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Author Note

We are grateful for feedback on earlier versions of this research presented at the Society for Affective Science, International Association for Conflict Management, and Academy of Management conferences, and for feedback from Elliot Larson, Yochi Cohen-Charash, Maurice Schweitzer, Donald Gibson, and Steve Worthington on earlier versions of the manuscript.

For each study, we report how we determined our sample size, all data exclusions, all manipulations, and all measures.

The data, analyses, and materials from each study are available as online supplementary materials at https://osf.io/hxpfy/?view_only=5a99d1c6179c4f1daee4ac550e2d1ca5.

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Abstract

People often feel malicious envy, a destructive interpersonal emotion, when they compare themselves to successful peers. Across two online experiments and an experimental field study, we identify an interpersonal strategy that can mitigate others' feelings of malicious envy: revealing one's failures. People are reticent to reveal their failures—both as they are happening and after they have occurred. However, in two experiments, we find that revealing successes and the failures encountered on the path to success (compared to revealing only successes) decreases observers' malicious envy. This effect holds regardless of whether the individual is ambiguously or unambiguously successful. Then, in a field experiment set in an entrepreneurial pitch competition, where pride displays are common and stakes are high, we find suggestive evidence that learning about the failures of a successful entrepreneur decreases observers' malicious envy, increases their benign envy, decreases their perceptions of the entrepreneur's hubristic pride (i.e., arrogance), and increases their perceptions of the entrepreneur's authentic pride (i.e., confidence). These findings align with previous work on the social-functional relation of envy and pride. Taken together, our results highlight how revealing the failures encountered on the way to success can be a counterintuitive yet effective interpersonal emotion regulation strategy.

Keywords: envy, malicious envy, emotion regulation, disclosure

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In early 2016, Princeton University professor Johannes Haushofer posted a “CV of failures” on his professional website. In this document, he listed positions and awards for which he had applied and been rejected in his career (Stefan, 2010). When asked about the decision to publicize his failures, Haushofer explained: “Most of what I try fails, but these failures are often invisible, while the successes are visible. I have noticed that this sometimes gives others the impression that most things work out for me. As a result, they are more likely to attribute their own failures to themselves, rather than the fact that the world is stochastic, applications are crapshoots, and selection committees and referees have bad days” (as cited in Swanson, Washington Post, April 2016). Haushofer’s “CV of failures” received an explosion of positive attention and news coverage, praising him as an inspirational role model.

Indeed, successes and achievements tend to be more publicly observable than failures. Successes appear on resumes, are highlighted in public profiles, and are shared among people with pride. In contrast, the failures and setbacks that individuals encounter along the path to success tend to be less observable and are often purposefully hidden from others.

When individuals display their successes, the people around them often feel malicious envy, a destructive interpersonal emotion aimed at harming the envied individual. Though previous research on emotion regulation has focused on intrapsychic strategies such as suppression and cognitive reappraisal to regulate negative emotional experiences like anxiety and anger (e.g., Brooks, 2014; Gross, 1998; Hofmann, Heering, Sawyer, & Asnaani, 2009; Mauss, Cook, Cheng, & Gross, 2007), extant research has identified very few strategies to

regulate interpersonal emotions like envy (Salovey & Rodin, 1988; Smith & Kim, 2007; Wolf, Lee, Sah, & Brooks, 2016).

In the current work, we address this gap in the emotion regulation literature. We predict that revealing failures—rather than hiding them—may decrease malicious envy. Furthermore, we investigate whether this effect holds when the successes are ambiguous versus unambiguous. Finally, we investigate a potential mechanism: revealing only successes may represent a display of hubristic pride (i.e., arrogance) that is likely to trigger feelings of malicious envy (Lange & Crusius, 2015), whereas revealing successes and failures may represent a display of authentic pride (i.e., confidence) that is likely to trigger feelings of benign envy in the observer. Across two online experiments and one experimental field study, we find support for these predictions. We contribute to an emerging literature on interpersonal emotion regulation (Zaki & Williams, 2013), and we introduce a simple strategy for mitigating malicious envy: revealing failures.

Interpersonal Emotion Regulation of Malicious Envy

Although previous work on emotion regulation has mostly addressed intrapsychic strategies such as reappraisal and suppression (e.g., Brooks, 2014; Gross, 1998; Hofmann, Heering, Sawyer, & Asnaani, 2009; Mauss, Cook, Cheng, & Gross, 2007), an emerging stream of research emphasizes the importance of interpersonal emotion regulation (Niven, Totterdell, & Holman, 2009; Zaki & Williams, 2013; Wolf et al., 2016). Interpersonal emotion regulation occurs when one person deliberately regulates another person's emotion in the context of a social interaction (Zaki & Williams, 2013). This budding research domain calls for an understanding of the interplay between the target and observer (Neisser, 1980; Zaki & Williams, 2013). We apply this framework to study the interpersonal regulation of malicious envy.

Social-functional approaches to emotion propose that at the interpersonal level, emotions arise and convey information regarding social hierarchy, and function to coordinate social interactions (Fischer & Manstead, 2008; Fischer & Van Kleef, 2010; Frijda, 1986; Keltner & Haidt, 1999). Envy is a situational emotion triggered by upward social comparison (Cohen-Charash, 2009) that occurs when another person attains an advantage that one desires (Smith & Kim, 2007). According to Parrott and Smith's (1993) classic definition, "envy occurs when a person lacks another's superior quality, achievement, or possession and either desires it or wishes the other lacked it" (p. 906). Envy arises especially when one feels similar enough to the other person that social comparison is salient (Parrott & Smith, 1993; Salovey & Rodin, 1984), and when the other person succeeds in an area that is self-relevant to the observer (Festinger, 1954; Salovey & Rodin, 1984, 1991; Smith & Kim, 2007; Tesser, Millar, & Moore, 1988).

Traditional scholarship on envy has almost exclusively focused on state-level envy, sometimes called "episodic envy," which captures hostile feelings that could lead to malicious actions (Cohen-Charash, 2009; Smith & Kim, 2007). More recently, research has delineated envy into two distinct types: malicious envy and benign envy. Both malicious and benign envy are unpleasant emotional experiences, and result from self-relevant upward social comparison (Van de Ven, Zeelenberg, & Pieters, 2009). However, the two types differ in their appraisal patterns and resulting motivations. Appraising someone as undeserving and feeling low personal control can cause the observer to experience malicious envy, with a motivation to pull down the envied other. On the other hand, appraising someone as deserving and feeling high personal control can cause the observer to experience benign envy, with a motivation to improve oneself (Van de Ven et al., 2009; Van de Ven, Zeelenberg, & Pieters, 2012). A taxometric analysis of envy, which tests for underlying categorical structure, supports the existence of benign envy as

an emotion distinct from malicious envy (Falcon, 2015). Confronting a status challenge, one can experience malicious envy and thus pull the other person down, or experience benign envy and thus pull oneself up (Lange & Crusius, 2015; Van de Ven et al., 2009). In this work, we focus primarily on the more insidious type: malicious envy.

Prior research has documented a wide array of undesirable behavioral outcomes associated with malicious envy. For example, malicious envy causes people to feel justified to engage in unethical behavior (Schweitzer & Gibson, 2007) and use more deception in negotiations (Moran & Schweitzer, 2008). In the workplace, this type of envy is ubiquitous and leads to many harmful outcomes (Duffy, Shaw, & Schaubroeck, 2008; Vecchio, 2000). When people feel envious and perceive unfairness in the workplace, they engage in counterproductive work behavior to harm others (Cohen-Charash & Mueller, 2007). For example, malicious envy has been shown to reduce cooperative behavior (Parks, Rumble, & Posey, 2002), group cohesion, effectiveness, and performance (Duffy & Shaw, 2000).

At times, the negative behavioral consequences of malicious envy can be extreme. Experiencing this type of envy can elicit harmful and hostile behavior toward envied others (Cohen-Charash, 2009; Dunn & Schweitzer, 2005), such as actively damaging the other person's position (Van de Ven et al., 2009), dishonestly hurting the other person (Gino & Pierce, 2009), or paying money to worsen an envied other's income (Zizzo & Oswald, 2001). The distinct experience of malicious envy as a hostile motivational force likely elicits these behavioral outcomes (Van de Ven et al., 2009; Van de Ven, Zeelenberg, & Pieters, 2011a; Van de Ven et al., 2012).

Although malicious envy feels painful and unpleasant (e.g., Van de Ven, 2009), and its outcomes can be destructive, few researchers have identified strategies to regulate malicious

envy (Salovey & Rodin, 1988; Smith & Kim, 2007). Some research has identified ways to cope with the behavioral consequences of being envied, such as sharing a reward (Zell & Exline, 2010), acting prosocially (Van de Ven, Zeelenberg, & Pieters, 2010), or revealing irrelevant personal information to increase perceptions of warmth (Moran, Schweitzer, & Miller, 2009). In the current work, however, we investigate a novel interpersonal strategy for decreasing the incidence of malicious envy: revealing failures that occurred along the path to success.

Regulating Malicious Envy by Revealing Failures

Although successful individuals tend to understand the negative effects of being envied (Exline & Lobel, 1999; Van de Ven et al., 2010), the literature on envy has overlooked actions the envied other might take to stave off ill will (Van de Ven et al., 2010). An interpersonal emotion regulation approach would suggest that the envied other may be able to deliberately change her behavior in order to regulate observers' malicious envy. In our current work, we consider the decision to reveal only successes or to reveal successes and failures. Consistent with prior research (e.g., Feather, 1969; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1988), we define a success as a desired outcome and a failure as an undesired outcome. We expect that an envied individual's disclosure of successes and failures will influence observers' feelings of malicious envy.

Some prior work has focused on the effects of self-promotion (i.e., revealing one's successes). For example, people overestimate the positive consequences of self-promotion (Berman et al., 2015; Scopelliti, Loewenstein, & Vosgerau, 2014), and tend to frame their achievements as effortless and easy (Steinmetz & O'Brien, 2016). People aim to construct a positive impression (Baumeister, 1982; Jones & Pittman, 1982; Leary & Kowalski, 1990), and to associate themselves with positive events rather than negative events (Cialdini & Richardson,

1980). Furthermore, people conceal imperfections about themselves (Hewitt et al., 2003), inhibit displays of failure during competitions (Tracy & Matsumoto, 2008), and avoid disclosing personal information that they think would elicit social disapproval (DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996). Revealing only positive information (i.e., successes) about oneself is rampant in face-to-face interactions, such as during the telling of success stories in interview settings (Gilmore & Ferris, 1989; Stevens & Kristoff, 1995), and online via social networking platforms (Chou & Edge, 2012). However, self-promotion tends to decrease likeability and increase observer envy (Godfrey, Jones, & Lord, 1986; Krasnova et al., 2013; Scopelliti et al., 2014).

Although revealing only negative information (i.e., failures) about oneself is self-deprecating and may elicit negative evaluations from others (e.g., Zell & Exline, 2010), the modest presentation of one's achievements generates favorable responses (e.g., Wosinka, Dabul, Whetstone-Dion, & Cialdini, 1996). It may be possible for successful individuals to speak about their failures without hiding or downplaying their achievements (Foster, 1972). And although successful individuals may be hesitant to reveal their failures, we expect that revealing the failures they encountered on the path to their successes will have positive effects.

Prior work by Jordan et al. (2011) suggests that people are less likely to share their negative emotional experiences than their positive emotional experiences with others. We hypothesize a similar pattern in communicating personal failures and successes: people are more likely to hide their failures than their successes, both while the failures are happening and after they have occurred. Despite the positive consequences of revealing failures, such as improving well-being and increasing social closeness (Holmes, 1991; Pennebaker, 1997, 1989), people may be less likely to reveal their failures than their successes to others. In contrast, observers are

intimately aware of their own successes and failures in life because they experience them firsthand.

