A SOCIAL CONTEXT MODEL OF ENVY AND SOCIAL UNDERMINING

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We integrate moral disengagement, social identification, and social norms theories to develop, test, and replicate a model that explains how and when envy is associated with social undermining. In Study 1, a two-wave study of hospital employees, results support the prediction that the mediated effect of envy on social undermining behavior through moral disengagement is stronger when employees have low social identification with coworkers. Study 2, a four-wave, multilevel study of student teams, shows that the indirect effect of envy on social undermining through moral disengagement is stronger in teams with low team identification and high team undermining norms.

Employees have numerous opportunities to observe and contemplate how the benefits and advantages they enjoy at work compare with those of their colleagues. Whether these opportunities present themselves formally (e.g., through performance appraisals) or informally (e.g., through friendship networks), common experience and empirical research suggest that favorable social comparison information gives people pleasure, but unfavorable information can focus their attention on what they lack relative to their colleagues (Hogg, 2000). In the latter case, feelings of *envy*—the emotion that surfaces when one lacks and desires others' superior qualities, achievements, or possessions (Parrott & Smith, 1993)—may arise.

Envy of others at work (referred to here as "envy") may have positive consequences if, for example, it motivates a person to increase performance or attempt self-improvement (Duffy, Shaw, & Schaubroeck, 2008; Schaubroeck & Lam, 2004). But envy also has a dark side. Envy poses threatens the core of an individual's professional identity

(Vidaillet, 2006) and is an unpleasant, painful state (Lieberman & Eisenberger, 2009). Consequently, individuals should be highly motivated to reduce feelings of envy. The psychological literature shows that when they are unsuccessful at doing so, and feelings of envy persist, envy can lead to a variety of deleterious outcomes, including schadenfreude, aggression, and even crime (see Smith and Kim [2007] for a review). Indeed, envy is often argued to be a "call to action" to engage in interpersonal harm doing, especially actions that "reduce or, better yet, fully remove the envied person's advantage" (Smith & Kim, 2007: 53). If this argument is correct, then envy should be a reliable predictor of *social undermining*, or behavior intended to hinder the ability of others to establish and maintain positive interpersonal relationships, work-related successes, and favorable reputations (Duffy, Ganster, & Pagon, 2002). Social undermining behavior differs from other forms of antisocial behavior at the conceptual level because it comprises only intentional behavior and behavior designed to weaken its target gradually or by degrees (Duffy, Ganster, Shaw, Johnson, & Pagon, 2006).

The study of envy and its work-related consequences has been surprisingly neglected, even though work environments include a surfeit of po-

tential envy-inducing situations (Duffy et al., 2008). Indeed, research linking envy to harmful behaviors at work, such as undermining, is rather sparse, and the relationship has not been firmly established (e.g., Cohen-Charash, 2009; Cohen-Charash & Mueller, 2007; Dunn & Schweitzer, 2006). We aim to advance the theoretical and empirical literature in two ways.

First, the literature lacks a guiding theoretical perspective on the process through which envy relates to social undermining. A basic assumption of our model is that envy is an undesirable state that most employees want to avoid. We contend that one way employees can attempt to manage envy is to thwart the success of their colleagues through social undermining, thereby reducing the gap between the outcomes that might lead to disadvantageous social comparisons. We do not claim that this is the only path envious employees can pursue in response to envy, but it is the one we focus on here, because it requires employees to overcome personal and social barriers to harming others in workplace settings.

What theoretical mechanism explains why employees may choose to act on their envious feelings with social undermining behavior? We offer one theoretical explanation by proposing that the link between envy and social undermining is mediated by a disengagement of the self-regulatory mechanisms that would otherwise constrain such behavior. These cognitive maneuvers are referred to broadly as "moral disengagement" (Bandura, 1986, 1991). We theorize that envy increases moral disengagement and allows envious employees to overcome the cognitive barriers, or self-sanctions, that most people abide by, breaking them "free of a prevailing submissive frame of mind" (Smith & Kim, 2007: 53). This part of our model allows us to answer the question of *why* envy might motivate social undermining. Thus, we extend current thinking on envy by proposing moral disengagement as the mechanism through which envy leads to harmful interpersonal behaviors. Our approach also extends previous theories of envy by suggesting that envy resulting from making multiple rather than specific (or episodic) social comparisons can influence the willingness to undermine coworkers who may or may not be the objects of envy. The reason is that envy motivates moral disengagement, which disables self-sanctions against harm doing. By advancing this argument, we are suggesting a potential spillover effect of envy that leads a person to undermine others in general.

Second, in organizational settings, often strong social and institutional pressures inhibit employees from undermining others, even if they are strongly motivated to do so. For example, to thrive in work contexts, individuals must develop social capital, make high-quality connections with capable others, and maintain some positive standing in the work environment (Dutton & Heaphy, 2003; Exline & Zell, 2008). Responding to envy with undermining or other forms of aggression can place these objectives at risk. Consequently, we maintain that even when they have strong feelings of envy, organization members do not always respond with social undermining. The possibility that social and organizational forces are likely to inhibit causing harm to others, even when the desire to do so is strong, may explain why some studies have shown inconsistent relationships between measures of workplace envy and antisocial behavior (Cohen-Charash, 2009). Indeed, it may be that a common response to feeling envious of others is for an individual to "suffer in silence," resigned to accepting that others have things that he or she desires but cannot have.

Thus, to address the question of *when* envy will actually result in social undermining, we introduce two features of social context: social identification with one's colleagues and undermining norms. In the first of two studies, we tested whether *social identification* with colleagues can either facilitate or inhibit the emergence of moral disengagement cognitions, a first-stage moderation effect in our model. Prior research has focused largely on the notion that social identification (e.g., closeness, similarity) and envy are positively related because identification creates "the expectation that the other ought to experience similar outcomes" (Schaubroeck & Lam, 2004: 34; see also Smith and Kim [2007] for a review). Here, we propose a novel, moderating role for social identification. Drawing on theories of moral exclusion (Opotow, 1990, 1995) and self-construal (Bandura, 1986), we argue that enviers will morally disengage only when they feel less psychologically connected to others in their work environment (i.e., they experience low social identification). In contrast, high social identification makes it more difficult to convert envy into cognitive rationalizations for harm-doing. Thus, although prior research has focused on the role of social identification in generating envy, we investigate how social identification shapes responses to envy by defusing the tendency to morally disengage. In our second study, we incorporate theory concerning behavioral or etic norms to suggest that once moral disengagement has occurred, an envious employee may nevertheless eschew social undermining. Following previous researchers (e.g., Bamberger & Biron, 2007; Tepper, Henle, Lambert, Giacalone, & Duffy, 2008), we hypothe-

size that weak norms for undermining in the social context can serve as a second defusing mechanism that weakens the relationship between moral disengagement and social undermining behavior, a second-stage moderation effect in our model. Taken together, our model suggests that two conditions are needed for envy to lead to social undermining: the employee who feels envy must not strongly identify with his or her coworkers, and norms discouraging undermining must be weak.

Our theoretical model is presented in Figure 1. We test the first part of our moderated-mediation theory with data from employees of a university hospital. We then develop an integrative moderated-mediation model involving both social context moderators and report tests of the full model using a sample of student teams. We conclude by discussing the implications of the results for theory and research.

THEORETICAL BACKGROUND

### Conceptualizing Envy of Others at Work

The experience of envy has been conceptualized in three related ways: as situational—that is, as a general envy of others in an environment, typically a work context or team, involving multiple referents or comparators (e.g., Duffy & Shaw, 2000;); as dispositional (e.g., Smith, Parrott, Diener, Hoyle, & Kim, 1999); and as specific and episodic, involving a specific individual as a referent (e.g., Cohen-Charash, 2009). In this study, we take the first view: that individuals can and do make invidious social comparisons with others in their immediate environment (Vecchio, 1995, 2005). Conceptually, envy of others in a work context is distinct from dispositional envy (a tendency generalized across all situations, work and otherwise) and episodic envy (an emotional reaction to a specific event). In describing workplace envy, Vecchio (2005) argued that individuals in work situations recognize differences in social standing, performance, and treatment with multiple comparators concurrently and that these comparisons may not be to a specific transient episode, but rather to an existing state of multiple unflattering comparisons. This view is also in line with the views of Wood, who argued that social comparison processes include "thinking about one or more other people in relation to the self" (1996: 520). When making comparisons about career advancement, for example, Wood (1996) stated that individuals evaluate their standing with multiple coworkers before making negative or positive judgments. In the case of workplace envy, an individual may lack and desire certain colleagues' superior achievements (e.g., their superior pattern of academic publishing), while concurrently envying the level of recognition still others have received for their accomplishments (e.g., a colleague who holds a lucrative endowed chair). In such a case, envy is high because of the desired patterns of successes of multiple others in the environment.

