addition, mirroring the approach taken in Study 3, we assessed whether the effect of manipulated status on state shame was statistically mediated by state self-esteem. As before, we also concurrently assessed whether manipulating status affects state guilt, not anticipating any effect.

Method

Participants

We recruited participants from the United States via the online research platform, MTurk. We prescreened our data as in Study 3. Of the 199 initial cases, we excluded 30 (15.1%), either for poor reported English proficiency (0.5%), for multiple completions (7.0%), or for senseless or void responses to experimental instructions (12.1%). The final sample ($N = 169$) comprised 87 women and 82 men ($M_{age} = 37.04$, $SD_{age} = 13.44$). Their ethnic backgrounds were White (78.1%), Black (8.3%), East Asian (7.1%), Hispanic (4.1%), South Asian (1.8%), and other (0.6%).

Procedure

Again, we ran the study using iSurvey, following the same general procedure as before. As in Study 3, we randomly assigned participants either to a high status ($n = 83$) or a low status ($n = 86$) condition.

Measures

Manipulation Check and State Self-Esteem. We used the same manipulation check as in Study 3 ($M = 3.45$, $SD = .87$, $\alpha = .93$), and assessed state self-esteem in the same way ($M = 5.96$, $SD = 1.74$, $\alpha = .95$).

State Shame and Guilt. We assessed state feelings of shame and guilt using the State Shame and Guilt Scale (SSGS; Marschall et al., 1994). This instrument has been widely used to research topics ranging from traumatic coping (Held et al., 2015) to behavioral economics (Gino et al., 2013). Five items pertained 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*, 3 = *feeling this way somewhat*, 5 = *feeling this way very strongly*; $M = 1.75$, $SD = 1.01$, $\alpha = .94$). Five items pertained 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*, 3 = *feeling this way somewhat*, 5 = *feeling this way very strongly*; $M = 1.67$, $SD = .97$, $\alpha = .95$).

Results

Manipulation Check

The manipulation of status was effective, $F(1, 167) = 26.17$, $p < .001$, $\eta_p^2 = .135$. Participants rated their status significantly higher in the high-status condition ($M = 3.77$, $SD = .65$) than in the low-status condition ($M = 3.14$, $SD = .94$).

Direct Effects

State Self-Esteem. Manipulated status exerted a significant effect on state self-esteem, $F(1, 167) = 4.25$, $p = .041$, $\eta_p^2 = .025$. Participants reported higher state self-esteem in the high-status condition ($M = 6.23$, $SD = 1.47$) than in the low-status condition ($M = 5.69$, $SD = 1.94$). This finding supports the hypothesis that self-esteem tracks status, as hierometer theory predicts.

State Shame and Guilt. Manipulated status exerted a significant effect on state shame, $F(1, 166) = 6.32$, $p = .013$, $\eta_p^2 = .037$. Participants reported feeling more ashamed in the low-status condition ($M = 1.94$, $SD = 1.08$) than in the high-status condition ($M = 1.55$, $SD = .90$). This finding supports the hypothesis that shame tracks status, as social rank theory predicts.

In contrast, manipulated status did not exert a significant effect on state guilt, $F(1, 165) = 1.81$, $p = .181$, $\eta_p^2 = .011$. Participants did not report feeling guiltier in the low-status condition ($M = 1.76$, $SD = 1.04$) than in the high-status condition ($M = 1.56$, $SD = .88$). This finding suggests that guilt does not track status.

Once again, given the strong positive association between shame and guilt, $r(164) = .81$, $p < .001$, we deemed it informative to examine how status affected each independently of the other. Accordingly, we ran follow-up analyses of covariance (ANCOVAs) where we examined the effect of status on state shame controlling for state guilt, and vice versa. After controlling for state guilt, status still exerted a significant effect on state shame, $F(1, 163) = 6.48$, $p = .012$, $\eta_p^2 = .038$. Participants in the low status condition ($M_{adg} = 1.87$, $SE = .07$) felt more ashamed than those in the high status condition ($M_{adg} = 1.64$, $SE = .07$). In contrast, after controlling for state shame, status still did not exert a significant effect on state guilt, $F(1, 163) = 1.50$, $p = .223$, $\eta_p^2 = .009$. Participants in the low status condition ($M_{adg} = 1.61$, $SE = .06$) felt no guiltier than those in the high status condition ($M_{adg} = 1.72$, $SE = .06$). The results suggest that status exerts a unique causal effect on shame that it does not exert on guilt.

Indirect (Mediated) Effects

To assess the potential primacy of self-esteem as a tracker of status, we tested whether self-esteem statistically mediated the link between manipulated status and state shame. To do so, we constructed a structural equation model with manipulated status as the predictor variable, state self-esteem as the mediator variable, and state shame as the outcome variable.