Since envy is highly related to an inferior evaluation of the self compared to another person (Miceli & Castelfranchi, 2007; Smith, 2004), the limited information people know about successful individuals' failures may increase the salience of one's own failures by comparison. Indeed, the display of overstated self-promotional content has been shown to elicit feelings of inferiority among observers (Appel, Crusius, & Gerlach, 2015; Chou & Edge, 2012; Krasnova, Wenninger, Widjaja, & Buxmann, 2013).

Possible Mechanisms Underlying the Effects of Revealing Failures on Envy

We explore the connections between benign versus malicious envy and authentic versus hubristic pride when people reveal only successes or both failures and successes. The social function of envy is to reduce the status difference between oneself and a successful other, and envy is often triggered by a successful person's display of pride (Lange & Crusius, 2015). People feel pride when they attribute their own success to internal factors (Tracy & Robins, 2004a; Tracy, Shariff, & Cheng, 2010), and display pride to communicate their high status to others (Cheng, Tracy, & Henrich, 2010; Shariff & Tracy, 2009; Williams & DeSteno, 2009). Attributing one's achievement to internal and uncontrollable causes, such as talent, conveys hubristic pride, while attributing the achievement to internal and controllable causes, such as effort, conveys authentic pride (Tracy & Robins, 2004a; Tracy & Robins, 2007).

As described by the social information (EASI) model, which extends from the social-functional approach to emotion, emotional expressions regulate social interaction by triggering inferences and affective responses in observers (Van Kleef, 2009; Van Kleef, Van Doorn, Heerdink, & Koning, 2011). When a successful individual displays pride, she signals her

superior accomplishment. In response, the observer infers the self-relevance of the accomplishment and feels inferior by comparison, leading to feelings of observer envy (Parrott & Smith, 1993; Salovey & Rodin, 1984; Smith & Kim, 2007).

When the target only talks about her successes, others may attribute her success to internal and uncontrollable factors, and perceive her disclosure as a display of hubristic pride (Lange & Crusius, 2015; Tracy & Prehn, 2012). People attend to verbal expressions in order to infer hubristic versus authentic pride (Tracy & Prehn, 2012; Tracy & Robins, 2004b), and consistent with the fundamental attribution error (Ross, 1977), people tend to attribute the target's successes to an internal factor like talent, even if those successes were in fact the result of effort (or a combination of both). Perceptions of hubristic pride elicit malicious envy (Lange & Crusius, 2015; Van de Ven et al., 2012). On the other hand, disclosing failures that occurred along the way to success highlights how much effort the individual exerted to overcome those obstacles, information that is often unobservable. Therefore, when the target reveals successes and failures, compared to successes only, observers may perceive less hubristic pride and feel less malicious envy.

Furthermore, when a successful person reveals both successes and failures, compared to only successes, observers may perceive more authentic pride. Extant research suggests that, on an organizational level, increasing process transparency tends to increase perceptions and appreciation of the effort expended (Buell & Norton, 2011). On an individual level, when a person who is ultimately successful reveals personal failures from the past, observers are likely to attribute this person's success to effort, and thus may perceive more authentic pride. In turn, perceiving authentic pride is likely to trigger benign envy (Lange & Crusius, 2015). By revealing failures that occurred along the way to success, thereby increasing the transparency of the

process underlying the achievement, the successful other offers useful information that helps observers learn about the process (Lee & Duffy, 2014). Observers may view this person as deserving of respect for the success (Cheng et al., 2010; Tracy et al., 2010), and feel that they can emulate the individual to reach the same level of success (Lange & Crusius, 2015; Tracy & Prehn, 2012). Thus, we posit that revealing both failures and successes elicits benign envy.

A reasonable alternative explanation is that revealing failures decreases one's status in the eyes of others, and thus may decrease envy in general. That is, revealing failures may decrease the overall evaluation of the achiever, and the achiever's accomplishments. In contrast, we expect that revealing failures decreases only a specific type of envy (malicious envy), and increases benign envy. That is, we predict that when successful individuals reveal their failures, observers are still likely to perceive high status. Prior work in persuasion and marketing suggests why this might be so. For example, two-sided messages, such as ones that reveal both positive and negative information about a product, compared to only positive information, increase evaluations of the product (e.g. Crowley & Hoyer, 1994; Kamins & Marks, 1987; Pechmann, 1992; Smith & Hunt, 1978). In addition, prior work on the "blemishing effect" shows that revealing positive and some negative information about a target, compared to revealing only positive information, increases consumers' positive impression of the target (Ein-Gar, Shiv, & Tormala, 2012). In the current work, we investigate how these effects extend to people (rather than products), and we test how revealing failures influences observer envy, even when one's success is ambiguous—a situation in which status and evaluative performance judgments may be particularly malleable.

Overview of Studies

Across a pilot and three studies, we investigate revealing failures as an interpersonal strategy to regulate malicious envy. First, in Pilot Study 1, we investigate the prevalence of revealing successes and failures in everyday life. Then, in Study 1, we test the effect of revealing failures on malicious envy in observers. Next, in Study 2, we explore a possible boundary condition: ambiguous versus unambiguous success. Does revealing failures mitigate envy even when one's success is unclear—when revelation may decrease the observer's evaluation of the achiever and their accomplishments? Finally, in Study 3, we investigate the effect of revealing failures on malicious envy, benign envy, hubristic pride, and authentic pride in a field experiment set in an entrepreneurial pitch competition.

Pilot Study 1: Willingness to Reveal Successes and Failures

In Pilot Study 1, we tested the hypothesis that people are less likely to reveal their failures than their successes to others. In particular, we predicted that people are more likely to try to hide their failures than their successes from observers while the event is occurring, and they are less likely to speak about their failures than their successes after they have occurred.

Method

Participants. We recruited 150 participants from Amazon's Mechanical Turk to participate in a study in exchange for \$1.50 (all participants were U.S. citizens). We recruited participants between 24 and 28 years old. (In our subsequent studies in which we measure envy, capturing peer perceptions is important—envy only arises when others seem similar to the self, so we recruited a similarly-constrained age range of participants in this pilot study.)

Design and Procedure. We designed a survey adapted from Jordan et al.'s (2011) survey of positive and negative emotional experiences. In a within-subjects design, each participant reported one success and one failure they had recently experienced, in counterbalanced order.

Participants were given the following instructions: “For a moment, please consider the *last two weeks* of your life. Think about one experience that you considered to be a *failure [success]* in your life. Please describe the failure [success] in the box below.”

Afterwards, participants were asked to report a) the number of people who observed the failure [success] while it was happening, b) whether they tried to hide the failure [success] from others while it was happening (*yes* or *no*), c) whether they spoke about this failure [success] with others afterwards (*yes* or *no*), and d) the number of people with whom they spoke about this failure [success] afterwards, in that order.

Manipulation Check. As a manipulation check, we asked participants to rate the failure [success] on a sliding scale from failure (1) to success (10), with the slider originally positioned at the midpoint (5.5). The scale points were not visible to the participants.

Results

We included 141 participants (90 male, 51 female) in the analysis, after excluding 6 participants with duplicate IP addresses and 3 participants who did not follow the instructions (exclusion criteria were decided *a priori*). Therefore, our final analyses were based on descriptions of 141 failures and 141 successes. The average age of participants was 25.99 years ($SD = 1.40$).

Manipulation Check. A paired t-test showed that the participants rated the failure experiences they described as much closer to the failure (1) end of the success-failure slider scale ($M = 2.43$, $SD = 1.27$) compared to the success experiences they described, which were much closer to the success (10) end of the success-failure slider scale ($M = 8.84$, $SD = 1.23$), $t(140) = 37.38$, $p < .001$.

Disclosing Experiences As They Occur. First, we analyzed the number of people who observed the experience as it was happening, depending on whether the experience was a failure or success. We conducted a mixed-effects negative binomial regression (using the *glmmadmb* function in R), accounting for non-independence in the observations. The analysis showed that failures were observed by a mean of 1.49 people (95% CI: 0.84, 2.64]), whereas successes were observed by a mean of 2.85 people (95% CI: [2.18, 3.74]), which constitutes a 47.88% decrease (95% CI: [29.39%, 61.53%]) in the mean number of people who observed a failure compared to a success as the experience was happening ($p < .001$).

We then analyzed participants' intentions to hide their failures versus successes as they occurred. We conducted a mixed-effects logistic regression (using the *glmer* function in R), accounting for non-independence in the observations, to model the probability of hiding the experience depending on whether it was a failure or a success. We calculated the probabilities from the odds ratios. Using the *effects* package in R, we found that the probability of hiding a failure was 41.14% (95% CI: [40.84%, 41.44%]), while the probability of hiding a success was only 8.13% (95% CI: [8.06%, 8.19%]). (We report confidence intervals for the calculated probabilities.) Testing for the difference between these probabilities, there was a 690.14% increase in the odds of hiding if the experience was a failure (95% CI: [290.72%, 1692.54%]), $p < .001$.

We also analyzed the data using a McNemar test, which is used on data with repeated measures, and thus suited to the within-subjects design here. The results show a significant difference in hiding depending on whether the event was a success (18.06%) or failure (81.94%), $\chi^2(1, N=141) = 48.67, p < .001$. These results are in line with the results from the logistic regression.

Disclosing Experiences After They Have Occurred. Next, we analyzed the likelihood that people spoke about their successes and failures with others after they had occurred. We conducted a mixed-effects logistic regression (using the *glmer* function in R), accounting for non-independence in the observations, to model the probability of speaking about the experience depending on whether the experience was a failure or a success. We calculated the probabilities from the odds ratios. Using the *effects* package in R, we found that the probability of speaking about a failure was 62.37% (95% CI: [52.82%, 71.05%]), while the probability of speaking about a success was 79.00% (95% CI: [69.73%, 86.01%]). Testing for the difference between these probabilities, there was a 55.95% decrease in the odds of speaking if the experience was a failure (95% CI: [-75.46%, -23.90%]), $p = .004$.

The results from the McNemar test also show a significant difference in speaking depending on whether the event was a success (55.67%) or failure (44.33%), $\chi^2(1, N=141) = 16.59, p < .001$. The results of the McNemar test align with the results from the logistic regression.

Extent of Disclosure. Finally, we analyzed the number of other people that participants reported talking to about their success and failure. We conducted a mixed-effects negative binomial regression (using the *glmmadmb* function in R), accounting for non-independence in the observations. The analysis showed that failures were shared with a mean of 1.21 people (95% CI: [.70, 2.12]), whereas successes were shared with a mean of 2.84 people (95% CI: [2.21, 3.66]), which constitutes a 57.32% decrease (95% CI: [42.11%, 68.53%]) in the mean number of people spoken to about a failure compared to a success after the experienced had occurred ($p < .001$).

Discussion

In Pilot Study 1, we found that people were less likely to reveal their failures than their successes to others. People are more likely to hide their failures than their successes while they are happening, are less likely to talk about their failures than their successes after they have happened, and will disclose them to a smaller number of people. As a consequence, observers are likely to compare their full experience set (successes and failures) to the selected positive experiences (only successes) of others. In the studies that follow, we test whether deviating from this conventional practice – and revealing one’s failures – might counterintuitively serve as an effective interpersonal strategy that helps to reduce the malicious envy of observers.

Study 1: Mitigating Malicious Envy

In Study 1, we test our primary hypothesis that revealing failures along with successes (compared to revealing successes alone) decreases the malicious envy felt toward high achievers.

Method

Participants. We recruited 301 participants on Amazon’s Mechanical Turk to participate in a study in exchange for \$3 (all participants were U.S. residents). We determined the sample size in order to target 100 participants per condition, which we considered an adequate sample size to detect an effect. Since envy arises among peers (people who are similar to each other), we recruited participants in a specific age range. Since 62% of workers on Mechanical Turk are between 18 and 30 years of age (Ross, Irani, Silberman, Zaldivar, & Tomlinson, 2010), we recruited participants between 19 and 26 years of age to maximize envy.

