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Case Report

"If stress is good for me, it's probably good for you too": Stress mindset and judgment of others' strain☆

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ABSTRACT

Much is known about stress and its resulting strain (i.e., negative outcomes such as burnout or impaired health), but not about how we perceive others' strain and what the outcomes of such strain perceptions are. We integrated the social-projection and stress-mindset literatures to investigate, for the first time, the effect of holding a stress-is-enhancing, versus a stress-is-debilitating, mindset on social judgments of a target's strain, on the perceiver's consequent perceptions of the target's promotability, and on his or her intention to voluntarily help the target. We argued that perceivers may project their own stress-mindsets onto others, resulting in egocentrically-biased judgments of the latter's strain. We conducted four experimental and correlational studies, among 971 fully-employed Americans and Israelis, using a novel stress-mindset manipulation. We predicted and found evidence that, independent of the effects of mood, individuals holding a stress-is-enhancing versus a stress-is-debilitating mindset were less likely to judge a target experiencing a heavy workload as suffering from burnout, somatic symptoms, or presenteeism (i.e., reduced productivity at work due to health problems). We also revealed two important downstream outcomes: whereas the lower strain judgments associated with a stress-is-enhancing mindset led to a higher estimate of the target's promotability, they also led to a lower likelihood of helping him. Taken together, our findings establish a causal link between stress-mindset and judgments of others' strain, thereby extending the novel notion of stress-mindset beyond intra-personal outcomes to inter-personal effects. Results provide a foundation for future work addressing the accuracy of judgment of others' stress experience.

1. Introduction

No matter how stressed you felt during the past week, chances are that people around you did not perceive your stress the same way you did. In fact, we know a great deal about stress, but know very little about how we perceive others' stress. Stress is a complex concept that encompasses stressors (i.e., conditions and events), appraisals of stressors, and strains, defined as negative physiological, cognitive, emotional, or behavioral outcomes of stress (Bliese, Edwards, & Sonnentag, 2017; Cohen, Janicki-Deverts, & Miller, 2007; Karasek, 1979). The link between stressors (e.g., work hours) and strains (e.g., burnout, illness) is well documented, suggesting that exposure to stressors inflicts extensive personal, organizational, and societal costs (Johns, 2010; Maslach, 2003). Surprisingly, research has largely focused on individuals' perceptions of their own strain, whereas social perceptions of other people's strain have largely been overlooked.

We build on the social perception literature, and specifically on *social projection* research, which has shown that when people try to evaluate targets' thoughts, feelings, or behaviors, they often project their own corresponding states, thereby arriving at inaccurate social judgments (Ames, 2004; Epley, Keysar, Van Boven, & Gilovich, 2004; Krueger, 2007). Thus, we argue that social perceptions of strain (i.e., perceptions of whether a target is experiencing negative outcomes of stress) may often be biased. Moreover, as a person's perceptions of others shape his or her behaviors towards them (e.g., Chartrand & Bargh, 1999), we posit that the extent to which a person perceives a target as strained (e.g., the extent to which a manager perceives an employee as experiencing burnout) may inform her actions towards that target (e.g., promotion decisions). Notably, to our knowledge, no study to date has assessed perceptions of others' strain,

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and only one study has addressed perceptions of targets' stressors (i.e., work-home conflict; Hoobler, Wayne, & Lemmon, 2009). The latter study found that managers rated their female employees' work-home-conflict levels as higher than those of their male employees, whereas in fact, no gender differences were observed in self-reports of work-home conflict. Importantly, this overestimation of females' work-home conflict led managers to judge their person-job fit, performance, and promotability levels as low. We suspect that these managers' beliefs about their subordinates' stressors (i.e., stress-mindset, see below), may have affected their judgments of the latter's performance and promotability.

1.1. Stress-mindset

Mindsets—mental frameworks or lenses that help people organize and encode information—shape the ways in which people understand, experience, and act upon their environment (Dweck, 1999). *Stress-mindset*, a recently-introduced concept, is the extent to which individuals hold the mindset that stress has enhancing versus debilitating consequences (Crum, Salovey, & Achor, 2013).

Of course, it is highly common for individuals to hold a "stress-is-debilitating" mindset (Clark, 2003; Kinman & Jones, 2005), as the mass media tend to highlight stress's contribution to negative outcomes such as morbidity and mortality (e.g., Cohen et al., 2007; Melamed, Shirom, Toker, Berliner, & Shapira, 2006). In fact, the extent to which individuals believe that stress is debilitating has in itself been positively associated with morbidity (Nabi et al., 2013) and mortality rates (Keller et al., 2012). However, recent studies have indicated that stress may also produce favorable outcomes (for reviews see: Podsakoff, LePine, & LePine, 2007; Updegraff & Taylor, 2000), suggesting that a "stress-is-enhancing" mindset is also likely to be viable under certain circumstances. Interestingly, over and above the effects of stress level, induction of a stress-is-enhancing mindset has been shown to improve self-reported health and work performance (Crum et al., 2013), as well as to enhance physiological functioning and performance (e.g., Jamieson, Mendes, Blackstock, & Schmader, 2010; Jamieson, Mendes, & Nock, 2013).

Thus, holding a stress-is-enhancing-mindset seems intra-personally beneficial, but what are its interpersonal effects? Building on the social projection literature (Krueger, 2007), we argue that when a perceiver egocentrically projects his or her stress-is-enhancing mindset onto a target, he or she may produce a biased judgment of the target's experience of strain. For example, a manager holding a stress-is-enhancing mindset rather than a stress-is-debilitating mindset may be less likely to perceive his employees' stressors (e.g., extended work hours) as hazardous and, consequently, may evaluate his employees' strain levels (e.g., somatic symptoms) as low. We further posit that, in addition to influencing individuals' perceptions of others' strain, a perceiver's stress-mindset may also affect important downstream outcomes. For example, a manager may interpret (his perceptions of) an employee's low levels of strain as signaling high levels of person-job fit and job performance, which may positively influence the manager's perceptions of the employee's career prospects (e.g., promotability judgments), yet reduce his willingness to help the employee (e.g., offer mental or instrumental support). Accordingly, we hypothesize that a perceiver who holds a stress-is-enhancing-mindset will judge a target's strain levels as lower than will a perceiver who holds a stress-is-debilitating-mindset and, consequently, will be more likely to judge the target's promotability favorably, and will be less willing to voluntarily help the target.

1.2. Overview of the current research

We tested, for the first time, the aforementioned hypothesis that a stress-is-enhancing (as opposed to stress-is-debilitating) mindset reduces the extent to which a perceiver perceives a target as experiencing strain. To operationalize strain, we relied on three widely-used measures of strain—burnout, presenteeism, and somatic symptoms—that have been shown to be costly for both individuals and organizations. *Burnout*, a negative affective state composed of physical, cognitive, and emotional exhaustion, has been shown to result from chronic exposure to stressors, and to impair physical and emotional well-being (Maslach, 2003; Melamed et al., 2006). *Presenteeism*, another common work-related strain, refers to the loss of work productivity due to illness and stress (Johns, 2010; Turpin et al., 2004). *Somatic symptoms* represent the presence of physical symptoms such as pain or fatigue, which may or may not be associated with a diagnosed medical condition (Gierk et al., 2014).

We conducted four studies in which we used an identical social judgment paradigm: a scenario about a hard-working employee experiencing high workload. After reading this scenario, participants (perceivers) were asked to rate the hard-working employee's strain and promotability levels (Studies 1–3) or their intentions to help this employee (Study 4). Correlational Study 1 examined the link between individual differences in stress-mindset and judgments of a target's burnout, after accounting for perceivers' age, gender, mood and optimism, as well as assessments of the target's workload; the latter control variable was incorporated on the basis of past studies that have observed links between stress-mindset and stress levels (Crum et al., 2013; Nabi et al., 2013). In Studies 2–4, we developed a novel priming manipulation of stress-mindset (i.e., priming either a stress-is-enhancing mindset or a stress-is-debilitating mindset), and tested its effects on perceivers' judgments of a target's presenteeism and somatic symptoms (Study 2), burnout (Study 3), or all three types of strain (Study 4). Furthermore, to demonstrate the effect of stress-mindset on more indirect, downstream consequences of strain judgments, we also tested the indirect effect of perceivers' stress mindset, through perceptions of the target's strain on the target's promotability (Studies 1–3) and on perceivers' intentions to help the target (Study 4). In addition, we addressed potential alternative explanations, including the possibility that any effects of stress-mindset on strain perceptions are simply due to an association between perceivers' (dispositional or manipulated) stress-mindset and their mood, which affects their judgments. All studies were approved by the university's IRB committee. All measures, manipulations, and exclusions in the study are disclosed. Across all studies, data analyses were conducted after data collection concluded. That is, data collection proceeded independently of the results obtained.