Envy and Social Undermining

Envy is an unpleasant emotion (Smith & Kim, 2007). The perception that one lacks and desires another's superior qualities, achievements, or possessions is a significant threat to self-esteem. Envy is so uncomfortable, in fact, that it has been linked to the activation of neural circuitry that is responsible for physical pain (see Lieberman & Eisenberger, 2009). An individual can alleviate the unpleasantness associated with envy by ag-

FIGURE 1
Proposed Theoretical Model[a]
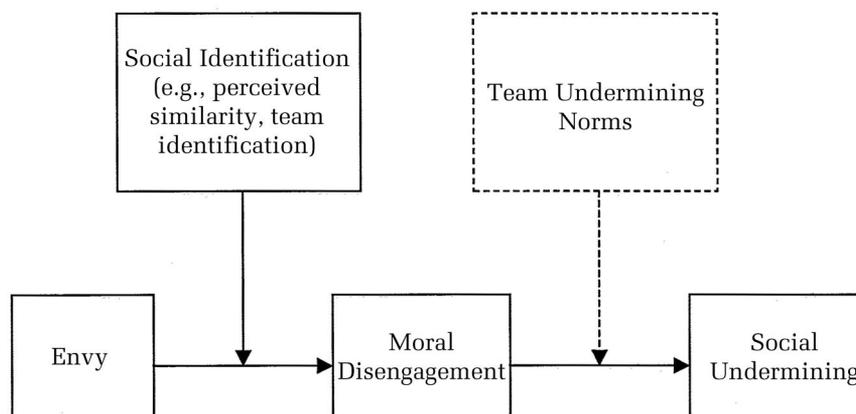
[a] Relationships designated with solid lines were tested in Study 1. The full model was tested in Study 2.

grandizing the self at the expense of targeted individuals (Wert & Salovey, 2004). As an instrumental form of aggression, social undermining behaviors (e.g., belittling, gossiping, withholding information, giving someone "the silent treatment") are powerful ways to bolster oneself at others' expense (Salmivalli, 2001).

Envious feelings are also unpleasant because they can be accompanied by frustration and hostility (Smith & Kim, 2007). Individuals are often motivated to reduce envy and to thereby reduce "the envious [employee]'s frustration with feeling inferior" to others (Cohen-Charash & Mueller, 2007: 5; see also Crossley, 2009; Dunn & Schweitzer, 2006). We therefore expect envy to be related to undermining behaviors because undermining is one possible way that individuals can reduce others' perceived superiority and raise their own relative standing while also venting their frustration and hostility (Cohen-Charash & Mueller, 2007; Dunn & Schweitzer, 2006).

Mediating Role of Moral Disengagement

We turn now to elucidating the moral disengagement process by which envy leads to individual social undermining behavior. Grounded in social cognitive theory, moral disengagement refers to a set of cognitive justifications (referred to as mechanisms) that allow an individual to commit acts such as social undermining while avoiding the self-sanctions (e.g., self-condemnation, self-loathing) that ordinarily deter such behavior (Bandura, Barbaranelli, Caprara, Pastorelli, & Regalia, 2001; Detert, Treviño, & Sweitzer, 2008; McFerran, Aquino, & Duffy, 2010). Critical to the foundation of social cognitive theory is that the same behavior might be viewed as reprehensible conduct toward colleagues in one situation and as acceptable or necessary in another context (Bandura, 1986). The activation of moral disengagement mechanisms eliminates self-deterrents to harmful behavior and can encourage self-approval for antisocial conduct (Brief, Buttram, & Dukerich, 2001). Moral disengagement has been conceptualized under three broad mechanisms and eight specific examples of disengagement. The first broad mechanism—devaluing the target—includes dehumanizing or attributing blame to victims. The second—reconstruing the conduct—involves such specific mechanisms as moral justification, use of euphemistic language or labeling, and advantageous comparison. The third category—obscuring or distorting consequences—includes displacement of responsibility, diffusion of responsibility, and minimizing behavioral consequences. Like Bandura and colleagues (Bandura et al., 2001; Ban-

dura, 1986; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996) and others (e.g., Detert et al., 2008), we conceptualize moral disengagement as a single overarching construct. Taken together, these dimensions represent an overall cognitive orientation that is the additive sum of the conceptual dimensions; "the lack of any single dimension will deflate, though not completely eliminate, the overall degree" (Spreitzer, 1995).

How does envy trigger the moral disengagement process? The first broad mechanism (devaluing the target) includes dehumanizing and attributing blame to victims. Although envious individuals desire the qualities, achievements, or possessions of others, research has shown they often believe that envied individuals are unworthy of or cannot be trusted with their advantages (e.g., Dunn & Schweitzer, 2004; Salovey & Rodin, 1984; Silver & Sabini, 1978; Smith, 2004). Moral disengagement may allow envious individuals to justify the negative implications of harmful actions directed against others. Smith and Kim (2007) argued that targets can be devalued over time as individuals begin to ruminate obsessively on what they perceive to be the undeserved advantages of envied others while ignoring the role that they themselves play in creating the disparity. As this thinking takes hold, individuals "might be able to convince themselves that they have an increasingly legitimate cause for feeling hostile although they may still be wary of publicizing their feelings. Seemingly legitimate grievances may "free" envious people to execute indirect acts of hostility (e.g., negative gossip and backbiting)" (Smith & Kim, 2007: 56). If this reasoning holds, individuals are likely to undermine because they believe others deserve to be undermined (Harris, Cikara, & Fiske, 2008).

The second broad category operates via a cognitive reconstrual of the conduct itself, which includes moral justification, use of euphemistic language, and advantageous comparison (Bandura, 1986). For example, through the process of moral justification, harmful behavior becomes acceptable because it is viewed as valued or righteous. In this way, envious individuals may begin to believe that social undermining behavior is not only condoned but appropriate. Envious individuals may use euphemistic language to sanitize what normally would be considered antisocial behavior (e.g., "making things right" or "making things fair") and may also disengage mechanisms against antisocial behavior through advantageous comparison—for example, by rationalizing that their deviant behavior is minimal compared with what others have done to gain advantages.

The last set of disengagement practices operates by obscuring or distorting the effects of harmful behavior (Detert et al., 2008). Under this broad category, individuals may displace or diffuse responsibility for their behavior or minimize its consequences. Social undermining behaviors such as gossiping and backbiting may be subtle, and their negative effects may not be immediately obvious. These conditions make it easier to distort the consequences of such action (Bandura, 1999). Because the negative effects of undermining are cumulative and often grow more deleterious over time (Duffy et al., 2002), it is reasonable to expect that envious individuals will use this form of moral disengagement.

In sum, we propose that envy activates the cognitive mechanisms associated with moral disengagement. Taken together, our arguments suggest a mediating framework in which envy leads to subsequent social undermining behaviors via moral disengagement. We expect, however, that individuals' identity-based construals of envied targets will influence whether this mediating process will hold. Specifically, we propose that the mediating effect of moral disengagement will be weaker when social identification with colleagues is higher and that the mediating effect will be stronger when social identification is lower. The foundation for our moderated-indirect effect hypothesis is described below.

Moderating Role of Social Identification

As noted above, social identification has a prominent role in the study of envy (Smith, 2004; Vidaillet, 2006), although its precise influence remains murky (Alicke & Zell, 2008). Conceptualized in terms of the connection that exists between people—personal affiliation, closeness, or similarity (e.g., values, gender, culture) (Schaubroeck & Lam, 2004; Smith, 2000; Smith & Kim, 2007; van Dijk, Ouwerkerk, Goslinga, Nieweg, & Gallucci, 2006)—high levels of social identification with others make invidious feelings more likely and more intense (Tesser, 1988; see also van Dijk et al., 2006). But the evidence thins and the overall picture becomes more complicated when one considers how social identification influences the mediation processes outlined above. No studies, to our knowledge, have examined how social identification enhances or weakens the effects of envy on antisocial behaviors such as social undermining. Why might social identification (i.e., focusing on common bonds or connections) with colleagues weaken the mediating relationships among envy, moral disengagement, and social undermining? For one thing, a growing body of theoretical and empirical work on moral exclusion has shown that people's sense of moral obligation appears to be *stronger* when directed toward those who "are closer to us and weaker toward those who are psychologically distant" (Opotow, 1995: 351; Reed & Aquino, 2003; Tepper, Moss, & Duffy, 2011). When people socially identify with other individuals, they are more likely to see the others as entitled to a share of community resources and to other forms of aid (Clayton & Opotow, 2003). In contrast, any perception of separation, including the simple perception that one is disconnected from others, can generate social differentiation and moral exclusion (e.g., Hogg & Abrams, 1988; Opotow, 1990; Reed & Aquino, 2003).

These arguments lead us to advance an interactive prediction regarding how responses to envy are shaped by a person's degree of identification with colleagues. The envy, moral disengagement, and social undermining sequence is enmeshed in a more complex social reality: social identification and its corresponding sense of moral obligation may affect the likelihood that envy triggers the moral disengagement process that leads to social undermining (a first-stage moderator in the mediation model). In the case of high social identification, the translation of envy into moral disengagement may be inhibited; in the case of low social identification, the negative effects of envy may be exacerbated. Recall that moral disengagement allows an envier to undermine others to cope with threats to self-esteem and the discomfort associated with envy. If the moral exclusion framework is correct, high levels of social identification should weaken envy's triggering effect on the moral disengagement process. High social identification should reduce the likelihood that envy will translate into dehumanization of others in a work environment, moral justification of antisocial behavior, and a belief that others deserve to be harmed (Clayton & Opotow, 2003; Exline & Zell, 2008). Thus, we argue that when envy occurs, high levels of social identification prevent individuals from disengaging their moral self-sanctions and inhibit social undermining.

In contrast, we propose that when social identification is low, envy will trigger a disengagement of self-regulatory mechanisms that makes social undermining more likely. Among individuals who fail to identify with their coworkers and colleagues, the esteem threats and hostility associated with envy are more likely to be translated into social undermining behaviors through moral disengagement. In these situations, potential targets are seen as less entitled to compassion and moral obligation

and more as eligible targets for harm doing (Brockner, 1990; Opotow, 1995, 2001; Staub, 1989). In other words, a lack of identification with coworkers allows envy to be translated into moral disengagement and subsequent harm-doing.