Design and Procedure. In this study, we randomly assigned participants to one of three between-subjects conditions: only successes revealed, successes and failures revealed, and successes and extra information revealed. The main dependent measure was malicious envy felt toward the high achiever.

Participants agreed to participate in a study about career interests and experiences, entitled a “career assessment study” (Moran et al., 2009; Moran & Schweitzer, 2008). First, we asked participants to complete a “demographic survey” of their age, gender, and professional domain of interest. Though demographic items are usually surveyed at the end of an empirical study, we used participants’ demographics to customize the subsequent experimental stimuli they viewed during the study. For example, we provided a multiple-choice list of 11 professional domains, so that when the participant chose a particular professional domain, that same domain was shown in the biography of another participant that they would read subsequently. After reporting demographics, we asked participants to describe their professional experience in a short biography. The purpose of writing this biography was to elicit direct comparison with the biography of the other participant.

The other participant’s biography needed to satisfy the conditions of similarity and self-relevance in order to elicit envy. Whether an individual compares himself to another person depends on perceived similarity (Festinger, 1954; Schaubroeck & Lam, 2004) and the self-relevance of the successful person’s accomplishments (Lockwood & Kunda, 1997; Salovey & Rodin, 1984; Tesser et al., 1988). Envy arises especially in response to the success of peers or similar others (Smith & Kim, 2007; Tesser et al., 1988). Therefore, each participant was shown the other person’s age, gender, and professional field, which exactly matched their own. In order to disguise the similarities, we also included additional information about this fictional person, including a name (Eric or Erica) and favorite hobby (tennis), in order to make this person’s profile seem more believable. The additional information was held constant across experimental conditions. The use of pre-populated descriptions has been used extensively in previous research

to elicit upward social comparison (Lockwood & Kunda, 1997) and envy (Moran & Schweitzer, 2008).

After seeing a list of the other participant's age, gender, professional field, first name, and favorite hobby, each participant viewed a short biography purportedly written by the other participant. The biography was actually a fictional paragraph written in first person (see Appendix A for full stimuli). In the short biography, we included accomplishments that were logically relevant to two age groups: Participants ages 19-22 were shown a biography of a successful college student, and participants ages 23-26 were shown a biography of a successful young professional.

Across all three experimental conditions, participants read the biography of a peer who had achieved professional success, such as winning a fellowship competition or landing a prestigious job. For instance, the peer made \$60,000 a year, a salary that would be enviable for participants from Mechanical Turk, where the average household salary of a U.S. worker is about \$40,000 a year (Ross et al., 2010). In the "only successes revealed" condition, there was no other information in the biography. In the "successes and failures revealed" condition, participants read a few additional lines of the biography that described professional failures. Finally, in the "success and extra information" condition, in addition to the successes, participants read a few additional lines of the biography that described neutral information (i.e., the other person's MTurk worker ID number). We include the three biographies in Appendix A. We included this third condition to control for the length of the biography—so we could disentangle the effect of revealing failures and the effect of extra biographical information. We did not expect any differences between the "only successes revealed" and the "success and extra information" conditions.

Dependent Measure. To measure malicious envy, we test the effect of revealing failures on episodic envy (Cohen-Charash, 2009), a construct that captures the traditional definition of envy as a hostile, malicious emotion (Smith & Kim, 2007). This construct consists of two components, a comparison component and a feeling component. The comparison component includes the cognitive appraisals of wanting what the other person has, lacking what the other person has, and thinking that the other person is better off than oneself (Cohen-Charash, 2009). The feeling component measures the hostile feelings directed toward the other person.

We measured malicious envy using nine items adapted from Cohen-Charash's (2009) measure of episodic envy (see Appendix A). Social desirability, which refers to "a tendency on the part of respondents to give favorable impressions of themselves" (DeMaio, 1984, p. 276), often results in systematic error in self-report measures, where participants want to avoid embarrassment or violation of social norms (e.g., Tourangeau & Yan, 2007; DeMaio, 1984). One method of reducing social desirability bias is to use indirect measures, instructing participants to respond from the perspective of others or the typical other, rather than oneself (Campbell, 1950; Fisher, 1993). Prior research provides suggestive evidence for the construct validity of using indirect measures for socially sensitive variables, where participants consistently reported differently when asked from the perspective of others, compared to themselves, for socially sensitive variables, but not for socially neutral variables (Fisher, 1993).

Previous research has shown that people often do not admit feeling envious (even when they do) because malicious envy is considered socially taboo and undesirable (Feather & Nairn, 2005; Silver & Sabini, 1978; Vecchio, 2000). Thus, measuring envy could be susceptible to social desirability concerns. Previous research suggests that using a malicious envy measure that asks participants to indicate how they think *other* people feel more accurately captures their own

feelings of malicious envy (Cohen-Charash, Larson, & Fischer, 2013). Following this methodology, we used indirect questioning by asking participants to indicate the degree to which they believed that most other people would agree with various statements about the other person (Moran et al., 2009).

Response categories ranged from (1) *strongly disagree* to (7) *strongly agree*. Our measure yielded a Cronbach's alpha of .89. A factor analysis showed a two-factor loading, consistent with prior usage of the measure (e.g., Cohen-Charash, 2009).

Results

We included 264 participants (159 male, 105 female) in our analyses. We excluded 6 participants who did not meet the age requirement, 24 participants with duplicate IP addresses, 3 participants with duplicate Mechanical Turk ID numbers, and 4 participants who did not believe the biography was real (exclusion criteria were decided *a priori*). The final analyses included 92 participants in the “only successes revealed” condition, 87 participants in the “successes and failures revealed” condition, and 85 participants in the “successes and extra information” condition. The average age of participants was 23.97 years old ($SD = 1.94$). There were no significant differences in the results based on age group or gender, so we present the following results collapsed across age group and gender.

A one-way analysis of variance (ANOVA) showed a main effect of experimental condition on envy, $F(2, 261) = 9.78, p < .001, \eta^2 = .07$. We then conducted *a priori* planned comparisons. As expected, participants in the “successes and failures revealed” condition reported lower feelings of envy ($M = 3.43, SD = 1.00$) than did participants in the “only successes revealed” condition ($M = 4.10, SD = 1.01$), $t(177) = 4.12, p < .001, d = -.62$ (95% CI: [-.92, -.32]). As we also predicted, participants in the “successes and extra information”

condition did not report significantly different feelings of envy ($M = 4.04$, $SD = 1.16$), $t(175) = 0.31$, $p = .757$, $d = -.04$ (95% CI: [-.34, .25]) than did participants in the “only successes revealed” condition. We depict these results in Figure 1.

Using the *lsmeans* package in R, as a secondary analysis, we also conducted a contrast analysis. One contrast compares the “successes and failures” condition simultaneously to the “only successes revealed” condition and the “successes and extra information” condition – that is, it compares the mean of the “successes and failures” condition to the mean of the other two. Consistent with our prediction, we found a significant effect of the “successes and failures” condition, $\beta = -.64$, $t(261) = 4.40$, $p < .001$.

Since the episodic envy measure has two components, we also analyzed the two components as secondary analyses. We found that revealing failures decreases both the “feeling” component, $t(177) = 2.92$, $p = .004$, $d = -.44$, 95% CI: [-.74, -.14]), and the “comparison” component, $t(177) = 3.82$, $p < .001$, $d = -.57$, 95% CI: [-.87, -.27]). Therefore, we find suggestive evidence that the effect of revealing failures decreases both components of the scale.

Discussion

The results from Study 1 suggest that revealing failures—when paired with the disclosure of personal successes—decreases malicious envy toward the high achiever, thereby supporting our primary hypothesis. Furthermore, our evidence suggests that it is the disclosure of personal failures—not just the broad disclosure of neutral personal information—that decreases malicious envy felt toward the discloser.

One limitation of this study is that we measured malicious envy from the third-person perspective, due to social desirability concerns (i.e., people don’t like to admit when they feel envious themselves). Therefore, it is possible that our measure of envy, while intended to

measure the envy the participants felt themselves, actually captured the participants' best guesses about how much other people would feel malicious envy toward the target. A further limitation is that while we found suggestive evidence that revealing failures decreases both components of the episodic envy measure, this measure may not capture the distinct motivational and behavioral components of malicious envy. We address these limitations directly in Study 2 and in a separate pilot test (see Pilot Study 2 in Appendix B).

Study 2: Ambiguity of Success as Moderator

We conducted Study 2 for several reasons. First, this study serves as a high-power replication test of the main effect we found in Study 1 (that revealing failures decreases malicious envy). Second, because failures are often examined against the backdrop of the alternate outcome (i.e. success), we investigate how ambiguity of success might moderate the effect of revealing failures on malicious envy. That is, if one's success is ambiguous, then an observer may not feel envy in the first place—or, if there is ambiguity, revealing failures may influence observers' evaluations of the success itself. Since upward social comparison is a necessary condition for envy (Cohen-Charash, 2009; Parrott & Smith, 1993; Smith & Kim, 2007; Van de Ven et al., 2009), the strategy of revealing failures applies only to high-achieving individuals. For example, if a low-status individual reveals their failures to higher-status colleagues, then this strategy might harm evaluations of their performance. Thus, we investigate the ambiguity of success as a moderator of failure disclosure on malicious envy. We expect that revealing failures is particularly effective in cases of unambiguous success, but may be less effective (or relevant) in cases of ambiguous success, when observers may not feel malicious envy at all.

Third, we investigate our primary hypothesis in a competitive context, where malicious envy is likely to be high (Smith & Kim, 2007; Hill & Buss, 2008). Fourth, we measure malicious envy using a previously validated measure that captures the motivational and behavioral components that distinguish malicious envy from benign envy (Lange & Crusius, 2015).

Method

Participants. We conducted an *a priori* power analysis for detecting a small effect size (Cohen's $f = .14$) at power = .90, which computed a required sample size of 659 participants. To meet this sample size, we recruited 702 participants from Amazon's Mechanical Turk. Participants completed the study in exchange for \$1 (all participants were U.S. residents). As in Study 1, we recruited participants in a constrained age range (ages 30-39) because envy arises among peers.

Design and Procedure. We randomly assigned participants to one of four conditions in a 2 (ambiguity of success: ambiguous vs. unambiguous) by 2 (failure disclosure: only successes revealed vs. successes and failures revealed) between-subjects design. The main dependent measure was malicious envy felt toward one's competitor.

Participants agreed to participate in a study in which they would complete a career-related survey and then work on a brainteaser task with another participant. In this study, we specifically described the interaction with the other participant as competitive, since malicious envy is likely to arise in competitive contexts (Smith & Kim, 2007; Hill & Buss, 2008). Furthermore, we described the task as a brainteaser task with timed mathematical puzzles that measure intelligence, a domain that is likely self-relevant, since envy occurs when the domain is self-relevant (Salovey & Rodin, 1984). As in Study 1, we first collected their "demographic information" (age, gender, professional field/industry, hobby, and country of residence) in order

to present the profile of a very similar participant that matched on those dimensions. Again, this is because envy occurs among people perceived to be similar to oneself (Schaubroeck & Lam, 2004).

We then described the task they were about to complete and asked them to write several lines about their experience on Mechanical Turk doing tasks similar to the one described. The purpose of writing these lines was to elicit direct comparison with a message from the other participant. Next, we matched them with “another participant” who had completed similar tasks in the past and would be their opponent on the brainteaser task. As in Study 1, we then showed them a brief profile of the other participant, matched on gender, age, professional interest, and country (USA) in order to elicit social comparison with a peer.