2. Study 1: individual differences in stress-mindset and judgments of others' burnout and promotability

Study 1 examined the role of individual differences in stress-mindset in perceivers' assessments of a target's strain (burnout) and of the target's promotability; specifically, it tested the hypothesis that individuals who hold a stress-is-enhancing mindset rather than a stress-is-debilitating-mindset tend to evaluate a given target as being less burned-out and, consequently, as more likely to be promoted. Participants (i.e., perceivers) read a scenario about a hard-working employee and rated his levels of burnout and promotability; then, in an ostensibly unrelated questionnaire, participants reported their own stress-mindsets. Study 1 also addressed two possible alternative explanations for the hypothesized link: *negative mood* due to reading a vignette about a stressed person, and *general trait optimism*, which is linked to both stress-mindset and strain (Crum et al., 2013). We expected stress-mindset to have a unique effect on perceivers' judgments of the target's burnout (referred to hereafter as *target's perceived burnout*). We further expected the target's perceived strain to have a mediating effect on the extent to which perceivers evaluated the target as being eligible for promotion (*target's perceived promotability*), over and above any effects of optimism or negative mood.

2.1. Method

2.1.1. Participants

We recruited fully-employed American participants for an online "stress at work" study via Amazon's Mechanical Turk (MTurk; see Buhrmester, Kwang, & Gosling, 2011), for a small incentive of $1. Only full-time employees (i.e., those working for 35 h a week or more) were invited to participate in the study, and these individuals were identified using the MTurk screening engine's employment-status filter. We expected an effect size of $R^2_{change} = 0.02$ as found in Crum et al. (2013). The G*Power 3.1 program (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007) identified that we needed a sample size of 311 to detect an effect with 80% power. To account for the potential need to exclude certain participants (because of failure to complete the study or missing data), we targeted a somewhat larger sample size (20% larger) and therefore recruited 377 participants. No additional stopping rule was used; all data analyses were conducted after data collection concluded. Twenty-nine participants were excluded from all analyses: Two participants completed the survey in an unreasonably short time (1.5 min vs. an average of an 8.5 min completion time, two standard deviations below the mean), suggesting that they had not read the scenario carefully, and 27 participants failed one or more of two attention-check questions that were embedded in the study materials (i.e., "Please leave the answer to this question blank"; "Please select 'strongly disagree' for quality assurance purposes"). Of the remaining 348 participants ($M_{age} = 37.40$, $SD_{age} = 9.60$), 48% were women.

2.1.2. Procedure and measures

Participants were told that they would be completing two unrelated questionnaires. First, they read a vignette describing a male employee ("Ben", the target) experiencing a high workload (i.e., occupying a managerial position, working long work hours, and multi-tasking) as judged by 16 independent judges. See the Supplementary Materials for the full vignette. Next, participants were asked to rate the target's (i.e., "Ben's") burnout, promotability, and workload levels. For consistency, unless otherwise noted, participants responded to each item by indicating a rating on a seven-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Variables were measured using valid scales, with items adjusted to reflect assessments of a target rather than self-assessments. *Target's perceived burnout* was assessed using the Shirom-Melamed Burnout Measure (SMBM; Shirom & Melamed, 2006), a 14-item scale measuring physical, cognitive, and emotional exhaustion during the last month (α = 0.96). To assess the *target's perceived promotability*, we selected three items from two existing scales (Hoobler et al., 2009; Tiedens, 2001), asking respondents to rate the degree to which they perceived the target as eligible for promotion (α = 0.87). To eliminate the potential confounding effect of differential judgments of the target's workload (e.g., those with a stress-is-debilitating mindset may view the target's workload as higher), we assessed the *target's perceived workload* using the five-item demands scale from the Demand–Control–Support Questionnaire (Sanne, Torp, Mykletun, & Dahl, 2005; α = 0.57).

Next, participants completed a second, ostensibly unrelated "self-attitudes questionnaire". Specifically, participants reported their own stress-mindset, optimism, state mood, and basic demographics. We used the Stress-mindset Measure (SMM; Crum et al., 2013), an eight-item scale, to assess the degree to which participants perceived stress as enhancing or debilitating (e.g., "The effects of stress are positive and should be utilized", "Experiencing stress debilitates my performance and productivity"; α = 0.90). A higher mean score represents a more stress-is-enhancing mindset. Participants' optimism was measured using three items from the Life Orientation Test–Revised (LOT-R; Scheier, Carver, & Bridges, 1994), which were adapted to reflect optimism in general (α = 0.91). Participants' state mood was assessed with a single item (1 = *unhappy*, 9 = *happy*; Self-Assessment Manikin; Bradley & Lang, 1994). See the Supplementary Materials for the full measures. We controlled for the target's perceived workload and for participants' optimism, mood, age, and gender in all analyses. Finally, as data were collected with the assistance of undergraduate students who were participating in a research seminar, the students added at the end of the survey, for educational purposes only, a measure of participants' perceptions of the target's satisfaction with life (Satisfaction with Life Scale, SWLS; Diener, Emmons, Larsen, & Griffin, 1985). A full description of the measure and its corresponding results can be found in the Supplementary Materials.

2.2. Results and discussion

2.2.1. Preliminary analyses

As expected, participants (i.e., *perceivers*) rated the target as being highly overloaded at work; the mean rating of the target's perceived workload was higher than the scale midpoint of "4", $M = 5.59$, $SD = 0.67$, $t(347) = 43.93$, $p < 0.001$, $d = 2.37$. We observed a significant negative correlation between perceivers' stress-mindset scores and their evaluations of the target's workload, $r(346) = -0.15$, $p = 0.005$. We also observed a significant correlation between the target's perceived burnout and the target's perceived workload, $r(346) = 0.38$, $p < 0.001$, and therefore we controlled for workload judgments in all the primary analyses (see Table 1).

As expected, perceivers' ratings of the target's burnout were negatively associated with their ratings of the target's promotability, $r(346) = -0.17$, $p = 0.001$. Perceivers' ratings of the target's promotability were also associated with perceivers' optimism, $r(346) = 0.14$, $p = 0.009$, and with perceivers' state mood, $r(346) = -0.12$, $p = 0.029$, and thus both were included as covariates in all analyses. In addition, we controlled for perceivers' age, as it was negatively associated with the target's perceived burnout, $r(346) = -0.11$, $p = 0.042$, and for perceivers' gender, as women reported lower levels of stress-is-enhancing mindset than men did, $t(346) = 2.59$, $p = 0.010$.

Table 1
Correlation matrix and descriptive statistics for the variables included in Study 1.

	Mean	SD	1	2	3	4	5	6	7
1. Stress-mindset (P)	3.22	1.13	(0.90)						
2. Burnout (T)	4.11	1.12	−0.17**	(0.96)					
3. Promotability (T)	6.10	0.82	0.03	−0.17**	(0.87)				
4. Workload (T)	5.59	0.67	−0.15**	0.38***	0.11*	(0.57)			
5. Mood (P)	3.88	1.84	−0.06	0.12*	−0.12*	0.01	–		
6. Optimism (P)	4.78	1.46	0.20***	−0.06	0.14**	0.03	−0.31***	(0.91)	
7. Age (P)	37.40	9.60	−0.06	−0.11*	−0.05	0.09	0.08	−0.01	–
8. Gender (% women) (P)	48%	–	−0.14**	0.01	0.06	0.05	−0.04	0.00	0.03

Note. $n = 348$; P = Perceiver; T = Target; numbers in parentheses are reliability coefficients.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 2
Regressing judgment of the target's burnout on perceivers' stress-mindset, optimism, mood, age, gender, and target's perceived workload.

Model and predictor	Target's perceived burnout				
	b	*SE*	95% CI LCI, UCI	β	*p*
Step 1					
Stress mindset (P)	− 0.16	0.18	[− 0.27, − 0.06]	− 0.17	0.002
Adjusted R^2(346) = 0.025					
F (1, 346) = 9.94					
Step 2					
Stress-mindset (P)	− 0.11	0.05	[− 0.21, − 0.01]	− 0.11	0.028
Workload (T)	0.63	0.08	[0.47, 0.79]	0.38	< 0.001
Optimism (P)	− 0.01	0.04	[− 0.09, 0.07]	− 0.01	0.770
Mood (P)	0.07	0.03	[0.01, 0.13]	0.12	0.020
Age (P)	− 0.02	0.01	[− 0.03, − 0.01]	− 0.16	0.001
Gender (P)	− 0.05	0.11	[− 0.26, 0.17]	− 0.02	0.675
Adjusted R^2(341) = 0.183					
F (6, 341) = 13.92					

Note. n = 348; P = Perceiver; T = Target; LCI = Lower Confidence Interval; UCI = Upper Confidence Interval; Gender, 1 = Men, 2 = Women.