The preceding arguments produce a first-stage moderated-indirect effect model that incorporates several related predictions among envy, moral disengagement, and social identification. Stated formally,

Hypothesis 1. The strength of the mediated relationship between envy and social undermining (via moral disengagement) varies depending on the extent of social identification; the indirect effect of envy via moral disengagement on social undermining is stronger when social identification is lower.

STUDY 1: METHODS

Sample and Procedures

The participants were full-time employees at a university hospital in a midwestern city. Data for this study were collected at two times eight months apart. At time 1, a hospital administrator notified employees of the study and its goals via e-mail one week prior to the study. Members of the research team staffed a private conference room near the cafeteria and administered the questionnaire during three lunch shifts (11 a.m.–1 p.m., 7–9 p.m., and 1–3 a.m.) for five consecutive days. We collected data during the lunch break because hospital administrators conveyed that it was important that all hospital employees (on all three shifts) be provided the chance to participate. A total of 432 employees completed time 1 questionnaires (a 15 percent approximate response rate). Eight months after the initial data collection, time 2 surveys were administered following the same lunch hour procedure described above. A total of 464 employees completed time 2 questionnaires (a 17 percent approximate response rate); 177 of these individuals also participated in the first phase of data collection. Missing data on key variables reduced the analysis sample size to 160. Women totaled 77 percent of the participants; the average age was 37 years; and the average tenure was 9 years.

Measures

Envy (time 1). Envy was assessed using five items that Vecchio (1995, 1999) developed and validated. Sample items are "Most of my coworkers have it better than I do" and "At work, I see myself as an underdog who isn't taken as seriously as

others." The items had seven Likert-type response options ($\alpha = .71$).

Social identification (time 1). We followed Schaubroeck and Lam (2004) and operationalized social identification as perceived interpersonal similarity (see also Liviatan, Trope, & Liberman, 2008). Three items were used, two of which are "In general, others with whom I work are similar to me" and "Most others I work with have a background similar to mine." The items had five Likert-type response options ($\alpha = .89$).

Moral disengagement (time 1). Moral disengagement was assessed with a 15-item measure ($\alpha = .91$) from McFerran et al. (2010) based on Bandura et al.'s (1996) moral disengagement scale but adapted to a work context. The items assess the extent to which individuals construe injurious conduct as serving a morally justified purpose, mask censurable activities through euphemistic language or advantageous comparison, disavow or displace responsibility for harm, and blame and devalue targets of harmful conduct. Following Bandura et al. (1996), the scale items comprised diverse forms of detrimental conduct. Sample items are "People who are mistreated at work have usually done something to deserve it" and "Making fun of your coworkers doesn't really hurt them." The items had seven Likert-type response options. Following prior researchers (e.g., Bandura et al., 1996; Detert et al., 2008; McFerran et al., 2010), we conceptualized moral disengagement as a single higher-order construct. We conducted a second-order confirmatory factor analysis with the 15 items loading onto the three first-order latent factors and the three first-order mechanisms loading onto a single second-order latent variable. The results revealed excellent overall model fit ($\chi^2 = 158.53$, $df = 87$, $\chi^2/df = 1.82$, AGFI $= .93$, CFI $= .96$, RMSEA $= .04$). Thus, we averaged responses to the 15 items to form an overall moral disengagement measure ($\alpha = .91$).

Social undermining (time 2). We measured social undermining at time 2 using Duffy et al.'s (2006) six-item measure ($\alpha = .93$). Participants were asked to report their level of undermining in the months since the first survey was completed. Sample items are "I sometimes talk bad about my coworkers behind their backs" and "I sometimes intentionally give my coworkers the 'silent treatment.'" The items had seven Likert-type response options.

Control variables (time 1). Drawing on a review of the relevant literature, we controlled for several variables. Age, gender, and tenure may be related to perceptions of social interactions, status, and social comparisons, as well as to antisocial behavior (e.g.,

Duffy et al., 2006; Lakey & Cassidy, 1990; Tepper, 2000) and were therefore controlled. We also controlled for negative affective disposition and procedural justice, as they may relate to envious emotions and social undermining behavior (Cohen-Charash & Mueller, 2007; Duffy et al., 2002). Negative affective disposition (α = .83) was operationalized using the negative markers from the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) (α = .87). Procedural justice was measured with four items from Niehoff and Moorman (1993) (α = .75).

STUDY 1: RESULTS

Response Bias Checks and Measurement Issues

To address the potential for response and self-selection biases, we coded longitudinal participants as 1 and coded those who participated at time 1 only as 0 and included this dichotomy as the dependent variable in a logistic regression analysis with time 1 predictors (envy, social identification, and moral disengagement) as well as several demographic variables (age, gender, tenure, and salary level). No variable in the equation was significant. We also compared longitudinal participants (coded 1) with those participating only at time 2 (coded 0) on the demographic variables as well as on time 2 coworker undermining, but again no significant predictors were found. The participants' age (37 years on average) and gender (77 percent female) profiles were very similar to estimates of the broader hospital population provided by hospital administration ($\approx$38–39 years, 80 percent female). Although our second-order factor analysis for the moral disengagement measure showed good model fit, we conducted additional analyses to assess the adequacy of the measurement of our other key vari-

ables—envy and social identification—and to rule out the possibility that common method effects could explain the presence of the second-order factor. Following Spreitzer (1995), we included social identification ($\Delta\chi^2$ = 227.25, df = 64, p < .01) and envy ($\Delta\chi^2$ = 274.93, df = 79, p < .01) as separate first-order factors in the moral disengagement second-order model. A third model included both social identification and envy as additional first-order factors ($\Delta\chi^2$ = 537.19, df = 138, p < .01). In each comparison model, the fit of the model was reduced. We also estimated several additional models in which social identification and envy items loaded on first-order factors in the moral disengagement model. In each case, model fit was significantly better for the hypothesized model with moral disengagement as a second-order latent factor and social identification and envy items loading on their respective first-order factors.

Hypothesis Tests

The descriptive statistics and correlations among the study variables are shown in Table 1. The regression analyses are shown in Table 2. We tested the moderated-mediation hypothesis using the nested-equations path analytic approach advocated by Edwards and Lambert (2007), which expresses the relationships as the integration of the family of equations that comprise moderated-mediation tests. This is accomplished by substituting the regression equation(s) for the mediating variable(s) (moral disengagement, in this case) into the equation for a given dependent variable (here, social undermining). These reduced-form equations are then used to derive direct, indirect, and total effects of the independent variable (individual-level undermining) across levels of the moderator variable.

TABLE 1
Correlations and Descriptive Statistics, Study 1[a]

	Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9
1.	Age	37.40	9.31									
2.	Gender	0.77	0.41	−.09								
3.	Tenure	9.04	7.02	.57**	.08							
4.	Negative affectivity	2.12	0.58	−.16*	.01	−.19*	(.83)					
5.	Procedural justice	3.72	1.29	−.13	−.12	−.13	−.08	(.75)				
6.	Envy	3.60	0.99	−.07	.10	.07	.20**	−.27**	(.71)			
7.	Social identification	3.28	0.81	−.14	.07	.02	−.02	.23**	−.09	(.70)		
8.	Moral disengagement	3.24	0.76	.06	.03	.22**	.16*	−.32**	.50**	−.03	(.87)	
9.	Social undermining, time 2	2.90	0.91	−.07	−.03	−.14	.18*	.02	.13*	−.10*	.18*	(.85)

[a] n = 160. Variables were assessed at time 1 except where noted. Gender was coded 1 for "female" and 0 for "male." Coefficient alpha reliabilities are reported on the main diagonal in parentheses.
  * p < .05
  ** p < .01

TABLE 2
Regression Results, Study 1[a]

Variables	Moral Disengagement		Social Undermining = Time 2	
	Step 1	Step 2	Step 1	Step 2
Age	.00	.00	.00	.00
Gender	−.06	−.03	−.24	−.24
Tenure	.02	.02	−.01	−.01
Negative affectivity	.21*	.20*	.25*	.23*
Procedural justice	−.11*	−.09*	.05	.08
Envy	.44**	.49**	.16*	.06
Social identification	.02	−.00	−.17*	−.18**
Social identification envy		−.24**		
Moral disengagement				.22**
Total R^2	.40**	.43**	.14**	.18**
ΔR^2	.40**	.03**	.14**	.04**

[a] $n = 160$. Variables were assessed at time 1 except where noted. Gender was coded 1 for "female" and 0 for "male."
 * $p < .05$
 ** $p < .01$

Our theoretical model is an example of a "first-stage" mediation hypothesis because the moderating effect of social identification operates on the first stage of the indirect relationship between envy and social undermining behavior (Edwards & Lambert, 2007).

We used path analysis conventions for describing relationships in terms of the direct, indirect, and total effects of envy on social undermining at different levels of social identification. Thus, P_{MX} refers to the paths from X (envy) to M (moral disengagement mediator); P_{YM} is the path from M (moral disengagement) to Y (social undermining); P_{YX} is the path from X to Y (that is, the direct effect of envy on social undermining); $P_{YM} \times P_{MX}$ refers to the indirect effects, and $P_{YX} + (P_{YM} \times P_{MX})$ is the total effect of X on Y. Product terms such as indirect effects are not normally distributed and, consequently, the type 1 error rate may be inflated when such terms are tested for significance (Shrout & Bolger, 2002). Therefore, we followed Edwards and Lambert's (2007) suggestions and estimated the sampling distributions of the product of regression coefficients using a bootstrap procedure with 10,000 samples to construct confidence intervals for the significance tests of indirect and total effects.