Afterwards, we showed participants a “message from the other participant” describing that person’s prior experience doing similar tasks (see Appendix A for full stimuli). We manipulated ambiguity of success in the message. The other participant explained that s/he had completed an almost identical task before, and scored either in the “89th percentile compared to all the other participants who did it” (ambiguous success) or “highest compared to all the other participants who did it” (unambiguous success). We also manipulated failure disclosure in the message. The other participant explained that s/he had completed 50 similar tasks before, and either “failed on about 30 of those tasks” (successes and failures revealed) or “succeeded on all 50 tasks” (only successes revealed). Finally, participants completed a measure of malicious envy.

Dependent Measure. We measured malicious envy using a five-item scale adapted from Lange and Crusius (2015), which captures the distinct motivational tendencies of malicious envy. This measure aligns with prior measures used to capture malicious envy (Van de Ven et al., 2009; Van de Ven et al., 2012).

Since malicious envy is a taboo emotion, it is important to measure malicious envy from another person's perspective. Thus, this measure included items such as "Other people would wish that this person hadn't been successful" and "Other people would wish that this person would fail at something" (see Appendix A; Cronbach's $\alpha = .91$). For additional evidence that it is important to measure malicious envy from a third-person perspective, we conducted a separate pilot study, which we include as Appendix B.

Results

We included 663 (366 male, 297 female) participants in our analyses. We excluded 20 participants with duplicate IP addresses, and 19 participants who did not believe the message was real (exclusion criteria were determined *a priori*). The average age was 33.40 years ($SD = 2.47$). There were no significant differences in the results based on gender or age, thus we present the following analyses collapsed across gender and age.

A two-way analysis of variance (ANOVA) showed a main effect of revealing failures, where participants felt less malicious envy when the other person revealed both failures and successes ($M = 3.10$, $SD = 1.52$), compared to revealing successes only ($M = 3.98$, $SD = 1.47$), $F(1,660) = 56.83$, $\eta_p^2 = .08$ (90% CI: [.05, .11]), $p < .001$. The ANOVA also showed a main effect of the ambiguity of success, where participants felt less malicious envy when the success was ambiguous ($M = 3.39$, $SD = 1.54$), compared to unambiguous ($M = 3.68$, $SD = 1.56$), $F(1, 660) = 5.81$, $\eta_p^2 = .01$ (90% CI: [.0009, .0243]), $p = .016$. There was no detectable interaction effect, $F(1,659) = .41$, $p = .521$. We depict these results in Figure 2.

Discussion

Replicating the findings from Study 1, we find that revealing failures decreased malicious envy. These results replicate the earlier findings in a competitive context and using a measure of

malicious envy that captures its distinct motivational and behavioral components. Although we find that observers felt more malicious envy toward individuals whose success was unambiguous, the results interestingly suggest that the strategy of disclosing failures is comparably fruitful in mitigating malicious envy when the degree of success is equivocal.

One possible explanation for this pattern of results is that disclosing failures may mitigate malicious envy by reducing the observer's perception of the discloser's status. To the extent that disclosing failures reduces malicious envy by reducing admiration directed toward the discloser or undercutting the value of their accomplishments, it may be of dubious value as a self-presentation strategy. In a separate study ($N = 352$), presented in Appendix C, we measured the effects of revealing failures on both malicious envy and admiration. Though revealing failures (along with successes) reduced malicious envy, $t(350) = 3.13, p = .002$, observers did not feel less admiration toward the discloser, $t(350) = 1.64, p = .102$, nor did they perceive the discloser's accomplishments to be less valuable, $t(350) = .85, p = .397$. These results suggest that disclosing failures may not serve to reduce malicious envy by diminishing the perceived status of the discloser. In Study 3, we turn to a field experiment to investigate an alternative mechanism: that disclosing failures decreases malicious envy by reducing perceptions of the discloser's hubristic pride.

Study 3: Revealing Failures in the Field

In Study 3, our primary motivation was to investigate the effect of revealing failures on malicious envy in the field. We conducted a field experiment set in an entrepreneurial pitch competition. Entrepreneurial pitch competitions are important events where entrepreneurs are not only vying for critical startup funding (e.g., Brooks, Huang, Kearney, & Murray, 2014), but are also seeking visibility for their ideas and trying to gain support and endorsement from potential

partners, mentors, and advisors. In this way, pitch competitions represent an important opportunity for entrepreneurs to showcase their success to the several hundred (or thousand) people who may attend the competition, including competitors, supporters, neutral observers, and judges. Entrepreneurs aim to communicate their successes to gain the respect of peers and the interest of early-stage investors who can provide them with funding. Thus, because of the nature of these pitch competitions, fellow competitors are highly likely to respond with envy (Lange & Crusius, 2015; Smith & Kim, 2007), providing an important and salient context in which to examine the effects of revealing failures on malicious envy.

Another motivation for Study 3 was to investigate a possible mechanism for the effect of revealing failures on malicious envy, and to test the effect of revealing failures on benign envy and the two pride facets. According to the social-functional roles of envy and pride (Lange & Crusius, 2015), when a successful individual displays hubristic pride, observers experience malicious envy, aimed at harming the envied person. In contrast, when the successful individual displays authentic pride, observers experience benign envy, aimed at improving oneself (Crusius & Lange, 2014; Van de Ven, Zeelenberg, & Pieters, 2011b). Benign envy leads to effortful behavior aimed at moving up to the same status as the envied other (Crusius & Mussweiler, 2012; Van de Ven et al., 2011a).

Does revealing failures decrease perceived hubristic pride and increase perceived authentic pride? Observers perceive authentic pride (i.e., confidence) when they attribute success to internal and controllable factors like effort, and perceive hubristic pride (i.e., arrogance) when they attribute success to internal and uncontrollable factors like talent (Tracy & Prehn, 2012; Tracy & Robins, 2007). We propose that when an envied person reveals failures, observers attribute that person's success to effort rather than talent, leading observers to perceive more

authentic pride and less hubristic pride. The entrepreneurial pitch competition is an ideal environment to investigate this possible mechanism, since superior competitors, such as successful entrepreneurs, are highly likely to display pride in order to emotionally communicate high status (Lange & Crusius, 2015; Tracy & Matsumoto, 2008).

Method

Participants. We recruited 86¹ entrepreneurs competing in a pitch competition held in the United States. The competition was conducted over the course of three days, during which entrepreneurs who have founded their own startup ventures gave a 2-minute pitch presentation (i.e., “fast pitch”) to a panel of early-stage, new-venture investors. Investors include prominent angel investors² and venture capitalists. These investors judged the entrepreneurs and awarded investment money to the winners based on their pitches. Participants were in the same field (i.e. high tech entrepreneurship), vying for the same resource (i.e. seed capital), and similar in age. Participants were therefore likely to consider a fellow entrepreneur’s success to be highly self-relevant, in turn fostering envy and creating an ideal environment to test the effects of revealing failures on envy.

Design and Procedure. After each entrepreneur had pitched their company, but before any results were announced, we asked each entrepreneur to listen to what they believed to be an audio recording of a fellow competitor’s pitch. Entrepreneurs were told that the pitch was randomly selected from one of the other presentations in the competition, and that they would be

¹ Pitch competitions and pitch events are rarely larger than 50 or 60 participants because of the time commitments required of the active, experienced angel investors who serve as judges, as well as the logistical limitations in managing and coordinating such an events. We sampled from a particularly high profile pitch event to have access to such a relatively large number of entrepreneurs – yet we acknowledge that because of the realities of field studies, this sample of entrepreneurs (N = 86) is smaller than our sample sizes in Studies 1 and 2.

² Angel investors are high net worth individuals who invest their personal money into early-stage startups in exchange for equity. To qualify as an accredited individual investor, one must have a net worth (or joint worth with spouse) of at least one million US dollars, excluding the value of one’s primary residence, or have annual income of at least \$200,000 (\$300,000 combined income if married) in each of the two most recent years.

providing an evaluation of the entrepreneur giving the pitch. The recording featured a real startup venture that was similar in terms of developmental stage, industry focus, and scope to the other startups in the competition, but it was not a startup that had actually entered the competition. A female research assistant who was blind to our hypotheses voiced the recording. We used a recording, rather than a video, in order to eliminate confounding variables such as physical attractiveness and posture, which are known to influence entrepreneurial persuasiveness (e.g., Brooks et al., 2014).

In our between-subjects design, we randomly assigned participants to one of two conditions: “only successes revealed” or “successes and failures revealed.” The participants listened to one of two versions of pitches depending on their condition: (a) the entrepreneur revealing successes only, or (b) the entrepreneur revealing both successes and failures. For example, in the successes only version, the entrepreneur stated: “I have already landed some huge clients – companies like Google and GE. I’ve had amazing success, and in the past year I have single-handedly increased our market share by two-hundred percent,” while in the successes and failures version, the entrepreneur goes on to say: “I wasn’t always so successful. I had a lot of trouble getting to where I am now... when I started my company... I also failed to demonstrate why potential clients should believe in me and our mission. Many potential clients turned me down.” (see Appendix A for full stimuli). To hold audible features of the pitch that were unrelated to our experimental manipulation constant, the “only successes revealed” condition was a digitally edited version of the “successes and failures revealed” condition. That is, the recorded pitches for the two conditions were identical in every aspect, except the “successes and failures revealed” stimuli also included the revelation of failures. After listening

to the pitch, entrepreneurs evaluated their competitor by answering a series of questions, and provided demographic information including their own age and gender.

Dependent Measures. Participants reported benign envy, malicious envy, perceived hubristic pride, and perceived authentic pride, in that order. The measures were not counterbalanced because they were administered in paper form during the entrepreneurial pitch competition. Since the main purpose of this study was to test the hypotheses in a field setting, there was an order dependence of the measures that prioritized a main effect.

Malicious Envy. In this study, in order to investigate the nuanced effects of revealing failures, we specifically measured the motivational and behavioral components that distinguish malicious and benign envy, such as either wishing to harm the other person or wishing to improve oneself. We used measures developed by Lange and Crusius (2015) that capture these distinct motivational tendencies, which align with measures used in previous research on malicious and benign envy (Van de Ven et al., 2009; Van de Ven et al., 2012).

We used the same measure of malicious envy as in Study 2, based on a five-item scale adapted from Lange and Crusius (2015). Since malicious envy is a taboo emotion, it is important to measure malicious envy from another person's perspective, but benign envy can be measured from the self or other perspective. To support this methodology, we ran a separate between-subjects study with two conditions, where participants read the biography of a successful individual, and either only reported benign and malicious envy felt by the self, or benign and malicious envy they thought another person would feel (between-subjects). We found no differences in the benign envy measure across conditions ($t(181) = 1.31, p = .193$), but found a significant difference in the malicious envy measure across conditions ($t(181) = 4.79, p < .001$), which supports the measurement of malicious envy based on people's anticipation of others'

feelings, presumably because people are unwilling to admit their own feelings of malicious envy³. Consistent with these findings, prior research suggests that for socially sensitive variables, indirect questioning (e.g., where participants are asked to indicate how others, or the typical other, would respond) results in higher means compared to direct questioning, while for socially neutral variables, there is no difference in means from indirect and direct questioning (Fisher, 1993).

In line with the measures used in Studies 1 and 2, we asked participants to think about how “other competitors in the pitch competition” would respond. Based on the entrepreneur in the recording, participants reported on a 1-7 scale their responses for items such as: “Other competitors in the pitch competition would say that they wished this entrepreneur failed at something” and “Other competitors in the pitch competition would not want this entrepreneur to win the pitch competition” (see Appendix A; Cronbach’s $\alpha = .80$).