2.2.2. Hypothesis testing

Results were consistent with our predictions, such that the greater the extent to which participants perceived stress as enhancing, the lower their ratings of the target's perceived burnout, b = − 0.16, t(346) = 3.15, p = 0.002, 95% CI[2] [− 0.27, − 0.06], even after controlling for perceivers' gender, age, optimism, mood, and their judgment of the target's workload, b = − 0.11, t(341) = 2.21, p = 0.028, 95% CI [− 0.21, − 0.01] (see Table 2).

We also tested the mediating role of the target's perceived burnout in the link between perceivers' stress-mindsets and their evaluations of the target's promotability (Fig. 1). Using bootstrapping, based on 5000 random samples with replacement (e.g., Preacher & Hayes, 2008), we found that, as predicted, the 95% BCa (bias-corrected and accelerated) CIs excluded zero, indicating that the target's perceived burnout mediated the association between perceivers' stress-mindset scores and their assessments of the target's promotability, unstandardized indirect effect = 0.02, SE = 0.01, 95% CI [0.006, 0.048], even after controlling for gender, age, mood, optimism, and the target's perceived workload, unstandardized indirect effect = 0.02, SE = 0.01, 95% CI [0.003, 0.049]. We did not find total effects either when stress-mindset was the sole predictor (unstandardized total effect = 0.03, SE = 0.04, p = 0.524), or when controlling for the aforementioned possible confounds (unstandardized total effect = 0.02, SE = 0.04, p = 0.574). Taken together, these findings indicate that the extent to which an individual's stress-mindset is stress-is-enhancing, as measured by the SMM, is negatively associated with the extent to which he or she perceives a given target as burned-out, which, in turn, is positively associated with the extent to which he or she perceives that target as promotable. Importantly, these effects occur over and above the effects of trait optimism, state mood, gender, age, and the target's perceived workload.

3. Study 2: does stress-mindset affect judgments of others' presenteeism, somatic symptoms, and promotability?

Study 2 aimed to conceptually replicate Study 1 and to extend it in two ways: First, we focused on two additional manifestations of strain: presenteeism and somatic symptoms. Second, we implemented an experimental design to test the causal effect of stress-mindset on judgments of a target's presenteeism, somatic symptoms, and promotability. To do so, we first developed a novel stress-mindset manipulation (Pilot Study). Specifically, we primed stress-mindset through the recall of a relevant past experience, to activate different concepts stored in memory, under the assumption that such activation mirrors these concepts' short-term effects. Similar recall-based methods are frequently used in various areas of social psychology (e.g., social power and authenticity; Kifer, Heller, Perunovic, & Galinsky, 2013).

3.1. Pilot study: development of the stress-mindset manipulation

3.1.1. Participants

Participants were *65* Israeli MBA students (*51*% women), M_{age} = 35, SD_{age} = 11, working full time, who volunteered to participate in the study. The manipulation check was the dependent variable of interest in the pilot study, and would be assessed using a measure of the manipulated construct itself (i.e., stress-mindset). Thus, we expected a large effect size (d = 0.80, one-tailed[3]). The G*Power 3.1 program (Faul et al., 2007, 2009) identified that we needed a sample size of 56 to detect an effect with 90% power. With 65 participants eventually responding to our invitation, the actual power achieved was 94%. Data analyses were conducted after data collection concluded. No other stopping rule was used.

3.1.2. Procedure and measures

We used Qualtrics software to conduct the online experiment. Participants were invited to participate in the study via an email message with a designated link. After giving informed consent, each participant was randomly assigned to one of two stress-mindset conditions: a stress-is-enhancing-mindset condition (n = 34) and a stress-is-debilitating-mindset condition (n = 31). In each group participants recalled and described, in a short paragraph (five to seven sentences), an event in which they had experienced stress that had affected them either in an enhancing way (stress-is-enhancing-mindset condition) or in a debilitating way (stress-is-debilitating-mindset condition). To enhance the manipulation, we also asked participants to complete four sentences describing their feelings, thoughts, behaviors, and physical sensations when stress affects them in a positive or negative way (i.e., "*When stress affects me in a* ***(positive/negative)*** *way, it makes me feel…*". See Supplementary Materials for the full text of the manipulation).

As a manipulation check, we asked participants to complete the same stress-mindset measure used in Study 1 on a five-point scale (1 = *strongly disagree*, 5 = *strongly agree*; Crum et al., 2013; α = 0.88).

[2] All CIs in Studies 1–4 represent 95% BCa (Bias-Corrected and accelerated) CIs.

[3] d = Cohen's d in all studies.

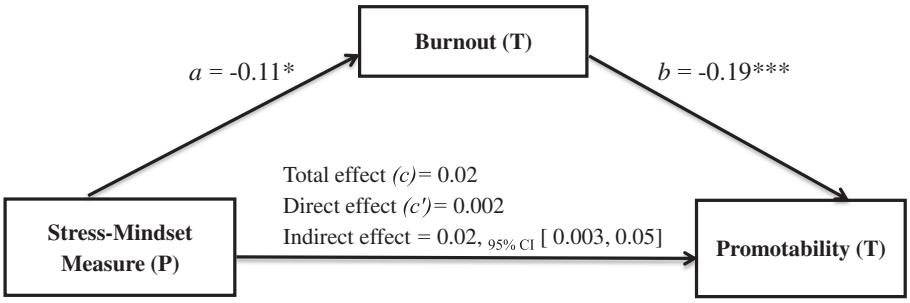

Fig. 1. The direct and indirect unstandardized effects of a perceiver's stress-mindset score on a target's perceived promotability, mediated through the target's perceived burnout, after controlling for perceiver's age, gender, mood, and optimism, and the target's perceived workload (Study 1). P = Perceiver; T = Target.
*$p < 0.05$. ***$p < 0.001$.

To ensure that the stress-mindset manipulation did not have an unintended effect through an influence on mood, we assessed participants' moods with the same measure used in Study 1. Each participant also indicated the difficulty level of recalling the event he or she had described, as well as its tangibility and concreteness.

3.1.3. Results

The pilot study demonstrated the effectiveness of the recall manipulation in inducing a stress-is-enhancing or a stress-is-debilitating stress-mindset. As intended, participants in the stress-is-enhancing-mindset condition adopted a more stress-is-enhancing mindset ($M = 3.43$, $SD = 0.52$) than did participants in the stress-is-debilitating-mindset condition ($M = 2.53$, $SD = 0.68$), $t(63) = 6.05$, $p < 0.001$, $d = 1.33$. Furthermore, independent-samples *t*-tests indicated that, as intended, the study conditions had no effect on mood, $t(52) = 0.45$, $p = 0.651$, $d = 0.12$, difficulty in recalling the event, $t(62) = 1.02$, $p = 0.310$, $d = 0.26$, or tangibility and concreteness, $t(63) = 0.12$, $p = 0.903$, $d = 0.03$.

3.2. Main study: the effect of manipulated stress-mindset on judgments of others' presenteeism, somatic symptoms, and promotability

3.2.1. Participants

We recruited fully-employed Israelis who volunteered to participate in an online "stress at work" study via Facebook groups, solicitation emails, and word of mouth. Only full-time employees (i.e., those working 35 h a week or more) were invited to participate in the study. Given that this experiment would be the first to apply our new manipulation, we had no a-priori estimate of the effect size to be obtained; therefore, we based the predetermined target sample size on the updated convention of approximately 100 participants per cell (Simmons, Nelson, & Simonsohn, 2017). To allow for the need to exclude certain participants due to failure to complete the study or missing data, we recruited about 10% more participants beyond the minimum of 100 per cell (i.e., the stopping rule), resulting in an initial sample of 222 participants. Each participant was randomly assigned to one of two stress-mindset conditions: a stress-is-enhancing-mindset condition and a stress-is-debilitating-mindset condition. We note that, as participants' gender may affect judgments, we ensured by design that there would be similar gender proportions within the two conditions (upon entering the survey, participants indicated their gender and then were randomly assigned to the two study conditions). Consequently, women represented 53% of the participants in the stress-is-debilitating-mindset condition and 46% of the participants in the stress-is-enhancing-mindset condition. Ten participants, equally distributed across conditions, $\chi^2(1, N = 222) = 0.15$, $p = 0.699$, did not complete the experiment and were excluded from all analyses. Of the remaining 212 participants, five had missing values on one or more of the study variables and were thus excluded from the analysis, resulting in a final sample of 207 participants ($n = 110$ in the stress-is-debilitating-mindset condition and $n = 97$ in the stress-is-enhancing-mindset condition). Of these 207 participants ($M_{age} = 29.18$, $SD_{age} = 8.70$), 50% were women, and 23% held managerial positions. As there was no previous research that could be used to directly estimate the effect size, we based our estimate on the overall average effect size found in social psychology ($d = 0.43$; Richard, Bond, & Stokes-Zoota, 2003), as suggested by Funder et al. (2014). We thus estimated that the final sample size of 207 represented an actual power of 92%. All data analyses were conducted after data collection concluded.