As the regression results in the left-hand columns of Table 2 show, envy is significantly related to moral disengagement in step 1 ($b = .44$, $p < .01$), explaining a unique 19 percent of the variance (semipartial R^2), but the main effect of social identification was not significant ($b = .02$, n.s.). In step 2 of the moral disengagement equations, the interaction of envy and social identification was signif-

icant ($b = −.24$, $p < .01$) and explained an additional 3 percent of the variance. As predicted, the relationship between envy and moral disengagement was strongly positive when social identification was low ($b_{\text{low SI}} = .73$, $p < .01$), and was significant, but it was significantly weaker when social identification was high ($b_{\text{high SI}} = .25$, $p < .01$).

The right side of Table 2 reports the regression results for social undermining. Envy positively ($b = .16$, $p < .05$) and social identification negatively ($b = −.17$, $p < .05$) predicted social undermining assessed eight months later at time 2. At step 2, moral disengagement positively predicted social undermining ($b = .22$, $p < .01$), explaining 4 percent of the variance in social undermining.

We used the information from the regression results in Table 2 to conduct path-analytic tests at low and high levels of social identification. As Table 3 shows and Figure 2 illustrates, the effects of envy on social undermining through moral disengagement vary across levels of social identification. When social identification was low, the indirect effects of envy on social undermining through moral disengagement ($P_{YM} \times P_{MX} = .16$, $p < .01$) and the total effects ($P_{YX} + [P_{YM} \times P_{MX}] = .22$, $p < .01$) were significant. In contrast, the indirect ($P_{YM} \times P_{MX} = .05$, n.s.) and total effects ($P_{YX} + [P_{YM} \times P_{MX}] = .11$, n.s.) of envy on social undermining were not significant when social identification was high. Thus, Hypothesis 1 was supported. Following Edwards and Lambert (2007) and Duffy et al. (2006), we conducted several tests to compare our hypothesized first-stage moderated mediation model with other possible models that could pro-

TABLE 3
Path-Analytic Results, Study 1: Indirect and Total Effects of Envy (via Moral Disengagement) on
Social Undermining at Low and High Levels of Social Identification[a]

Variables	P_{MX}	P_{YM}	Direct Effects (P_{YX})	Indirect Effects $(P_{YM} \times P_{MX})$	Total Effects $(P_{YX} + [P_{YM} \times P_{MX}])$
Simple paths for low social identification	**.73****	.22**	.06	**.16****	**.22****
Simple paths for high social identification	**.25****	.22**	.06	**.05**	**.11**

[a] $n = 160$. Coefficients in bold are significantly different across social identification levels.
** $p < .01$

vide an alternative explanation for our findings. Specifically, we examined whether social identification moderated the direct relationship between envy and social undermining and whether social identification moderated the second stage between moral disengagement and social undermining. Neither interaction term was significant. Hence, the hypothesized first-stage moderation model was the best representation of the data.

STUDY 2: THEORETICAL EXTENSIONS AND CONTEXT

The findings from Study 1 support our theory of the relationship between envy and social undermining and thereby make two novel theoretical contributions. First, Study 1 results elucidate a mechanism, moral disengagement, through which envy of others at work relates to social undermin-

FIGURE 2
Moderated Indirect Effect of Envy on Social Undermining (via Moral Disengagement) at Low and High
Levels of Social Identification, Study 1
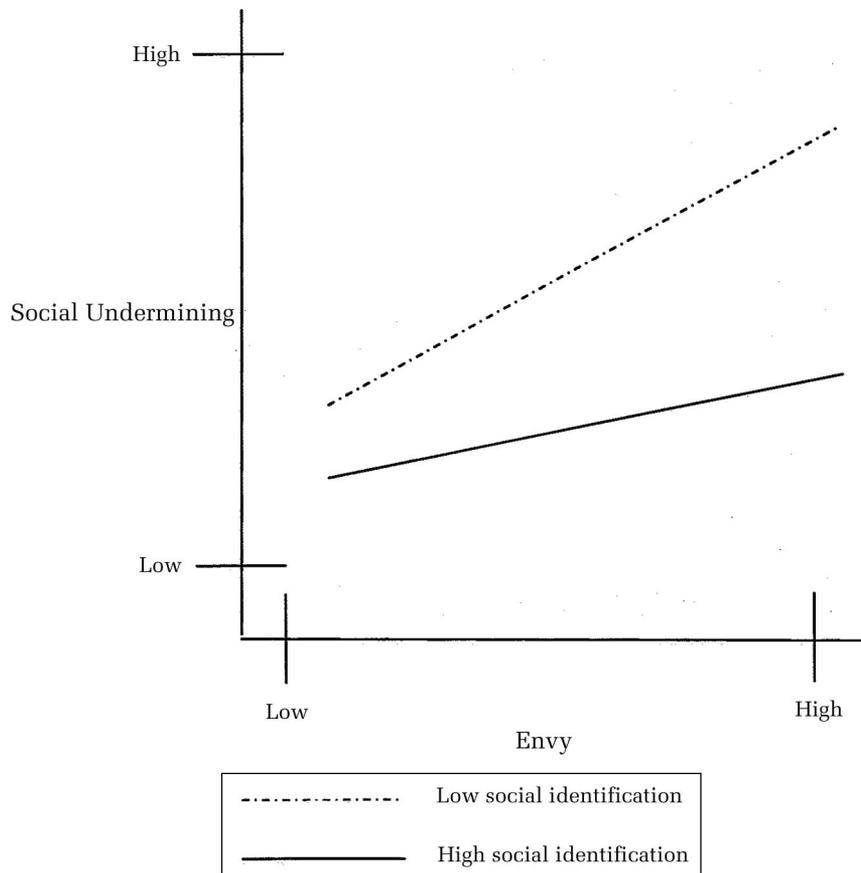
ing behavior. Second, these results diverge from current thinking by showing that envy relates to social undermining behavior (through moral disengagement) only when social identification with coworkers is low. When social identification is high, envious individuals do not disengage their self-sanctions against harmful behavior. Thus, social identification appears to be an antidote to the negative interpersonal effects of envy.

Study 2 was designed to extend Study 1 in two ways. First, we sought to constructively replicate Study 1 by examining our model at the team level and using an alternative operationalization of social identification: degree of within-team identification. Drawing on social-identification-based theories, Brown, Condor, Mathews, Wade, and Williams (1986) suggested that team identification involves awareness of membership, an evaluation (positive or negative) of this membership, and affective responses to membership. That is, teams differ systematically in terms of whether members define themselves as part of a team, view this membership positively, and have an affinity for other team members. Modeling identification as a team-level construct challenges the robustness of the Study 1 findings across contexts and operationalizations of key constructs, which improves the value of our replication (Schmidt, 2009).

The second major objective of Study 2 was to incorporate a broader conceptualization of social context, one including ambient undermining norms, into our model. Specifically, in Study 2 we examined the notion that undermining norms present in a team may serve as another antidote to the effects of envy by shaping how individuals react to moral disengagement. Social influence and identity researchers (e.g., Turner, 1982, 1991) have argued that implicit and informal pressures to conform to social norms can influence behavior, even in the absence of explicit agreements or formal rules. Social influence can be categorized as normative, informational, and referent informational (e.g., Bamberger & Biron, 2007; Turner, 1991). Normative influence involves pressures to conform that are based on individual desires to be approved of and/or avoid rejection. That is, pressures to conform are exerted because others in the social environment have the means to reward or punish. Informational influence involves individuals searching for information that can be used to make accurate behavioral choices (Turner, 1982). Referent informational forces are those that individuals use in attempts "to align their own beliefs and perceptions with those deemed characteristic of some salient social identity" (Bamberger & Biron, 2007: 184).

We argue that norms for undermining in a social context either strengthen or weaken the relationship between moral disengagement and individual social undermining behavior. We define undermining norms in the team context as aggregate perceptions that individuals in the social context are undermining others (e.g., Duffy et al., 2006; Tepper et al., 2008). Our conceptual definition reflects the idea of a descriptive norm, or the "perceived prevalence or typicality of a given behavior" (Jacobson, Mortensen, & Cialdini, 2011: 434). In essence, we argue that team norms for undermining behavior play a role in conditioning or moderating the relationship between moral disengagement and individual social undermining (Bamberger & Biron, 2007; Duffy et al., 2006).

Although team undermining norms may directly influence individual undermining behavior, antisocial behavior researchers (e.g., Duffy et al., 2006; Robinson & O'Leary-Kelly, 1998) and social influence researchers (e.g., Hackman, 1992) have long recognized that such norms may also moderate the relationship between individual factors and behaviors. We expect that the relationship between moral disengagement and individual undermining behavior will be moderated by team undermining norms.

We believe that when team undermining norms are strong—when the social environment of a team is rife with individuals undermining their colleagues—the relationship between moral disengagement and individual undermining behavior will be stronger. Under these conditions, as moral disengagement increases, individuals will have not only selectively disengaged self-sanctions against antisocial behavior, but will also have been in a team social context that encourages such behavior. The information contained in a strong descriptive norm for social undermining is particularly pertinent in this situation. First, individuals use the information communicated in descriptive norms as a heuristic for behaviors that are likely to be immediately advantageous to themselves—for example, behaviors that are aligned with intrapersonal rather than interpersonal motives (Cialdini & Trost, 1998). Second, because individuals use descriptive norms, or the typical behavior exhibited by others in their social environment, as a short-cut for behavioral decision making in a given context, the effects of norms are likely to be the most powerful when self-regulatory capability is depleted (Berger & Rand, 2008). When team undermining norms are strong, moral disengagement (that is, the deactivation of self-sanctions against harming others) should be a powerful predictor of social undermining.