Benign Envy. We measured benign envy using five items adapted from Lange and Crusius (2015). Using a scale from 1 (not at all) to 7 (very much), we asked participants to reflect on the entrepreneur in the recording and indicate their responses for the following items: “This entrepreneur inspires me to work harder to get startup capital,” “I will try harder to obtain funding for my startup at the next opportunity,” “I want to be like this entrepreneur,” “This entrepreneur’s success encourages me,” and “This entrepreneur motivates me to emulate him/her” (see Appendix A; Cronbach’s $\alpha = .90$).

Perceived Authentic and Hubristic Pride. We used measures of authentic and hubristic pride that have been validated by previous research (Lange & Crusius, 2015; Tracy & Prehn, 2012; Tracy & Robins, 2007). We measured hubristic pride by asking entrepreneurs to indicate

³ Please see Appendix B for details of this separate pilot study.

on a 1-7 scale how strongly their competitor appeared to feel “conceited,” “arrogant,” “stuck-up,” “pompous,” “snobbish,” “egotistical,” and “smug” (see Appendix A; Cronbach’s $\alpha = .97$).

We measured authentic pride by asking entrepreneurs to indicate on a 1-7 scale how strongly their competitor appeared to feel “like he or she is achieving,” “fulfilled,” “accomplished,” “productive,” “like he or she has self-worth,” “successful,” and “confident” (see Appendix A; Cronbach’s $\alpha = .90$).

Results

Participants. We included 82 participants (51 male, 31 female) in our analyses. We excluded 4 entrepreneurs who failed to complete the survey (exclusion criteria were decided *a priori*). Final analyses included 37 participants in the “only successes revealed” condition and 45 participants in the “successes and failures revealed” condition. Participants were 28.04 years old on average ($SD = 3.81$). There were no significant gender effects, and we present the following analyses collapsed across gender.

Malicious Envy. A two-sample t-test replicated the findings from Studies 1-2, showing an effect of failure disclosure on malicious envy. Consistent with our expectation, participants in the “successes and failures revealed” condition reported lower feelings of malicious envy ($M = 3.86$, $SD = .91$) than did participants in the “only successes revealed” condition ($M = 5.61$, $SD = .90$), $t(80) = 8.70$, $p < .001$, $d = -1.93$ (95% *CI*: [-2.46, -1.40]). We depict the results in Figure 3.

Benign Envy. A two-sample t-test showed a main effect of failure disclosure on benign envy. As expected, participants in the “successes and failures revealed” condition reported higher feelings of benign envy ($M = 4.98$, $SD = 1.14$) than did participants in the “only successes revealed” condition ($M = 3.84$, $SD = 1.27$), $t(80) = 4.27$, $p < .001$, $d = .94$ (95% *CI*: [.47, 1.40]). We depict the results in Figure 3.

Perceived Authentic and Hubristic Pride. Consistent with our prediction, a two-sample t-test showed that participants in the “successes and failures revealed” condition perceived less hubristic pride ($M = 2.19, SD = 1.09$) than did participants in the “only successes revealed” condition ($M = 4.99, SD = 1.42$), $t(80) = 10.09, p < .001, d = -2.18$ (95% CI: [-2.74, -1.62]). We found that participants in the “successes and failures revealed” condition perceived marginally more authentic pride ($M = 6.06, SD = .67$) than did participants in the “only successes revealed” condition ($M = 5.65, SD = 1.20$), $t(80) = 1.92, p = .058, d = .41$ (95% CI: [-.04, .85]). We depict the results in Figure 3.

Mediation. We examined perceptions of authentic pride and perceptions of hubristic pride as two potential mediators. First, we tested the causal links between perceived pride and envy by running two linear regressions. Consistent with our expectation, perceived hubristic pride significantly predicted malicious envy, $\beta = .36, t(80) = 5.62, p < .001$. Furthermore, perceived authentic pride was a marginally significant predictor of benign envy, $\beta = .27, t(80) = 1.82, p = .073$). These findings replicate previous work showing the socio-functional relation between envy and pride (Lange & Crusius, 2015).

Next, we tested two mediation models. We report both the indirect effect and the proportion mediated (Preacher & Hayes, 2008; Preacher & Kelley, 2011). We fit a mediation model with benign envy as the dependent variable, experimental condition as the treatment variable, and perceived authentic pride as the mediator variable. We tested for and bootstrapped the indirect effect over 10,000 simulations, and did not find evidence of mediation (*indirect effect* = .06, 95% CI: [-.06, .24]). The model with proportion mediated (which is the indirect effect over the total effect) also did not reach significance (*proportion mediated* = .05, 95% CI: [-.05, .20]).

We then fit a mediation model with malicious envy as the dependent variable, experimental condition as the treatment variable, and perceived hubristic pride as the mediator variable. We tested for and bootstrapped the indirect effect over 10,000 simulations, and did not find evidence for mediation (*indirect effect* = -.04, 95% CI: [-.50, .34]). The model with proportion mediated also did not reach significance (*proportion mediated* = .02, 95% CI: [-.28, .22]).

Discussion

The findings from Study 3 make several important contributions. First, we found additional evidence that revealing failures that occurred along the path to success decreases malicious envy, thus replicating the findings from Study 1 and 2.

Second, we find evidence that revealing failures increases benign envy. When participants listened to a pitch from an entrepreneur about her successes and the failures that occurred along the way to success, we found that fellow entrepreneurs were motivated to work harder to improve their own ventures. However, given the limited sample size, we present this as suggestive evidence that revealing failures and successes modulates envy from its malicious to its benign form. In these stimuli, the successful entrepreneur also expressed effort in overcoming the failures revealed. Thus, revealing failures is confounded with revealing effort, whereas in Studies 1-2, we only manipulated revealing failures. In real life, revealing failures and effort tend to occur together. When successful people reveal their failures, they often imply that they worked hard and exerted effort to overcome those failures to ultimately achieve success.

Third, we investigated a possible psychological mechanism underlying these effects. We found that revealing successes and failures (compared to only successes) decreased perceptions of hubristic pride. Revealing successes and failures (compared to only successes) marginally

increased perceptions of authentic pride. Furthermore, we show that perceived hubristic pride predicts malicious envy, and perceived authentic pride marginally predicts benign envy. These results are consistent with the findings by Lange and Crusius (2015) that when a successful person displays hubristic pride, observers are more likely to experience malicious envy, and when a successful person displays authentic pride, observers are more likely to experience benign envy.

Although we found no significant mediation effects, our findings align with the socio-functional account of envy and pride (Lange & Crusius, 2015): envy and pride often co-occur, and displays of hubristic and authentic pride modulate envy to its malicious and benign forms. Again, due to the limitation in the sample size in this study, we present this as suggestive evidence for the mechanism.

Finally, the results from Study 2 demonstrate the real-world implications of our findings. Prior research has shown that entrepreneurs believe that demonstrating success in their venture ideas will impact investor decision making and reduce investors' perceptions of risk and uncertainty (Kirzner, 1999; McGee, Peterson, Mueller, & Sequeira, 2009). Our research shows the benefits of revealing both successes and failures in a context where others' perceptions highly influence peer support and startup funding. During these competitions, when a successful entrepreneur reveals past failures, fellow entrepreneurs feel less malicious envy. On the contrary, they likely feel inspired to work harder themselves.

General Discussion

People experience envy as a negative emotional reaction to upward social comparison (Cohen-Charash, 2009). Although malicious envy often leads to harmful outcomes targeted at successful others, our findings suggest a simple strategy that can regulate malicious envy:

revealing the failures one has encountered on the path to success. In a series of three studies, we found that revealing successes and failures decreases malicious envy across two online experiments (Studies 1 and 2) and one field experiment (Study 3). Furthermore, we found that revealing failures decreases malicious envy regardless of whether the successful other is ambiguously or unambiguously successful (Study 2). In addition, we find suggestive evidence for the mechanism that revealing failures decreases perceptions of hubristic pride and increases perceptions of authentic pride, modulating malicious envy to benign envy (Study 3). Taken together, we contribute an effective and counterintuitive strategy for regulating malicious envy: revealing failures.

Theoretical Contributions

Our findings make several important theoretical contributions. First, previous research has failed to identify strategies that can help people interpersonally regulate targeted envy (Salovey & Rodin, 1988; Smith & Kim, 2007). Although previous work in emotion regulation has mostly focused on intrapsychic strategies, such as cognitive reappraisal to regulate negative emotions like anxiety and anger (e.g., Brooks, 2014; Gross, 1998; Hofmann, Heering, Sawyer, & Asnaani, 2009; Mauss, Cook, Cheng, & Gross, 2007), our work departs from previous emotion regulation research to identify an interpersonal strategy to regulate envy: revealing failures. We contribute to the budding domain of interpersonal emotion regulation, showing that by revealing failures, a high achiever can exert control over observers' feelings of envy.

Second, we have identified an example of how negative disclosure can lead to positive consequences. Learning about a successful person's failures mitigates hostile intentions, and could possibly augment motivation to improve one's own performance. When observers realize that they are not the only ones who endure negative emotional experiences (Jordan et al., 2011),

they develop a more accurate view of other people's lives. They learn from other people's failures (KC, Staats, & Gino, 2013), and experience increased motivation to emulate their effort and performance (Lockwood & Kunda, 1997). For example, our findings align with previous work showing that when students learned about the past struggles of highly successful scientists, they felt more motivated to learn, and improved their performance in science classes (Lin-Siegler, Ahn, Chen, Fang, & Luna-Lucero, 2016). We have identified a set of circumstances under which revealing failures could diminish negative affect directed toward the high achiever while possibly also motivating observers to work harder to improve themselves.

Third, we develop a dual-perspective model of envy regulation by considering the perspectives of both the envied target and the envious observer. The emerging research domain of interpersonal emotion regulation calls for research that takes into account the interplay between the target and observer (Neisser, 1980; Zaki & Williams, 2013). We draw from the social-functional approaches to emotion (Fischer & Manstead, 2008; Fischer & Van Kleef, 2010; Frijda, 1986; Keltner & Haidt, 1999), and specifically the social-functional relation between envy and pride (Lange & Crusius, 2015). For the envied, we show that the information they reveal about themselves could influence the type of pride people perceive and the type of envy experienced towards them. For the envious, our findings highlight when people feel envious (when they compare themselves to the successes displayed by others), and how malicious envy can shift to benign envy.

Practical Implications

Competitive interactions in organizational settings often give rise to displays of success, which fuel observer envy. For example, entrepreneurial pitch competitions help to secure critical startup funding (Stinchcombe, 1965), and thus present the opportunity for entrepreneurs to

showcase their success to the several hundred people who attend each competition.

Entrepreneurs are likely to reveal only successes, since they perceive that peers and investors care only about the potential success of investment. When superior competitors display their successes, fellow competitors are likely to feel envious (Lange & Crusius, 2015; Tracy & Matsumoto, 2008). In Study 3, a field experiment set in an entrepreneurial pitch competition, we find that when a successful entrepreneur reveals failures, other entrepreneurs feel less malicious envy and actually feel motivated to better themselves. In competitive contexts where peer perceptions influence outcomes, revealing both successes and failures will likely increase the benign envy of peers. While peers' success may improve, thus increasing the overall competition for funding, from a longer-term perspective, positive esteem among entrepreneurs in a venture community can be mutually advantageous in terms of marshaling resources, talent, and guidance. That is, mitigating malicious envy and boosting benign envy among entrepreneurs may have long-term benefits, even if it results in more competition in the short term.

Managing envy is important not only in entrepreneurial competitions but also in the workplace more broadly. Malicious envy diminishes organizational productivity (Bedeian, 1995), reduces cooperative behavior (Parks et al., 2002), and decreases group cohesion and effectiveness (Duffy & Shaw, 2000). Our results suggest several implications for managing workplace envy.