3.2.2. Procedure and measures

Participants (i.e., perceivers) were told that they would be engaging in two different tasks. In the first task, each participant completed the stress-mindset recall task corresponding to his or her stress-mindset condition (stress-is-enhancing-mindset condition or stress-is-debilitating-mindset condition). After the recall task, participants reported their state mood (using the same measure as in Study 1), allowing us to test whether any effects of stress-mindset condition on participants' judgments of the target might simply be due to mood. Next, participants completed a second, ostensibly unrelated "social judgment questionnaire". Participants in both conditions read an identical vignette describing an employee (i.e., the same vignette used in Study 1), after which they rated the target's presenteeism, somatic symptoms, and promotability levels. For consistency, unless otherwise noted, participants responded to each item by indicating a rating on a five-point scale (1 = *strongly disagree*, 5 = *strongly agree*).

The target's perceived *presenteeism* was assessed using the six-item Stanford Presenteeism Scale (SPS-6; Koopman et al., 2002), which reflects the extent to which productivity is diminished at work as a result of health problems. A sample item is: "He felt hopeless about finishing certain work tasks, due to his health problems" (α = 0.76). The *somatic symptoms* measure reflects the degree to which respondents evaluated the target as experiencing at least one of eight symptoms (e.g., back pain, headaches) during the last month. We used the eight-item Somatic Symptoms Scale-8 (SSS-8; Gierk et al., 2014); ratings included 0 (*not at all*), 1 (*a little*), and 2 (*a lot*). The sum score of the eight symptoms was calculated (α = 0.83). The target's perceived *promotability* was assessed with a single item from the promotability scale used in Study 1: "Imagine that you are Ben's manager. To what extent do you believe Ben should be promoted?" Participants also completed the same state mood measure used in the Pilot Study and in Study 1. Finally, we note that, as in Study 1, data were collected with the assistance of undergraduate students, who, for educational purposes only, included at the end of the survey a measure of participants' perceptions of the target's organizational citizenship behavior (Konovsky & Organ, 1996). A full description of the measure and its corresponding results can be found in the Supplementary Materials.

3.3. Results and discussion

3.3.1. Preliminary analyses

The correlation matrix and descriptive statistics for all variables appear in Table 3. An independent-samples *t*-test revealed an age difference between the conditions ($M_{\text{debilitating}} = 30.33$, $SD = 10.68$; $M_{\text{enhancing}} = 27.86$, $SD = 5.88$), $t(205) = 2.09$, $p = 0.038$, $d = 0.02$; thus, age was controlled for in all analyses. We found no condition

Table 3
Correlation matrix and descriptive statistics for the variables included in Study 2.

	Mean	SD	1	2	3	4	5	6	7
1. Stress-mindset condition (P)	–	–							
2. Somatic symptoms (T)	8.96	3.87	− 0.15*	(0.83)					
3. Presenteeism (T)	2.89	0.58	− 0.19**	0.49***	(0.76)				
4. Promotability (T)	4.05	0.74	0.03	− 0.09	− 0.17*	–			
5. Mood (P)	6.66	1.50	0.01	− 0.05	0.03	0.08	–		
6. Age (P)	29.18	8.83	− 0.14*	− 0.20**	− 0.19**	− 0.01	0.14*	–	
7. Gender (% women) (P)	50%		− 0.08	0.28***	0.04	0.03	− 0.12	0.08	–
8. Managerial position (P)	23%		− 0.09	− 0.18**	− 0.12	− 0.00	0.08	0.38***	− 0.01

Note. n = 212; Stress Mindset condition: 0 = Debilitating mindset condition, 1 = Enhancing mindset condition; P = Perceiver; T = Target; numbers in parentheses represent the measures' reliability coefficients (Cronbach's α).
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

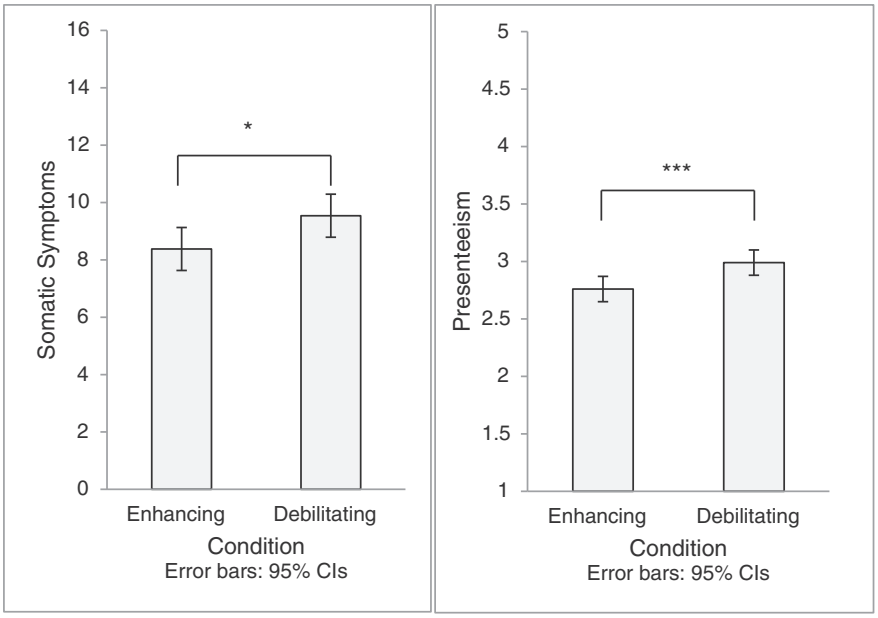

Fig. 2. Means and 95% CIs for perceivers' judgments of the target's presenteeism and somatic symptoms, across conditions. Enhancing = Stress-is-enhancing-mindset condition; Debilitating = Stress-is-debilitating-mindset condition; Condition error bars: 95% CIs.
*$p < 0.05$. ***$p < 0.005$.

differences in participants' state mood levels (t[205] = 0.21, p = 0.834, d = 0.27), gender (χ^2[1, N = 207] = 1.41, p = 0.235) or managerial position (χ^2[1, N = 207] = 1.79, p = 0.181).

3.3.2. Hypothesis testing

We observed a positive and strong correlation between perceivers' evaluations of the target's somatic symptoms and their evaluations of the target's presenteeism, r(205) = 0.49, $p < 0.001$. Therefore, we conducted both MANOVA and MANCOVA analyses. These analyses revealed the predicted effect of condition on perceivers' judgments of the target's somatic symptoms and presenteeism, F(2, 204) = 4.24, p = 0.016, η^2 = 0.04, even when controlling for age, F(2, 203) = 6.19, p = 0.002, η^2 = 0.06.

As hypothesized, participants in the stress-is-enhancing-mindset condition assigned lower ratings to the target's levels of presenteeism and somatic symptoms ($M_{\text{presenteeism}}$ = 2.77, SD = 0.59; $M_{\text{somatic symptoms}}$ = 8.34, SD = 3.89) than did participants in the stress-is-debilitating mindset condition ($M_{\text{presenteeism}}$ = 2.99, SD = 0.56; $M_{\text{somatic symptoms}}$ = 9.51, SD = 3.78), $F_{\text{presenteeism}}$(1, 205) = 7.45, p = 0.007, η^2 = 0.03; $F_{\text{somatic symptoms}}$(1, 205) = 4.78, p = 0.030, η^2 = 0.02 (see Fig. 2). These results held even when controlling for age, $F_{\text{presenteeism}}$(1, 204) = 10.46, p = 0.001, η^2 = 0.05; $F_{\text{somatic symptoms}}$(1, 208) = 7.24, p = 0.008, η^2 = 0.03, or when controlling for both age and mood, $F_{\text{presenteeism}}$(1, 207) = 11.31, p = 0.001, η^2 = 0.052; $F_{\text{somatic symptoms}}$(1, 207) = 7.24, p = 0.008, η^2 = 0.03.

We also explored whether perceivers holding managerial positions differed from those in non-managerial positions in terms of the extent to which stress-mindset condition affected their judgments of the target's presenteeism and somatic symptoms. We observed no significant interaction effect (i.e., stress-mindset condition × managerial status) for either presenteeism, $F_{\text{managerial-status} \times \text{condition}}$(1, 203) = 0.67, p = 0.414, η^2 = 0.003, or somatic symptoms, $F_{\text{managerial-status} \times \text{condition}}$(1, 203) = 2.60, p = 0.108, η^2 = 0.01.