When team undermining norms are weak—when few individuals in a social environment undermine their colleagues—the relationship between moral disengagement and individual undermining behavior should be weaker. Here, the social environment exerts normative, informational, and referent informational pressures to refrain from injurious behavior. As such, even though individual self-sanctions against antisocial behavior may be deactivated (i.e., moral disengagement is high), the social environment should assuage the inclination to undermine others.

These arguments can be integrated with our theory development in Study 1 to produce an elaborated process model that accounts for the mechanism by which envy leads to social undermining (i.e., moral disengagement) and antidotes to envy based on both social identity and social context. In the literature, envy of others is viewed as being a "call to action" (Smith & Kim, 2007: 54; Vidaillet, 2006) in of the form of antisocial behavior; we qualify this line of reasoning and theorize that this link, through moral disengagement, will be observed under a narrow set of circumstances. We propose that the relationship between envy and moral disengagement is stronger when team identification is low and that the relationship between moral disengagement and individual social undermining is stronger when undermining norms are high. Stated in the terms that Edwards and Lambert (2007) used, the indirect effect of envy on social undermining behavior will be strongest when team identification is low (a first-stage moderator) and when team undermining norms are strong (the second-stage moderator). The integrative hypothesis is stated below:

Hypothesis 2. The strength of the mediated relationship between envy and social undermining (via moral disengagement) varies depending on the extent of social identification and team undermining norms; the indirect effect of envy on social undermining is stronger when social identification is lower and team undermining norms are higher.

STUDY 2: METHODS

Sample

Participants were enrolled in upper-division business administration courses at a large midwestern university. The study was designed to closely approximate the work done by groups in industrial settings by ensuring that (1) students were assigned to groups that remained intact throughout the term, and (2) groups completed multiple assignments throughout the term (see Duffy, Shaw, and Stark [2000] for a similar approach). Instructors assigned students to teams randomly. The analysis sample size was 247. Data for this study were collected four times (at four- to eight-week intervals) during the course of the semester. The first collection took place during the first week of class; the second collection was done approximately four weeks later; the third data collection was during week 8 of the term; and the final collection was done during the last week of class. We used data from all four waves in this study. Data for the control variables were collected at time 1; data for the envy and team identification variables were collected at time 2; moral disengagement and team social undermining, at time 3; and individual social undermining behavior, at time 4. The classes included 408 students in 96 teams. Missing data over the four waves of data reduced the individual-level analysis sample to 247, representing an overall 60 percent participation rate. Members of the research team (not course instructors) distributed and collected the study questionnaires. Participants were informed that their responses would be kept confidential and that their participation was voluntary. The average age of participants was 22.99 (s.d. = 3.02), and 56 percent were female.

Measures: Independent Variables

Envy (time 2). Envy was again assessed with the Vecchio (1995, 1999) measure, adapted to the team context. The items had seven Likert-type response options (α = .83).

Team identification (time 2). Team identification was assessed using a nine-item measure from Wheeless, Wheeless, and Dickson-Markman (1978). Sample items are "My team is very close to each other" and "My team members share a lot in common with one another." The items had seven Likert-type response options (α = .79).

Moral disengagement (time 3). As in Study 1, moral disengagement was measured with the 15-item scale from McFerran et al. (2010), adapted to the context. The items had seven Likert-type response options (α = .90). A second-order confirmatory factor model revealed good overall model fit (χ^2 = 128.76, df = 87, χ^2/df = 1.48, AGFI = .93, CFI = .97, RMSEA = .05). The coefficient alpha reliability for the 15-item overall measure was .90.

Team undermining norms (time 3). The 13-item social undermining measure from Duffy et al. (2002) was used (α = .93). The items were adapted from a coworker perspective to a group context. The instructions directed participants to report how often their team members intentionally engaged in each form of undermining. Sample items are "How often have your team members intention-

ally talked bad about other teammates behind their backs?" and "How often have your team members intentionally given each other the "silent treatment"?" The items had response options from 1 ("never") to 7 ("all the time"). Mean scores on the 13 items were aggregated to the team level.

Individual social undermining (time 4). We measured individual social-undermining behavior at time 4 using Duffy et al.'s (2002) 13-item measure (α = .95). We adapted the measure to reflect self-reports of one's own undermining behavior during the term (e.g., "How often have you intentionally talked bad about your team members behind their backs?"). The items had response options that ranged from 1 ("never") to 7 ("all the time").

Control variables (time 1). We controlled for age, gender, negative affectivity (using PANAS [Watson et al., 1988]), and procedural justice (six items [Moorman, 1991]), following the arguments for their inclusion in Study 1. Coefficient alpha reliabilities for negative affectivity and procedural justice were .88 and .79, respectively. Tenure was not relevant in the context of student teams.

STUDY 2: RESULTS

Response Bias Checks and Measurement Issues

We used logistic regressions and comparisons over time periods to assess potential response bias. First, we compared those who were eliminated because of missing data (n = 161) with participants in the final analysis sample (n = 247) on a range of demographic and expectation variables collected at time 1. The variables were age, gender, grade point average (GPA), class standing, number of prior classes taken that involved teamwork, and efficacy expectations for the class; for example, "I am confident that I can do well in this class." We coded analysis sample participants as 1 and participants at time 1 only as 0 and included this dichotomy as the dependent variable in a logistic regression analysis with the predictors. Only one variable, gender, was significant in this analysis. Male participants were more likely to have missing data on one of the study variables. Gender was included as a control in the multivariate analyses. We also compared measurement models with team identification ($\Delta\chi^2$ = 240.24, df = 64, p < .01) and envy ($\Delta\chi^2$ = 242.75, df = 62, p < .01) included as separate first-order factors in the moral disengagement second-order model. A third model included both social identification and envy as additional first-order factors ($\Delta\chi^2$ = 489.48, df = 208, p < .01). In each comparison model, the fit of the model was reduced. We also estimated several additional models in which team identification and envy items loaded on first-order factors in the moral disengagement model. In each case, model fit was significantly better for the hypothesized model with moral disengagement as a second-order latent factor and team identification and envy items loading on their respective first-order factors.

We calculated $r_{wg(j)}$ (James, Demaree, & Wolf, 1984) to assess intrateam agreement and also calculated ICC1 and ICC2 before aggregating the team identification and team undermining norms measures to the team level. For team identification at time 2, the mean $r_{wg(j)}$ was .85 (range = 0.24–1.00), and 86 percent of teams had agreement levels higher than 0.70. ICC1 represents the reliability of a single or individual assessment of the group mean, whereas ICC2 reflects the reliability of the team means. These values were .21 and .55 for ICC1 and ICC2, respectively. For team undermining norms at time 3, $r_{wg(j)}$ values ranged from 0.96 to 1.00, with an average value of .99. ICC values were .17 and .48 for ICC1 and ICC2, respectively. Supporting aggregation, the $r_{wg(j)}$ values indicated strong within-team agreement, and ICC1 calculations revealed significant between-team variance in the team identification and team undermining norms measures. The ICC2 values fell below standard benchmarks for team-mean reliability, which may result in underestimated relationships (Bliese, 1998). The implications will be addressed in the Discussion.

Hypothesis Tests

The tests of the integrative moderated-mediation hypothesis using team-level identification involved a "slopes as outcomes" or cross-level moderator analysis in hierarchical linear modeling (HLM; e.g., Raudenbush & Bryk, 2002). The analyses for evaluating the replication model were parallel to those in Study 1, although coefficients are γ's in HLM, and the interaction of envy and team identification (XZ) is a cross-level moderation effect. Tests of the theoretical extension involved team undermining norms as a second stage moderator. Thus, the nested equations for the full model incorporated this additional moderating variable. The tests of conditional indirect effects in the full model examine whether the mediated effect of envy on individual social undermining behavior through moral disengagement varies as a function of team identification (the stage 1 moderation of team identification on the envy-moral disengagement relationship) and team undermining norms (the stage 2 moderation of team undermining norms on the relationship between moral disengagement and individual social undermining).

A null model test with moral disengagement as the outcome variable revealed that 8 percent ($p < .05$) of the variance in moral disengagement resided at the team level and 92 percent resided at the individual level. When individual social undermining was the outcome, the null model test revealed that 6 percent ($p < .05$) of the variance resided at the team level and 94 percent resided at the individual level.

Descriptive statistics for and correlations among the study variables are presented in Table 4. The HLM results are shown in Table 5, and the path-analytic estimates are shown in Table 6. As the HLM results in Table 5 show, when moral disengagement at time 2 is the outcome, envy is significantly and positively related ($\gamma = .29$, $p < .01$) in step 1, explaining 11 percent of the available level 1 variance in moral disengagement. Team identification, in contrast, is not a significant level 2 predictor of moral disengagement in step 1 ($\gamma = -.11$, n.s.). In step 2 of the moral disengagement equations, the team identification cross-level interaction is significant ($\gamma = -.26$, $p < .05$). When team identification was low, the relationship between envy and moral disengagement was significant and positive ($\gamma_{\text{low time I}} = .60$, $p < .01$), but it was not significant when team identification was high ($\gamma_{\text{high time I}} = .02$, n.s.). We computed a pseudo-R^2 for team identification as a level 2 moderator of the relationship between envy and moral disengagement. Level 2 slopes as outcomes pseudo-R^2 values are calculated relative to the amount of between-group variation in slopes (Hofmann, Griffin, & Gavin, 2000), and the formula is:

$$\text{Pseudo-}R^2, \text{ level 2 slope model} = (\tau_{11} \text{ intercept-}$$
$$\text{as-outcomes} - \tau_{11} \text{ slopes-as-outcomes})/$$
$$\tau_{11} \text{ intercept-as-outcomes, } \quad (1)$$

where τ_{11} intercept-as-outcomes is the residual between-group variance in slopes in a model without the cross-level interaction term, and τ_{11} slopes-as-outcomes is the residual between-group variance in slopes in a model with the interaction term. Using this formula, we found that team identification explains 20 percent of the available slope variance in the relationship between envy and moral disengagement.