Managers, especially those recently promoted, may be the particular targets of envy (Menon & Thompson, 2010; Schaubroeck & Lam, 2004). For example, when MBA graduates from top schools enter companies and move quickly through fast-track promotion programs, existing company employees who are more experienced are likely to feel malicious envy. In cases like these, the revelation of failures could reduce malicious envy, increase benign envy,

and promote perceptions of confidence and credibility. To the extent that envy arises as a response to competition for scarce resources, celebrating one's tenacity en route to success (i.e., describing one's failures as well as one's successes) in announcing promotions, grants, or access could decrease internal competition among colleagues (Dogan & Vecchio, 2001), while motivating intrapersonal striving (Crusius & Lange, 2014; Crusius & Mussweiler, 2012; Van de Ven et al., 2011b).

Relatedly, our results have implications for recruitment. Candidates who candidly discuss their failures (as well as their successes) may be better at achieving followership among their peers, who may feel less malicious envy toward them, but respect them equally. In job interviews, recruiters commonly ask, "What is your greatest failure?" or "Describe your greatest weakness." Revealing genuine failures, as opposed to framing a success as a failure or a strength as a weakness (e.g., "I'm a perfectionist," or "I work too hard") may be taken as a signal of a higher-quality candidate, one who can mitigate malicious envy and may be able to develop more productive relationships with colleagues and subordinates.

To the extent that malicious envy diminishes one's ability to consider or to act upon the ideas of an envied other, revealing failures as a team-building exercise could be used to improve within-group communication and collaboration (Menon, Thompson, & Choi, 2006). In team settings, team-building exercises celebrate the successes of others, but perhaps strategies that "humanize" members of the team – through the revelation of failures – could reduce malicious envy, facilitating better communication, sharing, and other collaborative behaviors. Indeed, learning from the envied other is one mechanism that explains how envy improves workplace performance (Lee & Duffy, 2014). In organizational settings, failures are learning opportunities

that create the conditions for psychological safety and increased team performance (Edmondson, 1999).

Limitations and Future Directions

Our research is qualified by several limitations that suggest avenues for future research. First, our results suggest that the effect of revealing failures on malicious envy is likely multiply determined by more than one mechanism. We find suggestive evidence for a mechanism related to authentic versus hubristic pride, however further research is needed. For example, observers may make different attributions about the target due to the target's intention to reveal. One way to investigate this possible mechanism is to manipulate whether a third party discloses the target's failure (rather than the target herself). If revealing one's own failures decreases malicious envy, whereas having another person reveal them does not, then the target's intention to reveal may be an important mechanism.

Furthermore, revealing failures along with successes may also increase the perception of appreciative humility, which is associated with authentic pride (Weidman, Cheng, & Tracy, 2016), and thus may increase benign envy. These predictions regarding the social functions of humility extend from prior work showing that appreciative humility likely encourages the celebration of others' accomplishments (Weidman et al., 2016). This potential mechanism—the effect of revealing failures on perception of humility—merits investigation by future research.

In addition, a successful person revealing failures could increase observers' feelings of *schadenfreude* (i.e., joy at another person's misfortune). The important appraisal that elicits *schadenfreude* is considering that the other person's misfortune benefits oneself (Van Dijk, Ouwerkerk, Smith, & Cikara, 2015). When learning about the successful individual's failure, observers may take the opportunity to mitigate painful feelings of malicious envy, and

consequently feel pleased at the successful individual's failures. Thus, revealing failures may both mitigate malicious envy and increase schadenfreude. This prediction is consistent with prior research showing that when people initially feel malicious envy toward a person, after that person suffers from a misfortune, they are likely to feel schadenfreude (Hoogland, et al., 2015; Van de Ven et al., 2015).

Importantly, we investigated the revelation of failures that have occurred in the past and in the same domain as the revealed successes. It is likely that the domain of the failure, and whether the failure occurred before or after the success, moderate the effects of revealing failures on malicious envy. For example, research on the "Pratfall Effect" shows that people perceive highly competent others as more likeable if they commit a clumsy "pratfall" such as spilling a cup of coffee during an interview (Aronson, Willerman, & Floyd, 1966; Helmreich, Aronson, & LeFan, 1970). A pratfall could be considered a failure in a different domain, such as in social skills or physical coordination. In these studies, the accomplished individual commits the pratfall after having displayed her accomplishments. Future research could investigate both the domain of failures and the timing of disclosure as potential moderators of our effects. For example, future research could investigate how disclosing failures in a different domain, such as in one's personal life, could moderate the effects.

Furthermore, the way in which one reveals successes and failures suggests several boundary conditions. Many aspects of delivery are likely to matter, such as written versus spoken disclosure, and humor (Bitterly, Brooks, & Schweitzer, 2017; Sezer, Gino, & Norton, 2017). Future research could investigate whether revealing failures and successes with self-deprecating humor could moderate the effects on observer envy.

Further, in Study 2, we found that disclosing failures was effective whether one is ambiguously or unambiguously successful. It is possible that we didn't push ambiguity far enough. Perhaps if the partner had previously scored in the 80th, 70th, or 60th percentile in previous brainteasers (instead of the 89th as in Study 2), then we may have seen an interaction whereby revealing failures undermines the observer's evaluation of performance (as unsuccessful rather than successful). Relatedly, we suspect that the ambiguity of the failure one discloses may moderate the effect of revealing failures on envy as well. If the failure seems trivial or disingenuous, disclosing the failure may not mitigate malicious envy.

In our studies, we investigated the revelation of failures and successes in initial meetings. Future research could investigate the social closeness between disclosers and their listeners as a moderator of the observed effects. It is possible that people disclose their failures to close others in an attempt to mitigate envy among close friends and colleagues, or we can imagine the opposite hypothesis: people are more likely to disclose failures to distant others because distant others may be less likely to exert power or judgment over them (or even encounter them again in the future). Recent work by sociologist Mario Small (2017) draws fascinating connections between social closeness and the nature of personal disclosure. We leave these questions for future research.

Although Study 3 showed the effects of revealing failures in an entrepreneurial setting, there are two important limitations of these findings. First, increasing the benign envy of peers may in turn impact their success in the competition, thus changing the inherent nature of the competitive pitch environment. That is, pitch competitions are highly visible events, where entrepreneurs are not only presenting to investors, but also to an audience of peers. Entrepreneurs may be, to some extent, motivated to express hubristic pride in an effort to manage the

impressions of their peers. Because they are in the same domain and relative comparisons are made, entrepreneurs may be attempting to send signals about the relative talent, ability, and commitment that is need to be successful in entrepreneurship. Such a strategy would be consistent with findings that hubristic pride is associated with dominance (Cheng et al., 2010). Second, entrepreneurs may also be motivated to express hubristic pride because they seek to influence the perceptions of investors, irrespective of their peers. Potential investors will likely only care about the potential success of investment, not about the failures that the entrepreneur experienced.

Furthermore, across our studies, we used an attitudinal measure of malicious envy. It will be important to investigate behavioral outcomes as well. For instance, decreased malicious envy could reduce undermining behavior toward the envied other, such as gossip, withholding help, or actively decreasing the envied other's income (Dunn & Schweitzer, 2005; Schaubroeck & Lam, 2004; Zizzo & Oswald, 2001). In addition, future research could investigate whether people set higher goals for themselves or increase their own performance when they learn about a successful colleague's failures (e.g., Lin-Siegler et al., 2016).

Conclusion

In sum, people pervasively experience malicious envy in response to successful individuals' displays of success. Envy is especially likely to arise in competitive settings, such as entrepreneurial pitch competitions, where people publicly highlight their achievements and credentials. Successful individuals often choose to reveal only their successes, hiding their failures from others while they are happening and disclosing them to surprisingly few (if any) people after they have occurred. But revealing the failures they encountered on the path to success regulates malicious envy felt by observers. Like Johannes Haushofer, by publicly

acknowledging the failures one worked to overcome, high achievers can mitigate malicious envy.

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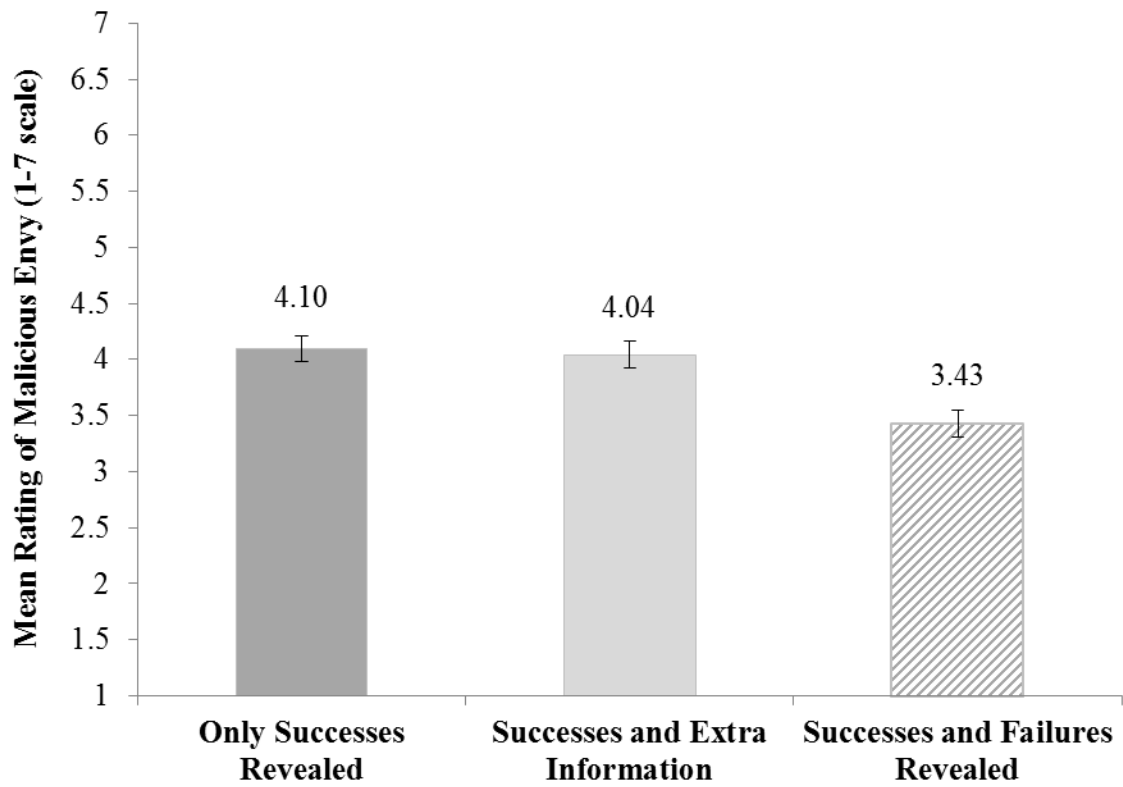
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Figure 1