Manipulated status had a significant total effect on state shame, $\beta = -.40$, $SE = .15$, $p = .009$, 95% CI [−.708, −.106], such that lower status predicted greater shame (see Figure 6). Higher manipulated status predicted higher state self-esteem, $\beta =$

$.33$, $SE = .15$, $p = .033$, 95% CI [.033, .622], and lower state self-esteem predicted greater state shame, $\beta = -.58$, $SE = .07$, $p < .001$, 95% CI [−.711, −.449]. The indirect effect was significant: State self-esteem mediated the link between manipulated status and state shame, $\beta = -.19$, $SE = .09$, $p = .026$. 95% CI [−.378, −.026]. Moreover, upon inclusion of state self-esteem in the model as mediator, the direct effect of manipulated status on state shame disappeared, $\beta = -.21$, $SE = .12$, $p = .097$, 95% CI [−.443, .034]. State self-esteem accounted for the effect of status on state shame.
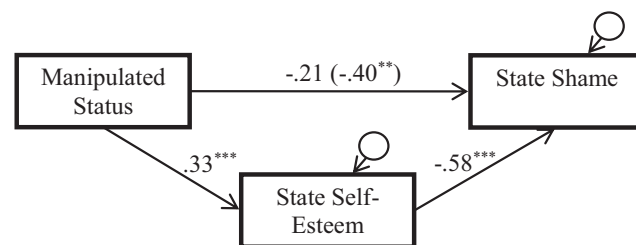
Discussion

Extending Study 2, we found in Study 4 that status causally impacted self-esteem, in line with it serving the indicative function specified by hierometer theory. Furthermore, the study showed, for the first time, that status—in the form of respect and admiration—causally impacted one clinically relevant emotion, namely shame, in line with social rank theory, but not another, namely guilt. Hence, we established the A → B and A → C elements of the overall causal chain, for the remaining dependent variable. Finally, we demonstrated, for the first time, that the causal impact of status on shame can be accounted for statistically by self-esteem, consistent with self-esteem playing a more primary role as a tracker of status.

Study 5

Studies 3 and 4 indicated that status, as an experimentally manipulated variable, exerted two types of causal impact: one on self-esteem, and the other on the three clinically relevant emotions of depression, anxiety, and shame. Moreover, state self-esteem fully mediated, in a statistical sense, the causal impact of status on the three emotions in question. However, although such statistical

Figure 6

Study 4: Mediation of the Effect of Status on State Shame by State Self-Esteem

Note. In all models, we estimated effects using 5,000 bias-corrected bootstraps. We dummy-coded manipulated status and standardized all other variables. Values in the models represent beta coefficients. Values in parentheses represent the strength of the link between the predictor and outcome variable before the mediator was included in the model, whereas values outside parentheses represent the strength of the link when the mediator was included in the model. We entered the predictor (manipulated status) as an exogenous variable. We entered the mediator (state self-esteem) and outcome variables (depressed mood, anxious mood, state shame) as endogenous variables and indicated them with error terms. Goodness-of-fit indices are inapplicable because the models are saturated with zero degrees of freedom (Kline, 2005, p. 133).

** $p < .01$.   *** $p < .001$.

mediation is consistent with self-esteem playing a primary causal role, it cannot, on its own, definitively establish causal mediation. Rather, as explained above, the remaining links in the relevant causal chain need to be experimentally demonstrated. That is, in Studies 3 and 4 we documented two links in the causal chain: A → B, the link between the independent variable (status) and the mediator (self-esteem); and A → C, the link between the independent variable (status) and the dependent variables (depression, anxiety, and shame). In Studies 5 and 6, we examined the final link in the causal chain: B → C, the link between the mediator (self-esteem) and the dependent variables (depression, anxiety, and shame). This required that the mediating variable in the sequence, self-esteem, be manipulated as opposed to measured. The ensemble of Studies 3–6 would corroborate the entirety of the postulated causal chain: status → self-esteem → clinically relevant emotion.

Specifically, we tested in Study 5 whether manipulating self-esteem causally affects depressed mood and anxious mood—the pair of dependent variables addressed in Studies 1 and 3. Furthermore, to help ensure comparability in our operationalizations across studies, we derived the content of our experimental manipulation of self-esteem from the content of the Rosenberg Self-Esteem Scale used in Studies 1 and 2.

Method

Participants

We recruited participants from the United States via the online research platform, MTurk. As before, we prescreened our data for quality. Of the 232 initial cases, we excluded 62 (26.7%), either for multiple completions (13.4%), or for providing senseless or void responses to experimental instructions (20.7%). The final sample ($N = 170$) comprised 101 men, 68 women, and one undeclared ($M_{age} = 37.16$, $SD_{age} = 11.69$). Their ethnic backgrounds were White (80.0%), Black (12.4%), Hispanic (3.5%), East Asian (2.4%), and other (1.8%).