Finally, we tested the downstream, indirect effect of stress-mindset condition on perceptions of the target's promotability, simultaneously for the two mediators: the target's perceived presenteeism and the target's perceived somatic symptoms (Fig. 3).

Using bootstrapping, based on 5000 random samples with replacement (e.g., Preacher & Hayes, 2008), we observed a mediating effect of the target's perceived presenteeism in the association between stress-mindset condition and the target's perceived promotability, unstandardized indirect effect estimate = 0.04, SE = 0.03, 95% CI [0.002, 0.127], even when controlling for age, unstandardized indirect effect estimate = 0.05, SE = 0.04, 95% CI [0.002, 0.147]. No mediating effect was observed for the target's perceived somatic symptoms, both when age was not controlled for, unstandardized indirect effect estimate = 0.00, SE = 0.02, 95% CI [− 0.031, 0.050], and when age was controlled for, unstandardized indirect effect estimate = 0.01, SE = 0.02, 95% CI [− 0.039, 0.055]. In addition, no total effect was

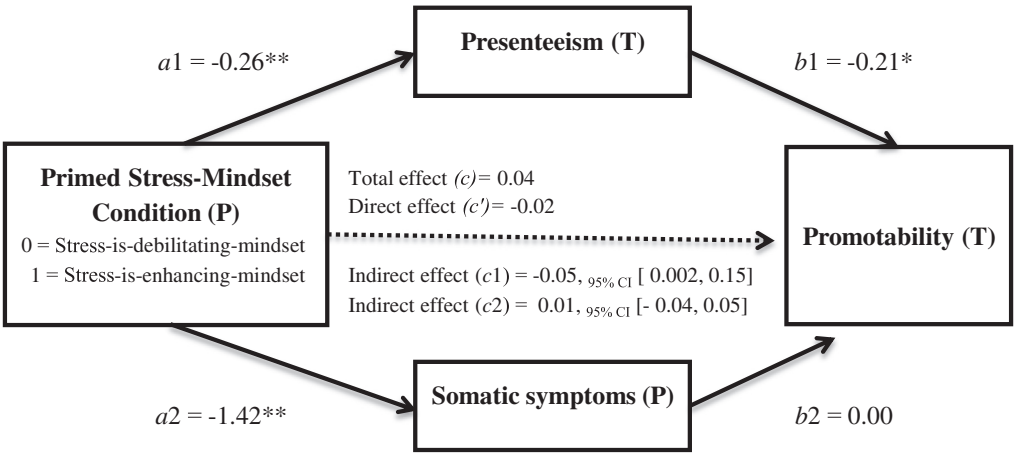

Fig. 3. The direct and indirect unstandardized effects of stress-mindset condition on perceivers' perceptions of a target's promotability, through perceptions of the target's presenteeism and somatic symptoms, after controlling for age (Study 2). P = Perceiver; T = Target; *a*1, *b*1, *c*1 = Paths involving presenteeism; *a*2, *b*2, *c*2 = Paths involving somatic symptoms.
*$p < 0.05$. **$p < 0.01$.

observed, either when age was not controlled for, unstandardized total effect = 0.04, $SE = 0.10$, $p = 0.665$, or when it was controlled for, unstandardized total effect = 0.04, $SE = 0.10$, $p = 0.673$.

Taken together, these findings suggest that a manipulated stress-is-enhancing mindset led perceivers to assign lower ratings to a target's levels of presenteeism and somatic symptoms than did a manipulated stress-is-debilitating mindset. In turn, the target's perceived presenteeism levels were (negatively) predictive of the target's promotability ratings.

4. Study 3: does stress-mindset affect judgment of others' burnout and promotability?

Study 3 aimed to conceptually replicate Study 2 and to extend it by including a control condition to further address the alternative explanation that the observed effects were attributable to perceivers' mood. It is possible, for example, that the stress-is-debilitating-mindset manipulation elicited a more negative mood than did the stress-is-enhancing-mindset manipulation, and that this difference shaped perceivers' subsequent responses. To explore this possibility, instead of simply measuring mood as we did in Study 2, in Study 3 we included a control condition, in which participants recalled a general negative experience. As in Study 1, we tested the causal link between stress-mindset and perceptions of a target's burnout.

4.1. Method

4.1.1. Participants

We recruited fully-employed Israelis, who volunteered to participate in an online "stress at work" study via Facebook groups, solicitation e-mails, and word of mouth. A target sample size of 174 was set to achieve 80% power, assuming Study 2's effect size $\eta^2 = 0.05$ (G*Power 3.1; Faul et al., 2007, 2009). We eventually were able to recruit only 135 participants since our pool of potential employed respondents was limited by our requirement to recruit all participants during a single academic semester. Each participant was randomly assigned to one of three conditions: stress-is-enhancing-mindset, stress-is-debilitating-mindset, or general negative experiences (a control condition). Eleven participants, equally distributed across conditions, $\chi^2(2, N = 135) = 0.60$, $p = 0.740$, did not complete the experiment and were excluded from all analyses. Data analyses were conducted after data collection concluded. No other stopping rule was used. Of the remaining 124 participants ($M_{age} = 31.43$, $SD = 10.17$), 52% were women, and 28% held managerial positions. As in Study 2, by design, we aimed for similar gender proportions across conditions. Women indeed represented 52%, 56%, and 49% of the participants in the stress-is-enhancing-mindset condition, the stress-is-debilitating-mindset condition, and the control condition, respectively. The final sample of 124 participants (*ns* = 43, 46, and 35 in the stress-is-debilitating-mindset, stress-is-enhancing-mindset, and control conditions, respectively), represents a somewhat underpowered sample (power = 62%). We will further refer to this issue in the General discussion section.

4.1.2. Procedure and measures

For participants in the stress-is-enhancing-mindset condition and for those in the stress-is-debilitating-mindset condition, the procedure was identical to that of Study 2 and included the completion of the stress-mindset recall task, the state mood measure, and the social judgment questionnaire. Participants in the control condition underwent a similar procedure, except instead of the stress-mindset recall task they were asked to recall a negative event from the past week and to indicate how negative events in general affect their feelings, thoughts, behaviors, and physical sensations. We did not explicitly mention "stress" so as to avoid unintentionally priming a particular stress-mindset. We assessed participants' state mood and their perceptions of the target's burnout (α = 0.90) as in Study 1, and we assessed their evaluations of the target's promotability as in Study 2. Finally, we note that, as in Study 1, data were collected with the assistance of undergraduate students, who, for educational purposes only, included at the end of the survey a target's *life satisfaction* scale (as in Study 1) and a *depressive symptoms* scale (Patient Health Questionnaire, PHQ-8; Kroenke, Spitzer, & Williams, 2001). A full description of both measures and their corresponding results can be found in the Supplementary Materials.

4.2. Results and discussion

4.2.1. Preliminary analyses

The correlation matrix and descriptive statistics for the variables included in Study 3 are presented in Table 4. We found no differences

Table 4
Correlation matrix and descriptive statistics for the variables included in Study 3.

	Mean	SD	1	2	3	4	5
1. Burnout (T)	4.06	0.84	(0.90)				
2. Promotability (T)	4.15	0.85	− 0.22*	–			
3. Mood (P)	7.02	1.57	− 0.13	0.02	–		
4. Age (P)	31.43	10.17	− 0.15	0.06	0.18*	–	
5. Gender (% women) (P)	52%	–	0.07	0.18*	− 0.11	0.11	–
6. Managerial position (P)	28%	–	0.02	− 0.11	− 0.01	0.27**	− 0.08

Note. $n = 124$; T = Target; P = Perceiver; numbers in parentheses represent the measures' reliability coefficients (Cronbach's α).
* $p < 0.05$.
** $p < 0.01$.