The right side of Table 5 includes the results when individual social undermining (time 4) was the outcome variable. Envy was positively related to individual social undermining assessed at time 4 ($\gamma = .07$, $p < .05$), explaining 3 percent of the available variance at level 1, and team identification was also significantly related to individual social undermining assessed at time 4 ($\gamma = -.07$, $p < .05$). In step 2, moral disengagement was significantly related to social undermining ($\gamma = .07$, $p < .01$) and explained 14 percent of the level 1 variance, while team undermining norms was also a significant predictor ($\gamma = .12$, $p < .01$), explaining 70 percent of the available variance in intercepts at level 2.

The information from the HLM results in Table 5 was used to conduct path-analytic tests at low and high levels of team identification. These results are shown in Table 6. The path estimates revealed that the effects of envy on individual social undermining through moral disengagement varied across levels of team identification. When team identification was low, the indirect effects of envy on social undermining ($PYM \times PMX = .04$, $p < .05$) and the total effects of envy on social undermining were significant ($PYX + [PYM \times PMX] = .06$, $p < .01$). As expected, neither indirect nor total effects of envy on social undermining were significant when team identification was high. In addition, the first-

TABLE 4
Correlations and Descriptive Statistics, Study 2[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9
1. Age, time 1	22.99	3.02									
2. Gender, time 1	0.56	0.49	−.01								
3. Negative affectivity, time 1	1.81	0.62	.00	.05	(.88)						
4. Procedural justice, time 3	3.59	0.88	−.06	−.03	.15*	(.79)					
5. Envy, time 2	2.33	0.87	.06	.18**	.13*	−.05	(.83)				
6. Team identification, time 2, team level	3.81	1.2	−.02	−.05	−.08	−.07	.19**	(.79)			
7. Moral disengagement, time 3	2.86	0.86	−.15**	.28**	.24**	−.09	.32**	.08	(.90)		
8. Team undermining norms, time 3, team level	1.22	0.16	.04	.08	.07	−.10	.06	−.15*	−.20**	(.93)	
9. Social undermining, time 4	1.32	0.28	.01	.10	.12	.01	.16*	.23**	.08	.44**	(.95)

[a] $n = 247$. Coefficient alpha reliabilities are reported on the main diagonal in parentheses. Gender coded 1 for "female" and 0 for "male."

* $p < .05$
** $p < .01$

TABLE 5
Hierarchical Linear Modeling Results, Study 2[a]

Variables	Moral Disengagement, Time 2		Social Undermining, Time 4		
	Step 1	Step 2	Step 1	Step 2	Step 3
Age, time 1	−.05**	−.06**	.00	.00	.01
Gender, time 1	.42**	.39**	.05	.01	.00
Negative affectivity, time 1	.42**	.33**	.05	.02	.03
Procedural justice, time 3	−.10	−.09	.01	.02	.01
Envy, time 2	.29**	.31**	.07*	.02	.02
Team identification, time 2	−.11	−.15	−.07*	−.02	−.02
Team identification × envy		−.26*			
Moral disengagement, time 3				.07**	.07**
Team undermining norms, time 3				.12**	−.02
Moral disengagement × team undermining norms					.12**
Δ pseudo R^2: Level 1 "intercepts as outcomes"	.28**		.03*	.14**	
Δ pseudo R^2: Level 2 "intercepts as outcomes"	.02		.02*	.70**	
Δ pseudo R^2: Level 2 "slopes as outcomes"		.20*			.74**

[a] $n = 247$.
* $p < .05$
** $p < .01$

stage moderation, indirect effects, and total effects were significantly stronger when team identification was low. Thus, Hypothesis 1 was supported in Study 2.

The results in Table 5 also show that the level of team undermining norms (time 3) moderates the relationship between moral disengagement and individual social undermining (time 4). A plot of this relationship (Figure 3) revealed that the relationship between moral disengagement and individual social undermining was significant and positive when team undermining norms were high ($\lambda_{\text{high team undermining norms}} = .19, p < .01$) but was not significant when team undermining norms were low ($\lambda_{\text{low team undermining norms}} = −.05$, n.s.). A summary that includes path-analytic estimates for the extended model (the tests of Hypothesis 2) is shown in Table 7. Here, the direct and indirect effects of envy on individual social undermining behavior are shown across levels of the first-stage moderator (team identification, time 2) and the second-stage moderator (team undermining norms, time 3). As the HLM results in Table 5 and

the path estimates in Table 7 show, the effects of envy on individual undermining behavior differed across levels of both the first- and second-stage moderators. Specifically, when team undermining norms were low, the effects of envy on individual undermining behavior at a later time were ameliorated. Neither the conditional indirect or total effects of envy on individual social undermining were significant when team undermining norms were low, regardless of the level of team identification. A different pattern of findings was observed when team undermining norms were high. Here, when team identification was also low, there were significant indirect ($P_{YM} \times P_{MX} = .11, p < .01$) and total $P_{YX} + [P_{YM} \times P_{MX}] = .13, p < .01$) effects of envy of social undermining behavior at time 4. The indirect and total effects were not significant when team undermining norms were high and team identification was also high. In addition, the indirect effects and total effects were significantly stronger when team identification was low and team undermining norms were high compared to other conditions, as predicted. Figure 3 shows the plot of the

TABLE 6
Path-Analytic Results, Study 2: Indirect and Total Effects of Envy (via Moral Disengagement) on Social Undermining at Low and High Levels of Team Identification (Replication Model)[a]

Variables	P_{MX}	P_{YM}	Direct Effects (P_{YX})	Indirect Effects $(P_{YM} \times P_{MX})$	Total Effects $(P_{YX} + [P_{YM} \times P_{MX}])$
Simple paths for low team identification	**.60****	.07**	.02	**.04***	**.06****
Simple paths for high team identification	**.02**	.07**	.02	**.00**	**.02**

[a] $n = 247$. Coefficients in bold are significantly different across team identification levels.
* $p < .05$
** $p < .01$

FIGURE 3
Moderated Indirect Effect of Envy on Social Undermining (via Moral Disengagement) at Low and High Levels of Social Identification and Team Undermining Norms, Study 2
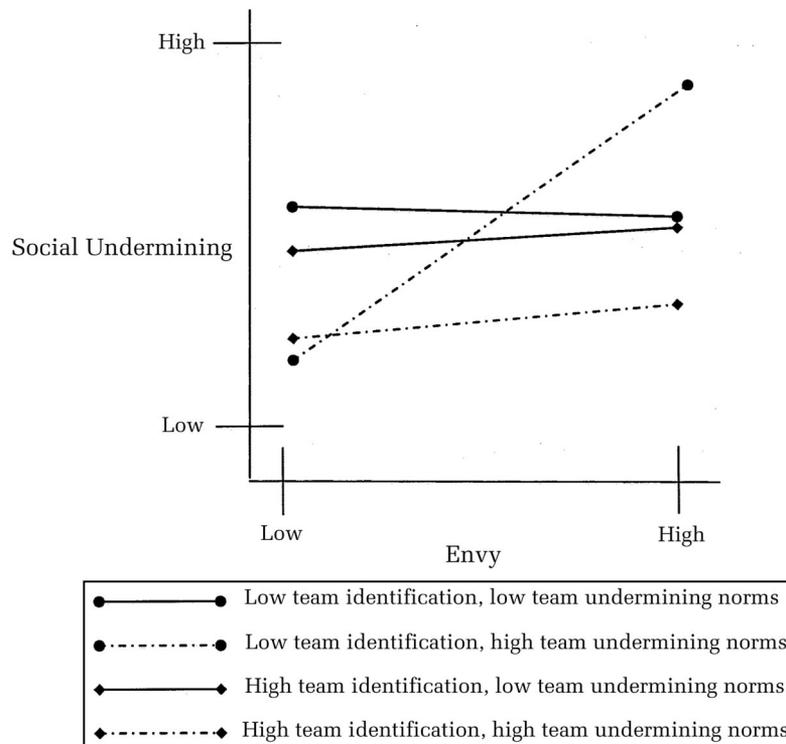
indirect effect of envy on individual social undermining through moral disengagement for the four combinations of low and high team identification and team undermining norms. As the Figure illustrates, the indirect effect was significant and positive only under the combination of low team identification and high team undermining norms; under all other conditions, there was no indirect effect of envy on social undermining. Hence, Hypothesis 2 was supported.