Procedure

The study was hosted on Qualtrics. We randomly assigned participants either to a high self-esteem ($n = 88$) or a low self-esteem ($n = 82$) condition. In the high self-esteem condition, we instructed participants to think about some ways in which they felt good about themselves—specifically, ways in which they felt like they were a person of worth, had a number of good qualities, and were satisfied with themselves. In the low self-esteem condition, we instructed participants to think about some ways in which they did not feel good about themselves—specifically, ways in which they felt like a bit of a failure, like they did not have much to be proud of, and a bit useless. In both cases, we derived these instructions from correspondingly positively worded or negatively worded items in the Rosenberg Self-Esteem Scale. Participants in both conditions then listed three related keywords and wrote about the pertinent ways in more detail for at least three minutes. Thereafter, they completed a manipulation check of state self-esteem, and the dependent measures of depressed mood and anxious mood.

Measures

Manipulation Check of State Self-Esteem. As in Studies 3 and 4, we assessed the effectiveness of the self-esteem manipulation with the three-item measure of state self-esteem. Responses were made on an 8-point response scale ($M = 5.53$, $SD = 2.22$, $\alpha = .96$).

Depressed Mood and Anxious Mood. As in Study 3, we assessed depressed mood and anxious mood with items from the Profile of Mood States–Revised (McNair et al., 1992). Responses ranged from $1 = $ *not at all* to $7 = $ *extremely*. For depressed mood: $M = 2.90$, $SD = 1.85$, $\alpha = .97$; for anxious mood: $M = 2.85$, $SD = 1.72$, $\alpha = .97$.

Results

Manipulation Check

The manipulation of self-esteem was effective, $F(1, 168) = 119.70$, $p < .001$, $\eta_p^2 = .415$. Participants reported their state self-esteem as being significantly higher in the high self-esteem condition ($M = 6.91$, $SD = 1.16$) than in the low self-esteem condition ($M = 4.06$, $SD = 2.13$).

Depressed Mood

Manipulated self-esteem had a significant effect on depressed mood, $F(1, 168) = 43.50$, $p < .001$, $\eta_p^2 = .206$. Participants reported feeling more depressed in the low self-esteem condition ($M = 3.77$, $SD = 1.84$) than in the high self-esteem condition ($M = 2.10$, $SD = 1.45$). This finding supports the hypothesis that self-esteem acts as a trigger for depressed mood.

Anxious Mood

Likewise, manipulated self-esteem had a significant effect on anxious mood, $F(1, 168) = 26.51$, $p < .001$, $\eta_p^2 = .136$. Participants reported feeling more anxious in the low self-esteem condition ($M = 3.50$, $SD = 1.69$) than in the high self-esteem condition ($M = 2.24$, $SD = 1.51$). This finding supports the hypothesis that self-esteem acts as a trigger for anxious mood.

Discussion

Complementing the results of Studies 1 and 3, we found in Study 5 that self-esteem exerted a causal impact on both depressed mood and anxious mood. Furthermore, in conjunction with Study 3, we demonstrated, for the first time, all parts of the hypothesized causal chain: A → B (that status affects self-esteem); A → C (that status affects depressed and anxious mood); and B → C (that self-esteem affects depressed and anxious mood). Such a chain, where self-esteem is the causal mediator that accounts for the impact of status on the clinically relevant emotions of depression and anxiety, is consistent with self-esteem being the more primary tracker of status.

Study 6

In Study 6, we examined whether manipulating self-esteem causally affects state shame and state guilt—the pair of dependent variables we addressed in Studies 2 and 4. We experimentally

manipulated self-esteem in the same manner as in Study 5 to test for the remaining link in the causal chain.

Method

Participants

We recruited participants from the United States via the online research platform, Prolific. A total of 200 participants completed the study; none was excluded. The final sample comprised 117 women, 80 men, and three undeclared (M_{age} = 33.40, SD_{age} = 10.72). Their ethnic backgrounds were White (72%), Black (11%), Hispanic (8%), East Asian (5%), South Asian (1.5%), and other (2.5%).

Procedure

The study was hosted on Qualtrics. Following the same experimental procedure as in Study 5, we randomly assigned participants either to a high self-esteem (n = 103) or a low self-esteem (n = 97) condition. Then we asked them to write about some ways in which they either felt like they were a person of worth, had a number of good qualities, and were satisfied with themselves [high self-esteem], or some ways in which they felt like a bit of a failure, like they did not have much to be proud of, and a bit useless [low self-esteem]. As in Study 5, they completed the manipulation check of state self-esteem, and the dependent measures of state shame and state guilt.