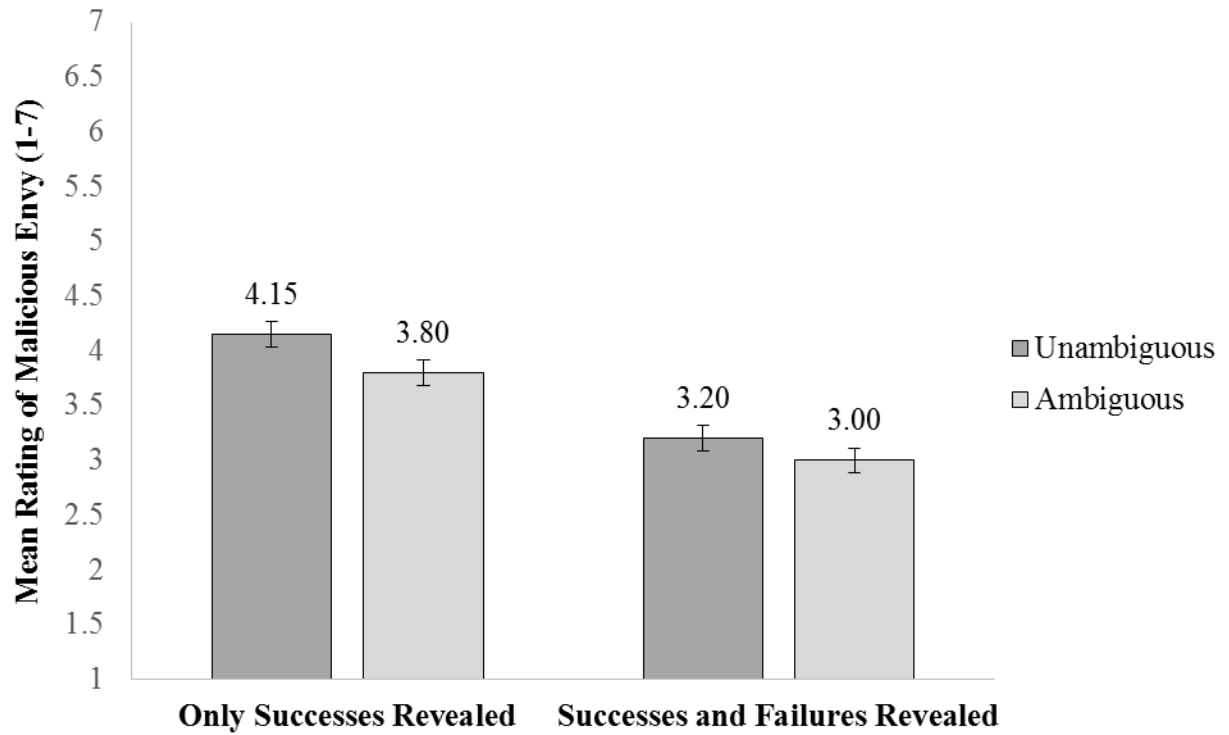
Revealing failures mitigates malicious envy (Study 1)



Error bars represent standard error.

Figure 2

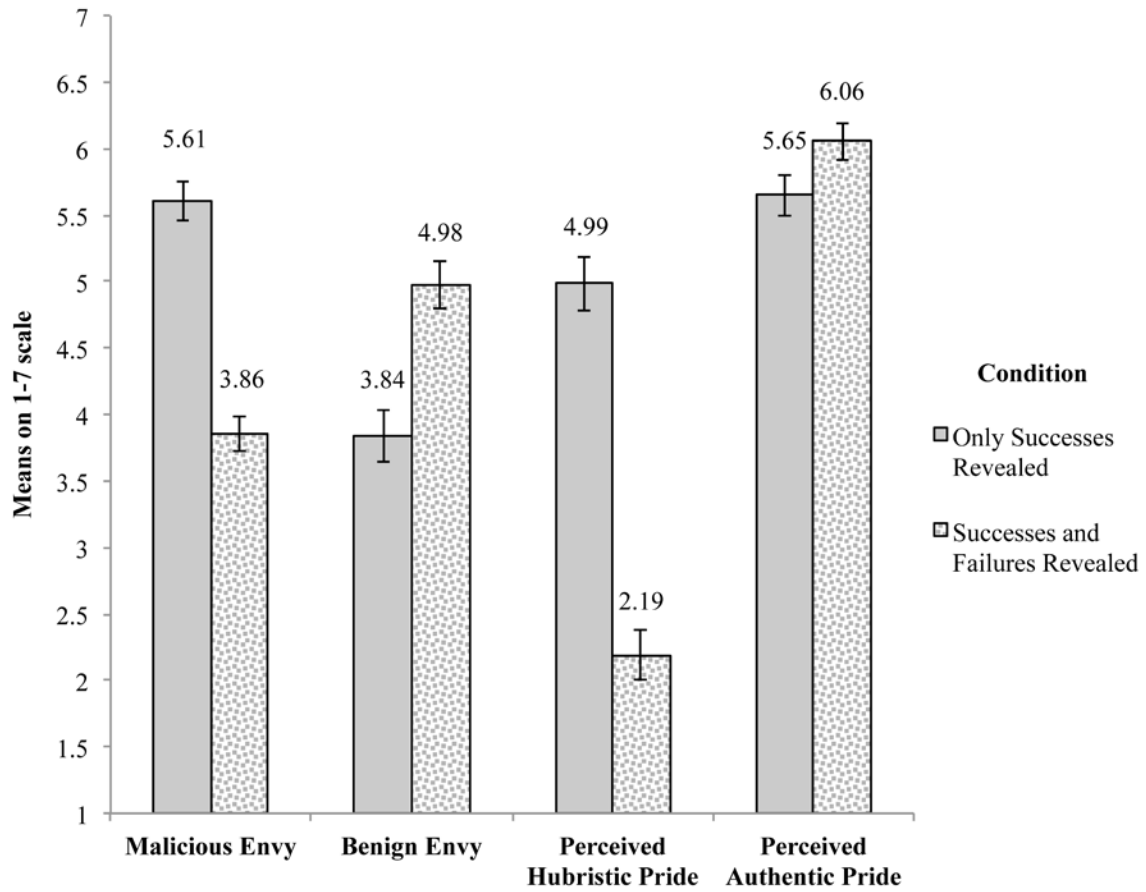
Revealing failures decreases envy in the cases of ambiguous
and unambiguous successes (Study 2)



Error bars represent standard error.

Figure 3

Revealing failures on envy and perceived pride (Study 3)



Error bars represent standard error.

Appendix A

Biography Stimuli (Study 1)**For Participants Aged 19-22**“Only Successes Revealed” Condition

I study at one of the top three colleges in the country. For my summer internship, I was selected from a nationwide pool of applicants. I was paid \$6000 for the summer internship. I also won a competitive national fellowship. Recently I was featured in my college’s campus newspaper.

“Successes and Failures Revealed” Condition

I study at one of the top three colleges in the country. For my summer internship, I was selected from a nationwide pool of applicants. I was paid \$6000 for the summer internship. I also won a competitive national fellowship. Recently I was featured in my college’s campus newspaper. *[In the past, I had been rejected from a different summer internship. Before, I also lost a different national fellowship competition.]*

“Successes and Extra Information Condition”

I study at one of the top three colleges in the country. For my summer internship, I was selected from a nationwide pool of applicants. I was paid \$6000 for the summer internship. I also won a competitive national fellowship. Recently I was featured in my college’s campus newspaper. *[(My MTurk worker ID: A7IYSXSSGW80FN)]*

For Participants Aged 23-26“Only Successes Revealed” Condition

I work at one of the top three organizations in my field. For my current position, I was selected from a nationwide pool of applicants. I make \$60,000 per year. I have also been invited to give talks at national conferences. Recently I was featured in my college's alumni magazine.

“Successes and Failures Revealed” Condition

I work at one of the top three organizations in my field. For my current position, I was selected from a nationwide pool of applicants. I make \$60,000 per year. I have also been invited to give talks at national conferences. Recently I was featured in my college's alumni magazine.

[In the past, I had been rejected from a different job position. Before, I had also been rejected to speak at a different national conference.]

“Successes and Extra Information Condition”

I work at one of the top three organizations in my field. For my current position, I was selected from a nationwide pool of applicants. I make \$60,000 per year. I have also been invited to give talks at national conferences. Recently I was featured in my college's alumni magazine.

[(My MTurk worker ID: A7IYSXSSGW80FN)]

Sample Participant-Generated Biographies (from Study 1)

Example 1:

During college, I held an internship at a small, boutique PR firm where I assisted the account executive on brand strategy and developing media blitzes for various clothing and accessory brands. After graduating from college with a marketing degree, I joined an advertising agency as an assistant account executive, where I was assigned to various teams to develop and marketing plans for a video game device, the brand image for a travel company, and a line of

cosmetics. I was promoted to account executive this year, and I currently oversee the work of 2 assistants, while being responsible for sales and two electronics firm accounts.

Example 2:

I have worked for three separate institutions since I graduated college in 2010. I fell into the first position because it was nearing graduation and I was desperate [sic] to find a job so I took a temp position at a large bank. From there I became a bank examiner for a State. Finally, I ended up back in the banking sector at another large, well-known bank.

Example 3:

I recently received my bachelor degree in Marketing and currently am interested in graduate school. After graduation, I received a position at a local university as an assistant to the head of recreational services and activities. Although I am technically only an assistant, I spent a great majority of my time working on publicity and advertising for various events and promotions the our [sic] department hosts. I very much enjoy my job and hope to remain here for a long time.

Example 4:

I started out as a mid-year replacement English teacher in January. After the school year ended, I was told I would be rehired and in fact was asked to be head of the department (granted, "the department" was only four others) I gladly took the position and worked as Department Head for three years. I created the curriculum and taught several classes while being in charge of the development of my department. I then left the school and moved to another city where I again got a job as an English teacher and was then, after only a year, asked to serve as department head.

Messages from the Competitor (Study 2)“Only Successes Revealed” (Ambiguous Success) Condition

I have done about 50 tasks like this one before on mturk, and I have succeeded on all 50 tasks. I just completed an almost identical task to the one we need to do, and my score on that task was in the 89th percentile compared to all the other participants who did it (300 people).

“Only Successes Revealed” (Unambiguous Success) Condition

I have done about 50 tasks like this one before on mturk, and I have succeeded on all 50 tasks. I just completed an almost identical task to the one we need to do, and my score on that task was the highest compared to all the other participants who did it (300 people).

“Successes and Failures Revealed (Ambiguous Success) Condition

I have done about 50 tasks like this one before on mturk, and I have failed on about 30 of those tasks. I just completed an almost identical task to the one we need to do, and my score on that task was in the 89th percentile compared to all the other participants who did it (300 people).

“Successes and Failures Revealed (Unambiguous Success) Condition

I have done about 50 tasks like this one before on mturk, and I have failed on about 30 of those tasks. I just completed an almost identical task to the one we need to do, and my score on that task was the highest compared to all the other participants who did it (300 people).

Entrepreneurial Pitch Scripts (Study 3)

“Only Successes Revealed” Condition

Hi, I'm the founder of Hypios. I have a PhD in computer science from Stanford and have started a company that uses my superior skill set to help companies solve their toughest problems. I have already landed some huge clients – companies like Google and GE. I've had AMAZING success, and in the past year I have single-handedly increased our market share by TWO-HUNDRED PERCENT.

I was able to create a startup that helps companies solve their toughest R&D and technical problems by connecting them to a network of over 150,000 scientists and PhDs in over 150 countries around the world. I cultivated this network and developed an exclusive algorithm that matches the problem to the problem solvers who are best equipped to solve the problem. The Hypios problem solvers can earn money for each problem they help solve.

We have a success rate of almost NINETY-NINE PERCENT. I am proud to say that we have a huge number of success stories with our clients. I am a problem solver. And that's what we do at my company. At Hypios.com, we solve problems.

“Successes and Failures Revealed” Condition

Hi, I'm the founder of Hypios. I have a PhD in computer science from Stanford and have started a company that uses my superior skill set to help companies solve their toughest problems. I have already landed some huge clients – companies like Google and GE. I've had AMAZING success, and in the past year I have single-handedly increased our market share by TWO-HUNDRED PERCENT.

I wasn't always so successful. I had a lot of trouble getting to where I am now. I almost failed out of grad school because I wasn't picking up the course material as well as my peers. I

was completely new to the academic world, and I struggled to demonstrate my potential to my professors and colleagues. Similarly, when I started my company, Hypios, I also failed to demonstrate why potential clients should believe in me and our mission. Many potential clients turned me down. But I persevered.

I was able to create a startup that helps companies solve their toughest R&D and technical problems by connecting them to a network of over 150,000 scientists and PhDs in over 150 countries around the world. I cultivated this network and developed an exclusive algorithm that matches the problem to the problem solvers who are best equipped to solve the problem. The Hypios problem solvers can earn money for each problem they help solve.