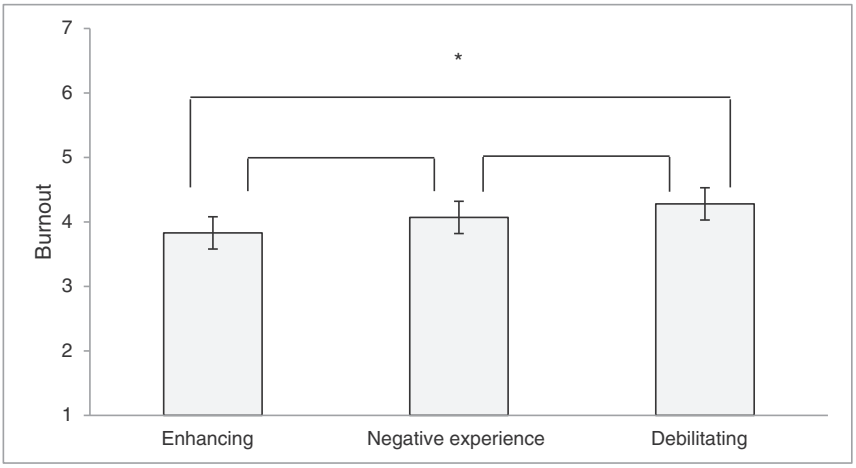

Fig. 4. Means and 95% CIs for perceivers' judgments of a target's burnout level, across conditions. Enhancing = Stress-is-enhancing-mindset condition; Debilitating = Stress-is-debilitating-mindset condition; Negative experience = General negative experiences (control) condition. Error bars: 95% CI's; *$p < 0.05$.

across the study conditions in the percentage of participants who held managerial positions, $\chi^2(2, N = 124) = 2.74, p = 0.255$, or in age, $F(2, 121) = 1.84, p = 0.16$, gender, $\chi^2(2, N = 124) = 0.41, p = 0.816$, or state mood, $F(2, 121) = 1.49, p = 0.229, \eta^2 = 0.02$. Regarding the latter, planned contrasts revealed highly similar levels of mood in the two stress-mindset conditions ($M_{\text{enhancing}} = 7.17$, $SD = 1.42$; $M_{\text{debilitating}} = 7.17$, $SD = 1.53$), $t(121) = 0.03, p = 0.973, d = 0.01$. In addition, the level of positive mood among participants in the general negative experiences (control) condition ($M = 6.63$, $SD = 1.80$) was directionally lower than the corresponding levels among participants in the stress-is-debilitating-mindset condition, $t(121) = 1.50, p = 0.137, d = 0.33$, and in the stress-is-enhancing-mindset condition, $t(121) = 1.55, p = 0.123, d = 0.35$, though these differences were not statistically significant.

4.2.2. Hypothesis testing

An ANOVA revealed a significant effect of study condition on perceivers' judgments of the target's burnout, $F(2, 12) = 3.21, p = 0.044, \eta^2 = 0.05$ (see Fig. 4). As predicted, planned contrasts showed that participants in the stress-is-enhancing-mindset condition assigned lower ratings to the target's level of burnout ($M = 3.83$, $SD = 0.69$) than did participants in the stress-is-debilitating-mindset condition ($M = 4.28$, $SD = 0.92$), $t(121) = 2.53, p = 0.013, d = 0.55$. However, among participants in the control group, assessments of the target's burnout level ($M = 4.07$, $SD = 0.86$) did not significantly differ from those of participants in the stress-is-debilitating-mindset condition, $t(121) = 1.14, p = 0.257, d = 0.25$, or from those of participants in the stress-is-enhancing-mindset condition, $t(121) = 1.23, p = 0.218, d = 0.30$. Thus, we suggest that the effect of stress-mindset on perceptions of a target's burnout is probably not due to mood, given that, compared with participants in the stress-is-debilitating-mindset condition, participants in the control condition reported higher (directional) levels of negative mood, yet assessed the target's burnout as being (directionally) lower.

Furthermore, to verify that the perceiver's mood was not responsible for the above results, we repeated the analysis, controlling for perceiver's mood. We found that the effect of condition on the judgment of the target's burnout remained significant, $F(2, 120) = 3.23, p = 0.043, \eta^2 = 0.05$. Compared with participants in the stress-is-debilitating-mindset condition (adjusted $M_{\text{debilitating}} = 4.29$, SD = 0.92)participants in the stress-is-enhancing-mindset condition (adjusted $M_{\text{enhancing}} = 3.85$, $SD = 0.69$) rated the target's burnout as lower, $t(120) = 2.53, p = 0.037, d = 0.54$. Again, among participants in the control group (adjusted $M_{\text{control}} = 4.04$, $SD = 0.86$), judgments of the target's burnout level did not differ from those of participants in the stress-is-debilitating-mindset condition, $t(120) = 1.33, p = 0.557, d = 0.28$, or from those of participants in the stress-is-enhancing-mindset condition, $t(120) = 1.03, p = 0.920, d = 0.25$. Again, we also explored whether managers and non-mangers differed in the extent to which study condition affected their judgments of the target's burnout. However, the effect of the interaction of managerial status and study condition was not significant, $F_{\text{managerial-status} \times \text{condition}}(2, 118) = 0.26, p = 0.773, \eta^2 = 0.004$.

Finally, we tested the downstream, indirect effect of study condition on perceivers' assessments of the target's promotability (Fig. 5). As we had used a three-group design, we combined the two negative-mindset-eliciting conditions (i.e., the general negative experiences control condition and the stress-is-debilitating-mindset condition) and compared them to the stress-is-enhancing-mindset condition. Using bootstrapping, based on 5000 random samples with replacement (e.g., Preacher & Hayes, 2008), we observed that the target's perceived burnout had a mediating effect in the relationship between study condition and the target's perceived promotability, unstandardized indirect effect estimate = 0.07, $SE = 0.04$, 95% CI [0.004, 0.181], even after controlling for state mood, unstandardized indirect effect estimate = 0.06, $SE = 0.05$, 95% CI [0.002, 0.193]. No total effect was observed either without controlling for mood, unstandardized total effect estimate = 0.29, $SE = 0.16, p = 0.069$, or after controlling for it, unstandardized total effect estimate = 0.29, $SE = 0.16, p = 0.073$.

Overall, Study 3 provides additional support for our hypothesis that perceivers who have a (manipulated) stress-is-enhancing mindset evaluate a given target as less burned-out than do perceivers who have a (manipulated) stress-is-debilitating mindset. It further supports our hypothesis regarding the mediating role of perceptions of a target's strain in the relationship between stress-mindset and perceptions of the target's promotability (stress-mindset condition → perceived burnout → perceived promotability). As for the non-significant differences between the control group and the two other conditions, the limited size of the control group ($n = 35$) may have limited our ability to find significant differences (reflecting the original low power of 62%). However, for the critical comparison between the two stress-mindset conditions only ($n = 89$), our actual power is adequate (81%), given the observed effect size ($d = 0.54$).

5. Study 4: does stress-mindset affect judgments of strain and helping intentions?

Study 4 aimed to conceptually replicate Studies 2 and 3 and to extend them by simultaneously testing all three types of strain (burnout, presenteeism, and somatic symptoms), enabling us to examine the unique mediating effect of each type of strain. Moreover, it further extends Studies 2 and 3 by examining the mediating effects of these types of strain on a novel downstream outcome: the perceiver's intention to voluntarily help the strained target. This outcome may represent a negative downstream effect of the stress-is-enhancing-

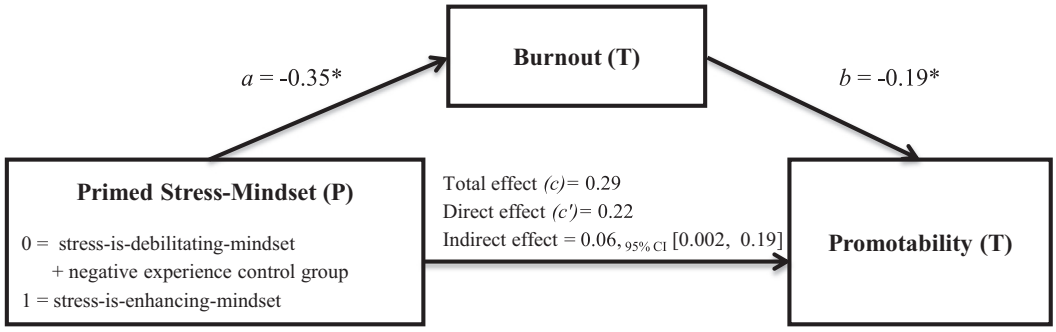

Fig. 5. The direct and indirect unstandardized effects of mindset manipulation (stress-is-enhancing-mindset condition vs. stress-is-debilitating-mindset condition + general negative experiences control condition) on perceptions of the target's promotability through burnout, after controlling for mood (Study 3). P = Perceiver; T = Target.
*$p < 0.05$.

mindset, namely, a reduced likelihood of offering an overloaded employee the help that he needs.

5.1. Method

5.1.1. Participants

We recruited fully-employed American participants for an online "stress at work" study via MTurk, for a small incentive of $1.20. We targeted full employment status as in Study 1. Given the focus on the new downstream outcome (i.e., the perceiver's intention to help the target), our estimated effect size referred to an indirect effect. Relying on the mediation results of Studies 1–3, we expected both path "a" and path "b" effect sizes to be small (~0.20). Kenny's (2017) power analysis application for mediation indicates that a sample size of 257 should be used to reach 80% power. Fritz and MacKinnon's (2007, p. 237) simulation-based recommendations regarding the sample size needed to detect mediation effects with 80% power, using a bias-corrected bootstrapping approach, indicate a somewhat higher sample size (~300). We thus recruited a target sample size of 300 participants (i.e., the stopping rule). Data analyses were conducted after data collection concluded. No other stopping rule was used.