Measures

Manipulation Check of State Self-Esteem. As in Studies 3–5, we assessed the effectiveness of the self-esteem manipulation with the three-item measure of state self-esteem. Responses were again made on an 8-point response scale (M = 5.53, SD = 2.01, α = .95).

State Shame and State Guilt. As in Study 4, we assessed state feelings of shame and guilt with the State Shame and Guilt Scale (Marschall et al., 1994; 1 = *not feeling this way at all*, 5 = *feeling this way very strongly*). For state shame: M = 1.95, SD = 1.08, α = .93; for state guilt: M = 1.92, SD = 1.05, α = .92.

Results

Manipulation Check

The manipulation of self-esteem was effective, $F(1, 198)$ = 101.05, $p < .001$, η_p^2 = .338. Participants reported their state self-esteem as being significantly higher in the high self-esteem condition (M = 6.24, SD = 1.33) than in the low self-esteem condition (M = 3.91, SD = 1.91).

State Shame and State Guilt

Manipulated self-esteem had a significant effect on state shame, $F(1, 198)$ = 57.93, $p < .001$, η_p^2 = .226. Participants reported feeling more ashamed in the low self-esteem condition (M = 2.48, SD = 1.18) than in the high self-esteem condition (M = 1.45, SD = .68). This finding supports the hypothesis that self-esteem acts as a trigger for feelings of shame.

Manipulating self-esteem also had significant effect on state guilt, $F(1, 198)$ = 37.77, $p < .001$, η_p^2 = .160. Participants reported feeling more guilt in the low self-esteem condition (M = 2.35, SD = 1.16) than in the high self-esteem condition (M = 1.51, SD = .74).

Again, given the positive correlation between shame and guilt, $r(198)$ = .78, $p < .001$, we ran a follow-up ANCOVA where we examined the effect of self-esteem on state shame controlling for state guilt, and vice versa. After controlling for state guilt, self-esteem still exerted a significant effect on state shame, $F(1, 197)$ = 17.40, $p < .001$, η_p^2 = .081. Participants in the low self-esteem condition (M_{adg} = 2.17, SE = .07) felt more ashamed than those in the high self-esteem condition (M_{adg} = 1.75, SE = .07). In contrast, after controlling for state shame, self-esteem did not have a significant effect on state guilt, $F(1, 197)$ = .51, p = .477, η_p^2 = .003. Participants in the low self-esteem condition felt no guiltier (M_{adg} = 1.96, SE = .07) than those in the high self-esteem condition (M_{adg} = 1.88, SE = .07). This suggests that self-esteem exerts a unique causal effect on shame that it does not exert on guilt.

Discussion

Complementing the results of Studies 2 and 4, we found in Study 6 that self-esteem exerted a causal impact on state shame (even after controlling for state guilt), but not state guilt (after controlling for state shame). Furthermore, in conjunction with Study 4, Study 6 demonstrated, for the first time, all parts of the hypothesized causal chain: A → B (that status affects self-esteem); A → C (that status affects state shame); and B → C (that self-esteem affects state shame). Such a chain, where self-esteem is the causal mediator accounting for the impact of status on the clinically relevant emotion of shame, is consistent with self-esteem being the more primary tracker of status.

General Discussion

Hierometer theory and social rank theory represent two ways to understand how humans adaptively negotiate social hierarchies of social life. Both theories posit that some psychological mechanism bridges the relation between a social input, representing one's position in a hierarchy, and a behavioral output, representing one's readiness to compete. Nonetheless, the two theories differ in several key respects. First, whereas hierometer theory specifies status (i.e., being respected and admired) as the social input, social rank theory instead accommodates a range of such inputs (e.g., social comparisons on various dimensions). Second, whereas hierometer theory emphasizes self-regard—in particular, self-esteem—as the crucial psychological mechanism, social rank theory instead emphasizes several emotions—in particular, depression, anxiety, and shame. Third, although some articulations of social rank theory do mention self-esteem, they construe it, not as an absolute self-evaluation, but as a relative social comparison—in keeping with the idea that organisms, whether human or nonhuman, assess their resource holding potential alongside that of conspecifics they are competing against. Finally, it is not always clear, in empirical investigations of social rank theory, whether rank is construed as a social, psychological, or behavioral variable, given that these levels of analysis are not clearly distinguished in nonhuman animals.