As in Study 1, we conduct additional tests to challenge the hypothesized model (Duffy et al., 2006; Edwards & Lambert, 2007). We estimated direct-effect moderation (the interaction of envy and team identification) and an alternative form of second-stage moderation (the interaction of moral disengagement and team identification) in predicting individual social undermining. Neither of these interactions was significant. Thus, the hypothesized model was the best portrayal of the data: the effects

TABLE 7
Path-Analytic Results, Study 2: Indirect and Total Effects of Envy (via Moral Disengagement) on Social Undermining at Low and High Levels of Team Identification and Low and High Levels of Team Undermining Norms (Theoretical Extension Model)[a]

Variables	P_{MX}	P_{YM}	Direct Effects (P_{YX})	Indirect Effects $(P_{YM} \times P_{MX})$	Total Effects $(P_{YX} + [P_{YM} \times P_{MX}])$
When team undermining norms are low					
Simple paths for low team identification	**.60****	−.05	.02	*−.03*	*.01*
Simple paths for high team identification	**.02**	−.05	.02	*.00*	*.02*
When team undermining norms are high					
Simple paths for low team identification	**.60****	.19**	.02	***.11*****	***.13*****
Simple paths for high team identification	**.02**	.19**	.02	**.00**	**.02**

[a] $n = 247$. Coefficients in bold are significantly different across team identification levels. Coefficients in italic are significantly different across team undermining norms levels.

** $p < .01$

of envy on individual undermining behavior were carried through moral disengagement only when team identification was low and social undermining of team members was high.

DISCUSSION

Implications for Theory and Research

We developed and tested a model that explicates how and under what circumstances employees engage in social undermining behavior as an interpersonally destructive way of responding to feelings of envy. A two-wave study of hospital employees supported our prediction that social undermining is more likely to occur when individuals morally disengage the self-sanctions that ordinarily inhibit them from harming others. However, we also showed that disengagement did not occur when employees identified strongly with coworkers. We replicated and extended this finding in a four-wave study of student teams and showed that the indirect effect of envy on social undermining through moral disengagement occurred only when social identification was low and team undermining norms were high.

A novel contribution of our work is the introduction of a theoretical model that provides a nuanced explanation of how and under what circumstances feelings of envy predict social undermining. Our model differs from previous theories of envy in that we suggest that the process leading from envy to social undermining partly depends on peoples' willingness to disable self-sanctions against harm doing. To our knowledge, no previous theories have introduced moral disengagement as an intervening mechanism in the envy–behavioral response relationship. But we go even further in this model by proposing that social identification can neutralize moral disengagement as a response to envy. Finally, our model introduces a second moderator in the process that leads from envy to social undermining by highlighting the role that team norms play in further disabling the link between envy and harm doing. The explanation of how envy leads to social undermining therefore involves multiple stages in which a key mediating construct—moral disengagement—can be either reinforced or weakened by social-contextual factors.

Prior research has demonstrated that social identification heightens envious feelings; we found a significant, positive relationship between these two variables in Study 2, but not in Study 1. Our perspective shows that such findings do not tell the complete story because they fail to account for the consequences of envy and the role that social iden-

tification plays in shaping these consequences. Our model, couched in moral disengagement and social identity theories, reveals that although envy may be more likely under high social identification, this contextual variable also tempers antisocial responses by inhibiting the process of moral disengagement.

A second important contribution of our research is that it expands understanding of the role of moral disengagement as a predictor of willingness to harm others. Other studies (e.g., Aquino, Reed, Thau, & Freeman, 2007; Detert et al., 2008) have documented relationships between moral disengagement and various antisocial responses. However, our model and empirical findings go beyond previous research by demonstrating the relationship between an emotional antecedent—envy—and the process of disengagement. By doing so, our model draws attention to the role that envy plays in shaping cognitive processes (beyond general negative affectivity and procedural justice) and, ultimately, negative behavior and responds to calls for additional studies of discrete emotions.

It is important to note that the effect sizes of envy on social undermining in both studies were relatively small. That is, the indirect and total effects of envy were statistically significant and significantly stronger under our hypothesized "ideal" conditions, but in our models a large amount of variance was left unexplained even under these conditions. Thus, readers should keep in mind the overall magnitude of the effects when evaluating the empirical contributions of our research. On the one hand, the results supported our predictions in two distinct contexts and were observed to go over and above controls for established predictors of antisocial behaviors such as negative affectivity and procedural justice. On the other hand, envy is considered a "call to action" (Smith & Kim, 2007: 53) and is seen by researchers as a prominent conceptual antecedent of undermining; our results suggest that envy's role may have been overstated in the literature. We offer four potential explanations for the effect sizes here. First, we took a general view of envy of others, thus using one of three conceptualizations that appear in the literature. This perspective has certain advantages; in particular, it captures persistent invidious reactions (e.g., our example of being envious of other colleagues' superior publishing patterns) that are not captured by an episodic view of envy. But perhaps social undermining is more likely to follow a specific or "hot" episode of envy (e.g., gossiping about a colleague immediately after the colleague receives an acceptance letter). Our results show the cumulative level of envy in a work context relates to social undermining under certain

conditions (albeit at a modest level), but an unknown is whether envy is more strongly related to self-improvement or to other self-image-enhancing techniques under those or other conditions. As an anonymous reviewer suggested, an important step for future research would be to design field studies; one example would be to use experience sampling and sociometric (network) methods and designs to link specific envy-inducing events and specific individuals to changes in moral disengagement and social undermining behavior. Such designs would allow a comparative examination of the multilevel effects of invidious episodes and average envy levels on event-specific and average undermining levels over time.

Second, the nature of social undermining itself may have contributed to the small effect sizes. Social undermining and negative interactions, in general, typically violate social norms and occur less frequently than positive interactions (e.g., Duffy et al., 2002). The means and standard deviations for our undermining measures were quite low, especially in the student team sample. The lack of variance in the operationalizations may have attenuated the effect sizes. Although individuals react more strongly to social undermining than to social support, predicting rare or difficult-to-influence dependent variables can be a challenge and, in such cases, small effects could be considered meaningful (Prentice & Miller, 1992).

Third, it is also possible that other dimensions of a social environment play a role in facilitating a social-undermining-based response to invidious comparisons. We find evidence that low social identification and strong norms for undermining exacerbate envy's effect on social undermining, but it is also possible that individuals are more likely to engage in undermining behaviors when they have little fear of retaliation or of being punished for their acts. Although team undermining norms provide some indication of the likelihood of a tit-for-tat response (and results show they increase the likelihood that envy through moral disengagement will result in undermining), other social context factors, such as low social interdependence and organizational norms regarding the likelihood of being punished for negative behaviors, may also play a role. Data constraints prohibited us from exploring these possibilities, but to the extent that these factors may play a role, our modest effect sizes could be attributed to their absence from the model. Fourth, it is possible that the nature of our studies' contexts—a workplace in Study 1 and university student teams in Study 2—may have played a role. As noted above, a workplace offers numerous opportunities for painful social comparisons

with others, but it also provides numerous opportunities to curb potentially damaging reactions to invidious comparisons. In work contexts, individuals must attempt to maintain a positive standing to perform well and receive applicable outcomes such as promotions and pay raises and, clearly, to avoid termination. In the student context, envy that leads to social undermining may result in poor peer evaluation grades. In both cases, prohibitions against social undermining may take the form of implicit pressures or norms, or specific formal "zero-tolerance" policies that discourage such behavior. In such instances, it is possible that instead of antisocial responses to envy of others, individuals are more likely to engage in prosocial, self-improvement-focused, or other positive behaviors. We discuss specific suggestions for future research on this issue later in this section.

Estimates suggest organizations lose about $6 billion per year because of hostile work environments created by behavior such as abuse (Keashly, Trott, & MacLean, 1994; Tepper, 2000), incivility (Pearson, Andersson, & Porath, 2000), and bullying, aggression, and undermining (Giacalone & Greenberg, 1997; Griffin, O'Leary-Kelly, & Collins, 1998a, 1998b; Rayner, Hoel, & Cooper, 2002). Although the effect sizes in our studies were modest, these massive costs suggest that any efforts to curb social undermining can have practical value. Our findings suggest that organizational leaders can take certain actions to help mitigate the undesirable effects of workplace envy. In particular, our studies underscore that managers should promote professional and personal camaraderie (e.g., Colquitt, Greenberg, & Zapata-Phelan, 2005). Such actions may diminish the likelihood that employees will experience the moral disengagement that expresses itself as antisocial behavior. Our results for perceptions of similarity in Study 1 suggest that any attempts to identify common bonds among coworkers could assuage the tendency for envy to lead to moral disengagement. The use of employee affinity or interest (e.g., related to photography or music) or resource (e.g., related to career development or community involvement) groups may increase perceptions of similarity and curtail the negative effects of envy. Indeed, Exline and Zell argued that "a focus on any common bond or connection that might facilitate empathy" may help mitigate envy's harmful consequences (2008: 325). Exline and Zell also suggested that interventions to enhance positive feelings toward an envied target may help mitigate the negative effects of envy. Within teams, our results in Study 2 suggest that increasing team identification (for example, through team-building sessions, retreats, or friendly team competitions)

may also have an ameliorating effect. Once moral self-sanctions have been deactivated, the results suggest that weak norms of undermining may also derail the process. Organizations may be able to reinforce weak norms for undermining by instituting zero-tolerance policies for deviance, implementing strict codes of conduct, and providing information about the costs of social undermining to employee groups (Tepper et al., 2008).