Each participant was randomly assigned to one of two stress-mindset conditions: a stress-is-enhancing-mindset condition and a stress-is-debilitating-mindset condition. Eight participants, equally distributed across conditions, $\chi^2(1, N = 300) = 0.57$, $p = 0.450$, were excluded from all analyses due to the following reasons: Four completed the survey in an unreasonably short time (3 min vs. an average 10.5 min completion time, 2 standard deviations below the mean), and four participants failed the attention checks (which were similar to the attention checks used in Study 1). Of the remaining 292 participants ($M_{age} = 36.04$, $SD = 9.55$), 40% held managerial positions. By design, as in Studies 2 and 3, we aimed for similar gender proportions across conditions. Women indeed represented 52% and 56% of the participants in the stress-is-enhancing-mindset and stress-is-debilitating-mindset conditions, respectively. All in all, 51% of the participants were women, and most participants were White/Caucasian (78%), followed by Black/African American (7%), Hispanic (7%), Asian (6%), and other (2%). The final sample size of 292 ($n = 149$ in the stress-is-debilitating-mindset condition and $n = 143$ in the stress-is-enhancing-mindset condition) represents 86% power according to Kenny's power analysis application (2017).

5.1.2. Procedure and measures

The procedure was identical to the procedures used in Studies 2–3 and included the stress-mindset recall task, the state mood measure, and the social judgment questionnaire. We assessed perceivers' state mood, age, gender, race and managerial position, and asked them to rate the target's burnout (α = 0.95), somatic symptoms (α = 0.89) and presenteeism (α = 0.60), using the same measures as in Studies 1–3. We also assessed participants' perceptions of the target's workload, using the same measure as in Study 1 (α = 0.74), to make sure that the stress-mindset condition did not have an unintended effect on perceivers' judgments of the target's workload. Finally, we assessed the perceiver's intention to voluntarily help the target using the well-validated seven-item measure of interpersonal organizational citizenship behavior (OCB-I, Williams & Anderson, 1991). The items were rephrased to refer to providing helping behaviors to the target individual (e.g., "Take time to listen to his problems and worries"; "Help him with his heavy workload"; α = 0.89). Participants responded to each item on the OCB-I by indicating a rating on a seven-point Likert scale ranging from 1 = *extremely unlikely* to 7 = *extremely likely*.

5.2. Results

5.2.1. Preliminary analyses

Table 5 shows the correlation matrix and descriptive statistics for the variables included in Study 4. Independent-samples *t*-tests revealed that participants' state mood differed between the two conditions, such that participants in the stress-is-debilitating-mindset condition reported a more negative mood ($M = 5.38$, $SD = 2.02$) than did participants in the stress-is-enhancing-mindset condition ($M = 6.66$, $SD = 1.39$), $t(290) = 6.31$, $p < 0.001$, $d = 0.74$. We thus controlled for participants' state mood in all analyses. We observed no significant differences between the two conditions in the percentage of participants holding managerial positions, $\chi^2(1, N = 292) = 0.62$, $p = 0.431$, or in participants' race $\chi^2(5, N = 292) = 4.29$, $p = 0.509$, age, $t(290) = 0.001$, $p = 0.290$, $d = 0.00$, or gender, $\chi^2(1, N = 292) = 0.66$, $p = 0.415$. Overall, as in previous studies, participants rated the target as being highly overloaded at work, with a mean workload score that was higher than the scale midpoint of "4" ($M = 5.60$, $SD = 0.83$), $t(291) = 32.86$, $p < 0.001$, $d = 2.73$. Participants' ratings of the target's workload did not differ between the two conditions, $t(290) = 1.15$, $p = 0.251$, $d = 0.13$. The non-significant differences between the two conditions in terms of age, gender, race, managerial position, and judgments of the target's workload show that, as expected, the random assignment into conditions indeed neutralized any individual differences that could have potentially confounded judgments of the target's strain.

5.2.2. Hypothesis testing

Due to the positive and strong correlations among the three dependent variables (see Table 5), as in Studies 2–3 we conducted both MANOVA and MANCOVA analyses. These analyses revealed the predicted effects of stress-mindset condition on participants' judgments of the target's burnout, somatic symptoms, and presenteeism levels, $F(3, 288) = 6.81$, $p < 0.001$, $\eta^2 = 0.07$, even when controlling for participants' state mood, $F(3, 287) = 3.84$, $p = 0.010$, $\eta^2 = 0.04$.

As hypothesized, participants in the stress-is-enhancing-mindset condition assigned lower ratings to the target's levels of burnout

Table 5
Correlation matrix and descriptive statistics for the variables included in Study 4.

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Stress-mindset condition (P)	–	–									
2. Burnout (T)	4.23	1.15	− 0.25***	(0.95)							
3. Somatic sympt. (T)	6.20	4.13	− 0.18**	0.53***	(0.89)						
4. Presenteeism (T)	3.65	0.89	− 0.13*	0.37***	0.31***	(0.60)					
5. Help giving (P-T)	5.63	1.04	− 0.01	0.08	0.12*	− 0.10	(0.89)				
6. Mood (P)	6.01	1.85	0.35***	− 0.20***	− 0.18**	− 0.14*	0.10	–			
7. Workload (T)	5.60	0.83	− 0.07	0.38***	0.32***	0.01	0.30***	− 0.11	(0.74)		
8. Age (P)	36.04	9.80	0.00	− 0.05	0.14*	− 0.02	0.16**	0.07	0.12*	–	
9. Gender (% women) (P)	51%	–	− 0.05	0.09	0.11	− 0.07	0.01	− 0.07	0.14*	0.08	–
10. Managerial position (P)	40%	–	− 0.05	− 0.01	− 0.02	0.04	0.01	0.08	− 0.10	0.12*	− 0.12*

Note. $n = 292$; Stress-mindset condition: 0 = Stress-is-debilitating-mindset condition, 1 = Stress-is-enhancing-mindset condition; P = Perceiver; T = Target; P-T = Perceiver's intention to help the target. Numbers in parentheses represent the measures' reliability coefficients (Cronbach's α).
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

($M = 3.94$, $SD = 1.18$) than did participants in the stress-is-debilitating-mindset condition ($M = 4.50$, $SD = 1.05$), $F(1, 290) = 18.91$, $p < 0.001$, $\eta^2 = 0.06$ (see also Fig. 6). These results held even when controlling for participants' state mood, $F(1, 289) = 11.04$, $p = 0.001$, $\eta^2 = 0.04$.

Similarly, as predicted, participants in the stress-is-enhancing-mindset condition assigned lower ratings to the target's levels of somatic symptoms ($M = 5.43$, $SD = 0.34$) than did participants in the stress-is-debilitating-mindset condition ($M = 6.95$, $SD = 0.33$), $F(1, 290) = 10.21$, $p = 0.002$, $\eta^2 = 0.03$; see also Fig. 6. Once again, these results held even when controlling for participants' state mood, $F(1289) = 5.12$, $p = 0.024$, $\eta^2 = 0.02$.

As for judgment of the target's levels of presenteeism, as hypothesized, participants in the stress-is-enhancing-mindset condition assigned lower ratings to the target's levels of presenteeism ($M = 3.53$, $SD = 0.07$) than did participants in the stress-is-debilitating-mindset condition ($M = 3.76$, $SD = 0.07$), $F(1, 290) = 4.81$, $p = 0.029$, $\eta^2 = 0.02$; see also Fig. 6. Yet, unexpectedly, these results did not hold when controlling for participants' state mood $F(1, 289) = 2.05$, $p = 0.154$, $\eta^2 = 0.01$. We further discuss this finding in the General discussion.

We also explored whether managers and non-managers differed in the extent to which stress-mindset condition affected their judgments of the target's burnout, presenteeism, and somatic symptoms. However, we found no significant interaction effects for any of these variables: ratings of the target's burnout: $F_{\text{managerial-status} \times \text{condition}}(1, 288) = 0.17$, $p = 0.678$, $\eta^2 = 0.001$; ratings of the target's presenteeism: $F_{\text{managerial-status} \times \text{condition}}(1, 288) = 1.24$, $p = 0.266$, $\eta^2 = 0.004$; ratings of the target's somatic symptoms: $F_{\text{managerial-status} \times \text{condition}}(1, 288) = 0.19$, $p = 0.659$, $\eta^2 = 0.001$.

Finally, we tested the downstream, indirect effect of stress-mindset condition on the intention to help the target, by simultaneously testing the mediating effects of the target's perceived burnout, somatic symptoms, and presenteeism after controlling for the perceiver's mood (Fig. 7).