Bearing the above points of theoretical difference in mind, we sought to extend our prior research in new and constructive directions. In the interests of rigor, we opted to retain the precise

operationalizations of status and self-esteem reflective of the current personality and social psychological consensus. In the interests of coverage, we expanded our research to incorporate the emotions most commonly addressed in social rank theory—depression, anxiety, and shame—as well as, by way of a contrast variable, guilt. Indeed, for the first time, we tested whether social status specifically—as opposed to some other type of rank—predicted this set of clinically relevant emotions. Furthermore, as a theoretical advance, we contended that self-esteem may be plausibly considered to be more primary than emotion—in the sense of being both structurally simpler and operationally swifter. We tested this hypothesis too across the six studies we conducted.

Summary of Findings

Validating hierometer theory, we replicated our finding that higher status, whether measured or manipulated, predicted higher self-esteem (Mahadevan et al., 2016, 2019a, 2019b). Validating social rank theory, we also found that higher status, whether measured or manipulated, predicted lower levels of depression and anxiety (Studies 1 and 3), as well as lower levels of shame—but not guilt (Studies 2 and 4). Furthermore, validating the contention that self-esteem is more primary than emotion, we observed that self-esteem consistently statistically mediated the correlational or causal link established between status and depression, anxiety, and shame. In addition, besides experimentally demonstrating in Studies 3 and 4 that status exerted a causal impact on self-esteem, we also demonstrated in Studies 5 and 6 that self-esteem had a causal impact on depression, anxiety, and shame. We therefore established all the links in the postulated causal chain: social status => self-esteem => clinically relevant emotion, and causal mediation by self-esteem (Studies 3–6).

Theoretical Implications

The Function of Depression, Anxiety, and Shame

Our findings shed light on the status-indicative role of several emotions, specifically those of depression, anxiety, and shame. Previous work indicated that, consistent with social rank theory, diverse indices of rank, including socioeconomic class and social comparisons, are linked to negative emotion (Gilbert, 2000; Lorant et al., 2003). Nevertheless, social status in the form of respect and admiration constitutes a key, if not the preeminent, form of social rank in human societies. Indeed, as Gilbert (2000) put it, "emotions and moods are significantly influenced by the perceptions of one's social status/rank; that is the degree to which one feels inferior to others and looked down on" (p. 174, italics added). Our findings demonstrate that the emotions of depression, anxiety, and shame track social status in the hypothesized manner: Lower social status predicts and promotes greater levels of these emotions. Thus, the findings support and extend social rank theory.

The Function of Guilt

Our findings also offer insight into the role of guilt as it pertains to social status. Neither hierometer theory nor social rank theory articulates a status-indicative role for guilt. Unlike depression, anxiety, and shame, guilt did not track status: Lower status did not predict greater guilt, whether cross-sectionally measured or experimentally manipulated. This is noteworthy, as guilt and shame intercorrelated strongly. However, shame is not guilt (Lewis, 1971). Whereas shame involves focusing on oneself as the wrongdoer, thereby prompting interpersonal withdrawal, guilt involves focusing on the wrongs that one has committed, thereby prompting interpersonal reparation (Tangney et al., 2007). Thus, unlike shame (as well as depression and anxiety), guilt does not appear to feature as a component of the IDS and to serve a status-indicative function.

What functional role, then, might guilt play, given that it is a self-conscious emotion theorized to regulate interpersonal relations (Tangney et al., 2007)? Here, the complement to hierometer theory—sociometer theory (Leary et al., 1995)—becomes relevant. This theory—at least as originally stated (see Leary, 2005, for a revamp)—posits that self-esteem tracks social inclusion—defined as liking and acceptance—to regulate adaptively behavioral affiliativeness (as opposed to tracking social status, to regulate adaptively behavioral assertiveness, which hierometer theory posits). Some theorists claim that guilt evolved to assist in the maintenance and repair of communal relationships (Baumeister et al., 1994; Clark, 1984; Gilbert, 1997, 2000). If so, it would appear well-suited to playing the indicative and imperative role prescribed, not by hierometer theory, but by sociometer theory (i.e., tracking social exclusion and promoting affiliative behavior; Williamson et al., 2007).

The Function of Self-Esteem

Our research also advances work on the function of self-esteem by clarifying the nature of the nexus among social status, self-esteem, and emotion. We showed, consistent with previous research on hierometer theory, that self-esteem tracks social status, with higher status predicting and promoting higher self-esteem. We also put forward the theoretical rationale for self-esteem playing a more primary functional role, operating as the bridge that connects social status to a set of clinically relevant emotions specified by social rank theory. In brief, we argued that, because self-esteem is a unitary self-evaluative judgment, it is structurally simpler than a multifaceted emotion (Mulligan & Scherer, 2012), and capable of being engaged more swiftly (Baumeister et al., 2007). As a result, it is liable to enjoy priority in a causal sequence. In line with this theorizing, self-esteem consistently mediated the link between status and depression, between status and anxiety, and between status and shame. Furthermore, a series of experiments established causal mediation by self-esteem, showing that manipulating the independent variable (status) causally impacted the mediator (self-esteem), and that manipulating the mediator (self-esteem) causally impacted the dependent variables (emotion); thereby, establishing all the links in the causal chain: social status => self-esteem => clinically relevant emotions. In so doing, our research clarifies the operation of the psychological mechanisms posited to track functionally people's positions in the social hierarchy. It extends the scope of hierometer theory beyond self-esteem to emotion, and by the same token, elucidates how the emotions specified by social rank theory are triggered by prior self-esteem dynamics.