I started out with a very low problem-solving success rate, and it almost killed my company. I had a number of failed efforts with my initial matching algorithm and some companies were about to give up on me. But I worked hard to fix those problems and now we have a success rate of almost NINETY-NINE PERCENT. I am proud to say that we have a huge number of success stories with our clients. I am a problem solver. And that's what we do at my company. At Hypios.com, we solve problems.

Professional Domain Measures (Studies 1-2)Study 1

What is your professional field / industry / academic major?

1. Academia
2. Art
3. Creative Writing
4. Education
5. Healthcare
6. Law
7. Marketing & Advertising
8. Media & Journalism
9. Non-Profit & Philanthropy
10. Policy & Government
11. Tech & Computer Science

Study 2

What is your professional field / industry / academic major?

1. Administrative Services
2. Art & Design
3. Creative Writing & Publishing
4. Education
5. Engineering
6. Healthcare

7. Law
8. Marketing & Advertising
9. Media & Journalism
10. Non-Profit & Philanthropy
11. Policy & Government
12. Public Relations
13. Tech & Computer Science

Episodic Envy Measure (Study 1)

Please indicate the extent to which you believe that most other people would agree with the following statements about this person. (1 = Strongly Disagree, 7 = Strongly Agree)

1. Others feel some hatred toward this person.
2. Others feel resentful of this person.
3. Others have a grudge against this person.
4. Others feel bitter toward this person.
5. Others feel irritated at this person.
6. Others want what this person has.
7. Others lack what this person has.
8. Others feel that this person has a better career than they do.
9. Others feel envious toward this person.

Malicious Envy Measure (Study 2)

Based on his/her message, how would most OTHER people view the other participant? (1 = Not at all, 7 = Very much)

1. Other people would wish that this person hadn't been so successful.
2. Other people would wish that this person would fail at something.
3. Other people would not want this person to be successful in the future.
4. Other people would secretly want to take opportunities away from this person.
5. This person is someone that others would want to gossip about.

Benign Envy Measure (Study 3)

Please indicate your response for the following statements about this entrepreneur. (1 = Not at all, 7 = Very much)

1. This entrepreneur inspires me to work harder to get startup capital.
2. I will try harder to obtain funding for my startup at the next opportunity.
3. I want to be like this entrepreneur.
4. This entrepreneur's success encourages me.
5. This entrepreneur motivates me to emulate him/her.

Malicious Envy Measure (Study 3)

Please indicate your response for the following statements about this entrepreneur. (1 = Not at all, 7 = Very much)

1. Other competitors in the pitch competition would say that they wished this entrepreneur failed at something.

2. Other competitors in the pitch competition would secretly want to take funding away from this entrepreneur's startup.
3. Other competitors in the pitch competition would not want this entrepreneur to win the pitch competition.
4. Other competitors in the pitch competition would not want this entrepreneur to win the \$7,500 cash prize.
5. This entrepreneur is someone that other competitors in the pitch competition would want to gossip about.

Perceived Hubristic Pride Measure (Study 3)

Please indicate how strongly this entrepreneur appeared to feel... (1 = Not at all, 7 = Very much)

1. conceited
2. arrogant
3. stuck-up
4. pompous
5. snobbish
6. egotistical
7. smug

Perceived Authentic Pride Measure (Study 3)

Please indicate how strongly this entrepreneur appeared to feel... (1 = Not at all, 7 = Very much)

1. like he or she is achieving
2. fulfilled

3. accomplished
4. productive
5. like he or she has self-worth
6. successful
7. confident

Authors' note: We discuss the findings from our main measures in this manuscript. Other variables we collected were not included in the analyses because we did not have *a priori* hypotheses concerning those variables, which are listed below. We have uploaded all of our measures and study materials on OSF (accessible at this link: https://osf.io/hxpfy/?view_only=5a99d1c6179c4f1daee4ac550e2d1ca5).

Admiration (Study 1)

Please indicate the extent to which you agree with the following statements about this person. (1 = Strongly Disagree, 7 = Strongly Agree)

1. This person deserves his/her advantage over me.
2. I admire this person's accomplishments.
3. I currently feel a positive emotion about this person.
4. I currently feel a negative emotion about this person.
5. I approve of this person's accomplishments.
6. This person's accomplishments reflect positively on this person.
7. This person's accomplishments reflect negatively on me.
8. This person's accomplishments reveal much about this person.
9. This person's accomplishments reveal much about me.
10. I have control over whether I am successful in my professional field / industry / academic major.

Grit (Study 1)

Please respond to the following items about this person. Even though you may have very little information about this person, please give your general impression. (1 = Does not describe this person at all, 7 = Very much describes this person)

1. New ideas and projects sometimes distract this person from previous ones.
2. Setbacks don't discourage this person.
3. This person has been obsessed with a certain idea or project for a short time but later lost interest.
4. This person is a hard worker.
5. This person often sets a goal but later chooses to pursue a different one.
6. This person has difficulty maintaining his/her focus on projects that take more than a few months to complete.
7. This person finishes whatever he/she begins.
8. This person is diligent.

Warmth and Competence (Study 1)

Please respond to the following items about this person. Even though you may have very little information about this person, please give your general impression. (1 = Not at all, 7 = Extremely)

1. How competent is this person?
2. How capable is this person?
3. How confident is this person?
4. How efficient is this person?
5. How intelligent is this person?
6. How skillful is this person?
7. How friendly is this person?
8. How well-intentioned is this person?
9. How trustworthy is this person?

10. How warm is this person?
11. How good-natured is this person?
12. How sincere is this person?
13. How well-educated is this person?
14. How prestigious is this person's position?
15. How economically successful is this person?

Emotions (Study 1)

Please rate the following emotion words for the extent to which you are experiencing them toward this person. (1 = Not at all, 7 = Extremely)

1. Admiration
2. Respect
3. Anxiety
4. Inspiration
5. Awe
6. Pleasantness
7. Happiness
8. Sadness
9. Anger
10. Envy
11. Resentment
12. Frustration
13. Excitement
14. Joy

Self-Efficacy (Study 1)

Please indicate the extent to which you agree with the following statements. (1 = Strongly

Disagree, 7 = Strongly Agree)

1. I am capable.
2. I am competent.
3. I usually make good judgments.
4. I usually manage to solve difficult problems if I try hard enough.

Collaboration/Competition (Study 1)

Please indicate the extent to which you agree with the following statements. (1 = Strongly

Disagree, 7 = Strongly Agree)

1. I view this person as a collaborator.
2. I view this person as a competitor.

Trust and Liking (Study 1)

Please indicate the extent to which you agree with the following statements. (1 = Strongly

Disagree, 7 = Strongly Agree)

1. I trust this person.
2. I like this person.

Appendix B

Pilot Study 2: Measuring Benign and Malicious Envy

In Pilot Study 2, we ran a between-subjects study on Mechanical Turk. We recruited a separate sample of 206 participants between ages 24 and 28, after excluding 6 participants who did not meet the age requirement, 16 participants with duplicate IP addresses, and 1 participant who did not think the biography was real (exclusion criteria were decided *a priori*). The final sample included 183 participants (101 male, 82 female), with an average age of 26.08 years ($SD = 1.31$). Participants read the biography of a successful individual, which was constructed from the biographies we collected from participants in Study 1. Participants were assigned to one of two experimental conditions: we asked them to report the benign and malicious envy they felt towards the successful individual, or we asked them to report the benign and malicious envy they anticipated another person would feel towards the successful individual (between-subjects).

We found no differences in the benign envy measure across conditions ($t(181) = 1.31, p = .193$), but found a significant difference in the malicious envy measure across conditions ($t(181) = 4.79, p < .001$). Participants who anticipated the benign envy others would feel ($M = 5.06, SD = 1.10$) reported no differently than participants who reported benign envy for themselves ($M = 4.80, SD = 1.62$). In contrast, participants who reported malicious envy others would feel reported greater malicious envy ($M = 3.10, SD = 1.60$) than did participants who reported malicious envy for themselves ($M = 2.01, SD = 1.49$).

These findings demonstrate that it is important to ask people to report how other people would experience malicious envy (presumably because people are unwilling to admit that they feel malicious envy, a socially taboo emotional experience). However, benign envy can be

measured from one's own or others' perspective (presumably because benign envy is not socially taboo).

Appendix C

Study 4: Revealing Failures on Envy and Admiration

In this study, we investigate the effects of revealing failures on envy, admiration, and perceived value of accomplishments. A potential alternative explanation for the effect of revealing failures on malicious envy is that revealing failures decreases perceived status of the successful other. Indeed, successful people may be hesitant to reveal their failures because they fear negative evaluation. For instance, does decreasing observers' malicious envy also decrease their admiration? Admiration is a positive, "other-praising" emotion (Algoe & Haidt, 2009, p. 105) that, like malicious envy, is triggered by upward social comparison (Cuddy, Norton, & Fiske, 2005; Smith, 2000; Van de Ven et al., 2011b).

We recruited a separate sample of 412 participants between ages 24 to 28, from Amazon's Mechanical Turk. We included 352 participants (171 male, 181 female) in the final analysis, after excluding 24 participants who did not meet the age requirement, 27 participants with duplicate IP addresses, and 9 participants who did not believe the biography was real (exclusion criteria were decided *a priori*). The average age was 26.04 years ($SD = 1.44$). Participants read the biography of a successful individual of the same peer group and professional field (the same biographies used in Pilot Study 2). We assigned participants to one of two conditions. In the "only successes revealed" condition, participants read about only the individual's successes. In the "successes and failures revealed" condition, participants read about the same successes, along with several failures this person experienced in the past. We measured participants' malicious envy toward the individual (using the same measure as in Study 1; Cronbach's $\alpha = .86$). We measured admiration using a five-item measure (Cronbach's $\alpha = .90$), which included items such as "I admire this person," "This person's accomplishments are

admirable,” and “This person is an excellent role model” (Algoe & Haidt, 2009; Lockwood & Kunda, 1997). Unlike measuring malicious envy, when measuring admiration we could ask participants directly for their ratings, as people are generally willing to declare praise toward a successful other (Cialdini et al., 1976; Algoe & Haidt, 2009; Tesser & Collins, 1988). Finally, we measured the perceived value of the achiever’s accomplishments, using a four-item measure adapted from the perceived value measure used in Buell & Norton (2011). This measure included items such as “I think this person’s achievements are valuable” and “I respect this person’s achievements.”

A two-sample t-test showed that participants in the “successes and failures revealed” condition reported lower feelings of malicious envy ($M = 4.11$, $SD = .97$) than did participants in the “only successes revealed” condition ($M = 4.43$, $SD = .95$), $t(350) = 3.13$, $p = .002$, $d = .33$ (95% CI: [.12, .54]). These results replicate the findings from Studies 1-3.

A two-sample t-test did not detect any significant differences in admiration between the “only successes revealed” condition ($M = 5.24$, $SD = 1.07$) and the “successes and failures revealed” condition ($M = 5.05$, $SD = 1.10$), $t(350) = 1.64$, $p = .102$, $d = .17$ (95% CI: [-.04, .38]). A two-sample t-test also did not detect any differences in perceived value of accomplishments between the “only successes revealed” condition ($M = 5.84$, $SD = .93$) and the “successes and failures revealed” condition ($M = 5.75$, $SD = .95$), $t(350) = .85$, $p = .397$, $d = .09$ (95% CI: [-.12, .30]).

Our findings from this study suggest that revealing failures and successes, compared to revealing successes only, mitigates malicious envy, but does not influence admiration for the discloser or perceived value of the discloser’s accomplishments, which remained high across both experimental conditions. These results help to address the alternative explanation that the

effect of revealing failures on malicious envy is explained by a decrease in perceived status of the discloser.