Limitations

We have noted several theoretical implications of our findings, but like all studies, ours have limitations. One is that a single source provided the data in Study 1, which raises concerns about common method bias. This concern may be somewhat mitigated because eight months separated the two waves of data collection; the higher-order interactions were not susceptible to common method effects; and Study 2 yielded a similar pattern of results with a team-level operationalization of social identification. Second, although the replication of our results across two studies is a step toward establishing the generalizability of our model, we cannot be certain that these findings generalize to a broader assortment of organizations and contexts. A third limitation is that our results cannot completely rule out causal mechanisms other than the ones we proposed. Our results merely suggest the plausible mediation pathways through which envy leads to undermining, but to make stronger causal inferences, researchers should use experimental designs to manipulate the variables in our model. Fourth, as discussed above, the effect sizes in our studies were modest. Our theory implies that the relationships between envy and a proximal outcome—moral disengagement—will be stronger than those with the distal outcome—social undermining—and the findings tended to reflect this. In addition, our theory suggests that because of the joint buffering effects of social identification and norms, the main effects of envy on social undermining behavior will be modest.

Fifth, although there was significant between-team variance and high within-team agreement for the team social identification and undermining norms measures in Study 2, the reliability of team means for these measures was somewhat below conventional reliability thresholds. Bliese (1998) showed that low ICC2 values are more common when teams are small and also argued that a likely consequence of low team-mean reliability is underestimation of the actual team-level relationships. Additional studies should rectify these measurement shortcomings. Sixth, we used an established measure of moral disengagement, but it is not immune from criticism. In particular, research that assesses the potential overlap of the moral disengagement items with measures of other constructs, such as moral development, is needed. Seventh, we operationalized envy using a self-report measure that is intended to reflect individuals' envy of others in their work environment. The measure we used is well-established in the literature, but one could argue that it captures more of a disposition to envy. We did not have any measure of dispositional envy in our data sets; however, we did control for negative affectivity, which captures the tendency to experience negative affective states, of which envy may be one. Nevertheless, we recognize that our measure of envy may capture a tendency to feel envious in many situations and not just those at work. In addition, the Vecchio (1995) items are indirect in that they refer to a set of envy-inducing cognitions without referring to the emotion of envy itself. A number of researchers have taken this approach because of the potential stigma associated with admitting envy, but future research that compares and contrasts alternative operationalizations is needed. Eighth, our theory and tests concerned a specific form of antisocial behavior, social undermining. Although undermining can be distinguished at a conceptual level from other forms of deviance, measures of various antisocial behavior constructs, including undermining, have been criticized for a lack of precision (Tepper & Henle, 2011). Future validation work on undermining measures and comparative tests of our model addressing different forms of antisocial behavior would be a step forward.

A final limitation concerns the use of a student team sample in Study 2. Although our student teams share some of the characteristics of work teams or task forces, the limited duration of their time together may not have been sufficient for our constructs (e.g., envy and team norms for undermining) to develop as fully as they otherwise might. To the extent that envy and undermining were not as prevalent in this context—the descriptive statistics for key variables tend to bear this out—our Study 2 results may have been underestimated.

Future Research Directions

Our research raises several important questions and highlights several avenues for future research. One important question raised by our findings concerns the role of social identification. If social identification is likely to increase feelings of envy while also neutralizing the propensity to morally disen-

gage as a result of feeling a greater moral obligation to show concern for the envied party, then should we view it as a positive or negative force in the envy-undermining process? Our answer is that it can be both. Other theorists have discussed how social identification can be a source of negative as well as positive behavior. For example, social identification can play a role in motivating out-group prejudice and bias while at the same time motivating people to sacrifice on behalf of in-group members. Similarly, our results provide evidence that social identification can be a double-edged sword, because it can both facilitate envy and temper its deleterious effects. But if envious employees who are high in social identification chose not to undermine coworkers, what do they do instead?

One possibility, which we were unable to test with our data, is that individuals who are envious but who are also high in social identification are more likely to cope with their envy and restore their diminished self-worth by making efforts at self-improvement. We mentioned at the beginning of our article that envy can motivate individuals to elevate their performance so that it equals or surpasses the levels of envied colleagues. The economist Thorstein Veblen noted this motive, suggesting that "the propensity for achievement—the instinct of workmanship—tends more and more to shape itself into a straining to excel others in pecuniary achievement. Relative success, tested by an invidious pecuniary comparison with other men, becomes the conventional end of action" (Veblen, 1979: 33; see also Duffy et al. [2008] and Schaubroeck and Lam [2004]). What our model adds to Veblen's observations about the motivational power of invidious comparisons is that sometimes envious people do not try to excel, but instead try to bring others down. Another possibility, suggested by an anonymous referee, is that envious individuals who identify with their coworkers attempt to improve themselves, perhaps by asking the envied others for advice or attempting to strengthen their friendships. What our data suggest as a possible question for future research is whether social identification might be a key variable that determines which of these paths an envious employee is likely to take. In addition, in our studies, team identification was positively related to envy in Study 2, a pattern consistent with prior literature, but social identification assessed at the individual level was not related to envy in Study 1. This difference could be study-specific, but perhaps the occupational diversity of the university hospital where we conducted Study 1, or the nature of medical work itself, weakened the link between social identification and envy. For example, a lab-

oratory technician may not be envious of the success of a nurse even when they closely identify with one another, because the natures of their tasks in their work group are so different. Concerning the nature of the medical environment, other studies have also shown weaker associations between known correlates (e.g., Judge, Bono, Thoresen, & Patton, 2001), findings that are attributed to the prescribed, rule-bound nature of medical work. We hope future research will explore this further.

Future research should also consider an alternative extension of social identification and its influence on envy-related reactions. It may be that one reason why social identification mitigated the conversion of envy into moral disengagement is that an envious employee might believe that whatever benefits the person he or she envies is receiving will eventually come to him or her. This explanation suggests that social identification may shape individuals' expectations about what they are likely to receive from an organization, which may temper the negative consequences of envy, at least in cases in which an employee identifies closely with the envied party. Future researchers could explore this and other alternative mechanisms for explaining our social identification findings.

Expanding our model to include a broader array of antecedents of envy and moral disengagement would also be a worthwhile endeavor. For example, related research examining moral decision making and action has shown that many emotions (e.g., moral outrage, anger, disgust) can influence moral behavior (Eisenberg, 2000; Haidt, 2003; Schweder & Haidt, 1993). Future research could also examine not only the differential and cumulative effects of envy and other "moral emotions" on moral disengagement and subsequent behavior but also explore how moral disengagement mechanisms contribute to a wider range of antisocial or deviant workplace behaviors. For example, to what extent does moral disengagement affect an employee's willingness to engage in illegal practices, lie to customers or other stakeholders, steal from an organization, or act violently?

Our studies can also be considered a call for additional research on the antecedents and consequences of social undermining. Knowledge in the literature on social undermining antecedents, like that in the broader literature on forms of antisocial behavior at work (e.g., abusive supervision [Tepper, 2007]), lags far behind knowledge about consequences of these behaviors (see Duffy et al. [2006] and Tepper et al. [2011], for recent exceptions). Although our findings indicate that envy can be used to explain the occurrence of social undermining at work, these effects appear under a fairly

narrow set of conditions and may not be as large in magnitude as has been argued in the literature. Given estimates showing substantial costs of social undermining for organizations and individuals, predictive models that extend understanding and can be used as a basis for interventions are greatly needed. A novel approach, suggested by an anonymous reviewer, would be to explore the potential for certain positive outcomes associated with social undermining. Like prior research that has uncovered negative outcomes associated with positive behaviors and dispositions (e.g., Duffy, Ganster, & Shaw, 1998), research on social undermining could be useful to the extent it identifies those who are not conforming to social norms or provides information that is useful for an individual in the workplace. Along these lines, Baumeister, Zhang, and Vohs argued that, despite its prevailing negative effects, gossip (a traditional marker of undermining behavior) can be useful when it "helps people learn about how to function effectively within the complex and ambiguous structures of human social (and cultural) life" (2004: 120).

An additional direction for future research concerns the role of descriptive versus injunctive forms of team undermining norms. As both our and Jacobson et al.'s (2011) results show, the combination of self-regulatory depletion and strong descriptive norms—the typicality of a given behavior in asocial environment—appears to be a potent combination for predicting behavior that serves an individual's self-interest. In contrast, when self-regulatory functions are depleted, injunctive norms are argued to be bellwethers for behaviors that are associated with social approval and long-term social relations in situations. Although we are unable to test this possibility here, researchers could use these ideas and Cialdini, Kallgren, and Reno's (1991) focus theory of normative conduct to develop differential predictions about the joint effects of envy, moral disengagement, and different types of norms for antisocial behavior in organizations.

A final direction that holds considerable promise for envy researchers is in the area of social comparisons. As Duffy et al. (2008) pointed out, relatively few studies have examined relationships between social comparison processes and the organizational factors that facilitate or inhibit them. An extension of our model to include organizational factors and social comparison processes explicitly would be a major step toward understanding the interplay of social comparisons and organizational factors. Finally, our theory and results may also have implications for diversity research. Researchers have shown that work group identification is often lower in diverse groups (Stewart & Garcia-Prieto, 2008).

Although the high level of homogeneity in our Study 2 teams did not allow us to investigate these issues, an interesting approach would be to explore how diversity plays a role in the envy, moral disengagement, and undermining processes outlined in our studies.

For the last two decades, the relationship between workplace envy and negative interactions such as social undermining has captured the attention of organizational researchers. The rise in scholarly attention led to the need for theoretical advancement and the identification of a mediating mechanism that links these two constructs. The current study contributes to this line of research by integrating social cognitive, social identification, and social norms theories to demonstrate that moral disengagement mediates the envy—social undermining relationship and to outline the social-context-based conditions under which this mediating relationship holds. As such, this study contributes to a more comprehensive understanding of invidious emotions, the antecedents of social undermining, and the conditions under which these important constructs are related.

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