A further reason for considering the functional role of self-esteem to be primary lies in the relatively low prevalence of clinically relevant conditions and emotions. Most people are not

depressed, anxious, or shame-ridden; and even if they experience these emotions, they do not do so constantly. Self-esteem, on the other hand, is more evenly distributed in the population, with both high and low self-esteem being fairly common (Schmitt & Allik, 2005), and fluctuates substantially from day to day (Kernis & Goldman, 2002). Furthermore, whereas emotions like depression, anxiety, and shame might trigger the IDS, prompting behavioral de-escalation, their absence is unlikely to trigger an involuntary escalation strategy, prompting behavioral escalation. That is, whereas clinically relevant emotions can readily account for interpersonal submission, they cannot as readily account for interpersonal assertion. However, self-esteem can. Hence, it enjoys the explanatory advantage of being a more general antecedent—a potential mediator of manifestations of behavioral dominance as well as submission (Johnson et al., 2012).

That said, the "upper end" of the dominance distribution may be empirically addressed by appeal to other dedicated forms of self-regard too. As such, hierometer theory encompasses, not only self-esteem, but also grandiose narcissism (Mahadevan et al., 2016, 2020)—a form of global self-evaluation characterized by excessive positivity, which can be differentiated conceptually and empirically from regular self-esteem (Brummelman et al., 2016, 2018). Like self-esteem, grandiose narcissism covaries consistently with social status in cross-sectional and experimental studies (Mahadevan et al., 2016, 2019a). It has also been theorized to be a psychological state or trait that serves to promote the pursuit of further status by various strategies, both fair and foul (Grapsas et al., 2020; Mahadevan & Jordan, 2022; Zeigler-Hill et al., 2019). Accordingly, grandiose narcissism may be especially suited to the explanation of behavioral dominance.

Potential Therapeutic Implications

Insofar as high self-esteem is deemed desirable, and clinically relevant emotions are deemed undesirable, the links identified here have the potential to inform therapeutic interventions. First, they furnish evidence that both lower levels of self-esteem and higher levels of clinically relevant emotions are the reliable correlates and consequences of lower levels of status. Of course, status is only piece of the interpersonal puzzle: being liked and accepted (i.e., social inclusion) is also an independent antecedent of self-esteem (Mahadevan et al., 2016, 2019a, 2019b, 2020). Still, our findings suggest that, to the extent it is possible to raise the respect and admiration in which one is held, one's self-evaluative and affective prospects are liable to improve. Potential avenues for self-advancement might include identifying ways to contribute more substantially to one's social group or migrating to a social group more appreciative of one's contributions. The approach here would be, not only to strive to change one's psychology directly, but also to try to change it indirectly, by facilitating more propitious interpersonal interactions, ultimately improving one's reputation as an effective agent, and enabling higher self-esteem.

Second, our findings are consistent with the possibility that the mitigation or elimination of aversive emotions—such as feeling down, uneasy, or ashamed—may sometimes require, as a precondition, the prior elevation of self-esteem, especially where such aversive emotions have interpersonal roots. Hence, if one is going to intervene therapeutically in an attempt to change people's psychology directly (for, after all, social conditions are not the sole source of self-dislike or neurotic feelings), it may be necessary, not only to cheer people up, calm them down, or erase their disgrace, but also to find ways of convincing them that they are worthy of entertaining positive self-evaluations. Our research, particularly our experimental studies, testifies to how raising or lower self-esteem is one source of feeling better or worse.

Finally, it behooves us to remark that there is a tension between, on the one hand, claiming that self-esteem and clinically relevant emotions track one's social status in an adaptive and functional way, and on the other hand, claiming that the low self-esteem and clinically relevant emotions that result from low social status are maladaptive and dysfunctional. This tension can be partly resolved by noting both that (a) a generally functional mechanism may go awry in individual cases (Bergstrom & Meacham, 2016), and (b) "evolutionarily functional" need not mean "promoting well-being" (Storbeck & Wylie, 2018). It is worth reflecting on the potential limitations and pitfalls of interventions designed to change unflattering self-evaluations and unpleasant emotions, in cases where those interventions neglect the social conditions that tend to foster them. Consider the following analogy. In general, physical pain is adaptive: it incentivizes the avoidance of harmful environmental stimuli and deters dangerous courses of action. Nonetheless, it remains individually "adaptive" for someone who is, say, suffering from a repetitive strain injury, and who perhaps may be particularly prone to developing the condition, to seek artificial analgesic relief. That said, the pain accurately conveys a useful message: rest your affected limb. The analgesia, though subjectively welcome, obscures this message. Similarly, interventions to raise self-esteem or curtail neurotic feelings, but which ignore their social roots, may also obscure messages about the maladaptive social strategies or environments that gave rise to those psychological problems. This is not a knockdown argument against such interventions, but it sounds a cautionary note as regards their adoption.

Strengths, Limitations, and Future Directions

Our research has several strengths. It directly addressed, for the first time, the links between social status (i.e., respect and admiration) and several clinically relevant emotions. Moreover, it did so both convergently—by examining whether expected links to depression, anxiety, and shame emerged—and also discriminantly—by examining whether the link to guilt did not emerge. In addition, it tested, also for the first time, how self-esteem bridges the link between status and those emotions, developing hypotheses on the basis of a careful consideration of two leading theories: hierometer theory and social rank theory.

Another strength is that our research is inherently interdisciplinary. It addressed—from an integral evolutionary perspective (Tooby & Cosmides, 2008)—several broad topics that are generally regarded as being of pivotal importance: status (Anderson et al., 2015), self-esteem (Swann et al., 2007), and clinically relevant emotions (Nesse, 2015). It also achieved a more specific theoretical rapprochement that is long overdue. Specifically, it compared and contrasted hierometer theory and social rank theory at length, highlighting both their common subject matter and their key differential details. Previously, their associated literatures—from the fields of personality and social psychology, ethology, and clinical and evolutionary psychology—barely made mention of one another. For example, key articles in the social rank theory

literature (Price et al., 1994), despite sometimes invoking self-esteem, did not cite the substantial personality and social psychology literature on it (Donnellan et al., 2011), and key articles in the personality and social psychology literature dealing with the function of (low) self-esteem (Leary, 2005) have not considered an involuntary defeat strategy as one potential explanation (Sloman & Price, 1987). Investigations of related subject matter, if they proceed in parallel, benefit from being mutually informed. This not only deters wheels from being reinvented, but also ensures that concepts are coordinated, measures shared, and findings distributed. Such coordination, sharing, and distribution is arguably a precondition for proper meta-analytic integration. Our joint consideration of social rank theory and hierometer theory helps to consolidate scientific understanding in this way.

Empirically, we tested our hypotheses in six well-powered studies, which featured complementary correlational and experimental designs to establish internal and external validity. Furthermore, we examined the links among social status, self-esteem, and emotion at the level of both states and traits, and used multiple established measures and manipulations of these variables. Finally, we determined the causal relations between these constructs for the first time by using a strong experimental-causal-chain design, establishing causal mediation by self-esteem.

Our research also had some limitations. We did not directly assess the relative speed with which self-esteem or clinically relevant emotions operated to show that the former operated more swiftly; nor did we definitively prove that status only ever impacts on clinically relevant emotions by first affecting self-esteem. Nonetheless, our pattern of results is consistent with self-esteem playing a more primary role—a proposal we put at risk of disconfirmation. For example, had the manipulation of status failed to influence the clinically relevant emotions of depression, anxiety, and shame, had self-esteem not mediated the link between status and these clinically relevant emotions (including better than the reverse: see Footnote 5), or had the manipulation of self-esteem failed to influence these clinically relevant emotions, then our proposal would have been contradicted. Thus, we construe our research as an important stepping-stone toward fully validating our proposal.

Another limitation is that we cannot entirely rule out the possibility that our experimental effects were partly produced by demand characteristics (Orne, 1962), that is, by participants obligingly modifying their responses to engineer confirmatory results. Research indicates that participants sometimes guess and inadvertently validate hypotheses in experimental research, especially in the domain of behavioral priming (Khademi et al., 2021; Klein et al., 2012). We took several steps to prevent this from being an issue in the current research. Our studies were conducted online. Participants were anonymous, geographically remote, unrelated to the researchers, paid very modestly, and able to do several alternative online studies. As such, there was no flesh-and-blood experimenter to please, no subtle cues as to proper and improper responding, and no interpersonal or financial reward or punishments contingent upon such responding. Moreover, our hypotheses were complex. Participants were unlikely to have divined our differential hypotheses that manipulations of status and self-esteem would affect depression, anxiety, and shame, but not guilt, and that self-esteem would mediate the links between status and depression, anxiety, and shame. Furthermore, the findings of our

two cross-sectional studies corroborated the findings of our experimental studies; yet, by definition, experimental demand characteristics could not have operated in the former cases. Finally, a recent investigation featuring several thousand online participants across five studies showed that being experimentally assigned to conditions where research intent was revealed did not alter treatment effects (Mummolo & Peterson, 2019). Still, future research should bear in mind the potential role of demand characteristics and take steps to minimize their influence (Corneille & Lush, 2021), for example, by using multiple manipulations and measures and comparing results across them.

Another potential limitation arises from the differential framing of questionnaire items. For example, in our two cross-sectional studies, the social status items all began with the stem, "Most of the time I feel that people … ," whereas the self-esteem items lacked any such uniform stem. It is possible that such differential framing inadvertently shaped item responding in unknown ways. Accordingly, future research might consider using the same stem across different questionnaires, or no stem across any questionnaires, to sidestep potential framing effects.

We should also remark that our research addressed only the indicative function served by self-esteem and emotions—how these psychological variables might track one's status in a social hierarchy. Any imperative function they might serve—in terms of regulating status-seeking behavior within that hierarchy—remains to be addressed. For example, if the impact of a social input like status on clinically relevant emotions is fully mediated by self-esteem, might the impact of self-esteem on some behavioral output like assertiveness also be fully mediated by clinically relevant emotions? Follow-up work should address how social status, self-esteem, and clinically relevant emotions relate to status-seeking behavior.

We also specifically investigated how status—a key facet of social rank for humans (but also some nonhuman animals; Chase & Seitz, 2011; Jiminez & Mesoudi, 2019)—related to self-esteem and clinically relevant emotions. However, as pointed out, social rank has other facets, most notably, power (Galinsky et al., 2015) and class (Kraus & Stephens, 2012). These are conceptually distinct from status but empirically correlated with it (Fiske et al., 2016; Magee & Galinsky, 2008). Relatedly, we did not examine the role of social rank in contexts characterized primarily by dominance-based hierarchies (e.g., prisons) where rank is "grabbed rather than granted." Whether and to what extent these other aspects of social rank, independently of or in combination with status, predict or trigger rises and falls in self-esteem and clinically relevant emotions, is a fertile topic for future research, as is the role of winning and losing in dominance-based hierarchies. Given that ranked attributes like power have broad effects on social cognition (Guinote, 2017; Sedikides & Guinote, 2018), such additional effects might be expected.

Our research also featured a combination of cross-sectional and experimental studies to establish internal and external validity. Follow-up work could additionally use longitudinal methods (e.g., a daily diary or experience sampling study) to examine these relations. Although previous studies have addressed the links among self-esteem, depression, and anxiety over time (Sowislo & Orth, 2013), none has examined the role of social status specifically. Therefore, follow-up investigations could profitably examine how

status longitudinally predicts self-esteem and clinically relevant emotions.

Moreover, although our samples were fairly diverse in terms of age and gender, they still exhibited the demographic characteristics typical of Internet samples (e.g., primarily White and Western; Levay et al., 2016). Hence, future work could usefully attempt replications in more ethnically diverse or cross-cultural populations.

Future research could also examine whether the results obtained in our studies extend beyond the level of individuals to the level of groups. On the one hand, these results raise the possibility that enduring low status in natural settings will trigger low self-esteem and negative emotions. This has important implications, but also some risks of overgeneralization. For example, some social groups, such as Black people in the United States, report higher self-esteem than non-Black people despite their income and education levels being lower (Twenge & Crocker, 2002). However, these groups differ from one another on several dimensions other than socioeconomic status alone, and therefore, one should not automatically interpret these group differences in self-esteem as reflecting socioeconomic status differences. In addition, although Black people in the United States may have lower socioeconomic status than non-Black people, this need not mean that the levels of respect and admiration they enjoy among their relevant peer groups are lower than those enjoyed by non-Black people, enabling them to maintain high self-esteem. Furthermore, some groups may well have coping strategies and resources that counteract the effects of low social status on self-esteem and negative emotions. Accordingly, follow-up work could address how differences in respect and admiration, self-esteem, and clinically relevant emotions operate at the level of groups.

Finally, our research focused on the links among social status, self-esteem, and emotions in the general population. Although general populations do offer the possibility of analyzing the full spectrum of variation in clinically relevant constructs such as depression, anxiety, and shame, some dynamics may only emerge once higher thresholds have been reached. Thus, follow-up investigations focusing on these dynamics in dedicated patient populations could prove fruitful.

Coda

The poet John Donne (1572–1631) once averred that "No man is an island, entire of itself; every man is a piece of the continent, a part of the main." This famous phrase admits of many interpretations. But one interpretation, supported by our current findings, is that the social status one holds partly translates into the esteem in which one holds oneself, and thereby modulates the tone of one's emotional life.

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