Using bootstrapping, based on 5000 random samples with replacement (e.g., Preacher & Hayes, 2008), we observed a significant mediating effect of the target's perceived somatic symptoms on the perceiver's helping intentions, unstandardized indirect effect estimate = − 0.04, $SE = 0.03$, 95% CI [− 0.132, − 0.002]. We did not find significant mediating effects for the target's perceived burnout, unstandardized indirect effect estimate = − 0.03, $SE = 0.04$, 95% CI [− 0.121, 0.036] or for the target's presenteeism, unstandardized indirect effect estimate = 0.03, $SE = 0.02$, 95% CI [− 0.005, 0.096], nor did we find a total effect, unstandardized total effect = − 0.11, $SE = 0.13$, $p = 0.401$.

Taken together, these findings indicate that, compared with a manipulated stress-is-debilitating mindset, a manipulated stress-is-enhancing mindset led perceivers to assess a target's levels of burnout and somatic symptoms as being lower; this result holds even when the perceiver's mood is controlled for. A similar effect was observed with regard to presenteeism, but it became non-significant when mood was controlled for. In turn, perceptions of the target's somatic symptoms and perceptions of target's presenteeism were predictive (positively and negatively, respectively) of the perceiver's intention to voluntarily help the strained employee, although the only significant indirect effect of stress-mindset condition on helping intentions was that mediated through perceptions of the target's somatic symptoms.

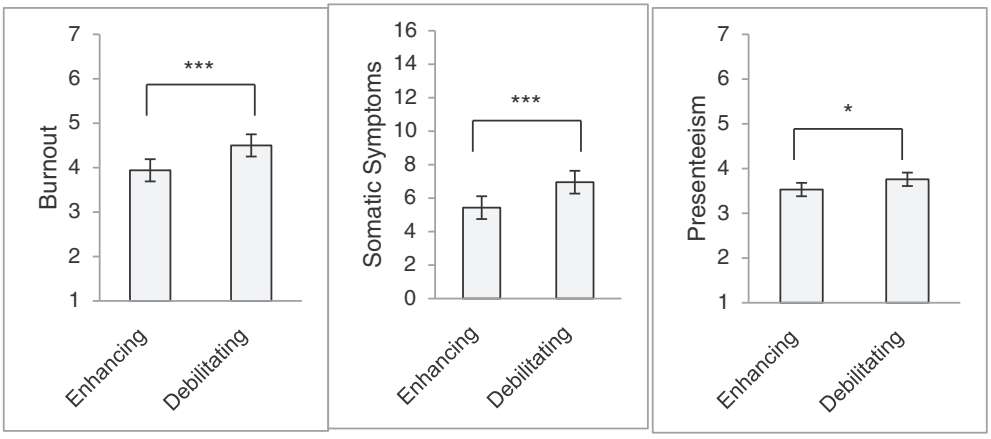

Fig. 6. Means and 95% CIs for perceivers' judgments of a target's burnout, somatic symptoms, and presenteeism, across conditions. Enhancing = Stress-is-enhancing-mindset condition; Debilitating = Stress-is-debilitating-mindset condition; Condition Error bars: 95% CIs.
*$p < 0.05$. ***$p < 0.005$.

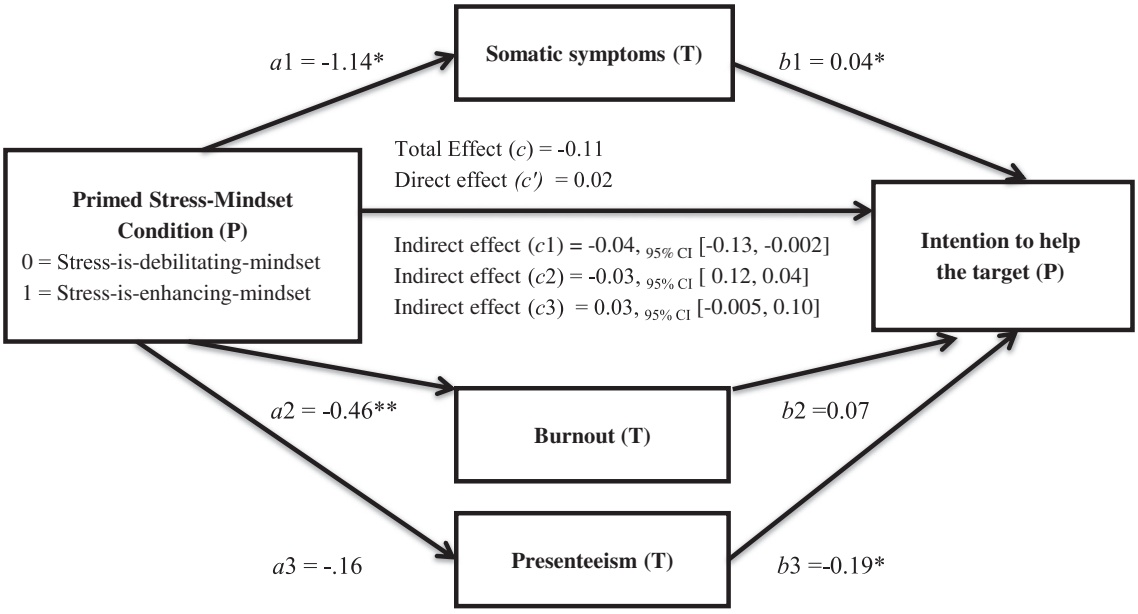

Fig. 7. The direct and indirect unstandardized effects of stress-mindset condition on the perceiver's intention to help a target, mediated through burnout, presenteeism, and somatic symptoms, after controlling for the perceiver's mood (Study 4). P = Perceiver; T = Target; *a*1, *b*1, *c*1 = Paths involving somatic symptoms; *a*2, *b*2, *c*2 = Paths involving burnout; *a*3, *b*3, *c*3 = Paths involving presenteeism.
*$p < 0.05$. ***$p < 0.001$.

6. General discussion

Across four experimental and correlational studies—involving 971 fully-employed Israeli and American participants—we have demonstrated that, compared with a stress-is-debilitating mindset, a stress-is-enhancing-mindset reduces the extent to which individuals perceive a given target as experiencing various types of strain—namely, as experiencing burnout, presenteeism, and somatic symptoms. Low strain judgments, in turn, enhance perceivers' evaluations of the target's promotability (Studies 1–3), and reduce their intention of offering the target (needed) help (Study 4). These results are consistent with past research showing that people egocentrically project their own psychological states when judging others' states (e.g., Krueger, 2007). Past work in the domain of social projection has focused on judgments of others' characteristics, feelings, or thoughts; we extended this line of research by studying judgments of others' strain, a major part of people's daily lives.

Contributing to both the social projection and stress literatures, our findings provide new insights by extending the novel notion of stress-mindset beyond intra-personal outcomes to inter-personal effects. Whereas in most research on social projection, self-assessments and predictions about others are made with regard to the same construct (e.g., Clark, Von Culin, Clark-Polner, & Lemay, 2017(, the current research shows that social projection can bridge a gap from one type of construct (i.e., self-stress-mindset) to another conceptually-related construct (i.e., others' strain). Thus, our work constitutes a theoretical and methodological advancement for the social projection literature.[4] More specifically, we have demonstrated how individuals' stress-mindsets influence their judgments of a target's strain and, consequently, can affect downstream behavioral intentions towards that target. Furthermore, extending prior research that relied on education-based stress-mindset manipulations (Crum et al., 2013), we have introduced a novel, more subtle recall-based manipulation that can be easily applied in future studies.

Notably, across all studies, a stress-is-enhancing-mindset did not positively influence participants' perceptions of the target's promotability, nor did it negatively influence helping intentions (i.e., no total effects were obtained). This observation may reflect the possibility that a stress-is-enhancing-mindset negatively influences promotability assessments and positively influences helping behaviors through other mediators, such as reduced performance appraisals due to the application of higher standards. These potential opposing mediators warrant further investigation, as they may cancel each other out, thereby yielding weaker, non-significant effects of stress-mindset on various outcomes (Hayes, 2013). We would also like to note that the association between stress-mindset and presenteeism was not consistent across studies and across analyses (i.e., in Study 2 the effect remained significant when mood was controlled for, whereas in Study 4, while the effect was still in the right direction, it was no longer statistically significant once we controlled for mood). One possibility is that presenteeism is more affective in nature or more ambiguous and complex in meaning relative to the other strain measures, such that perceptions of presenteeism are more susceptible to the influence of perceiver's mood (Forgas, 1995). Alternatively, this result may represent a false negative (i.e., it is a fluke result obtained in only one of the four analyses). A closer examination of the relationship between presenteeism and mood, and, more generally, replication of the effect of stress-mindset on presenteeism judgments are worthwhile next steps for future research.

6.1. Should we aim for a stress-is-enhancing mindset?

Our findings still leave an interesting question open, namely, whether the target of a social judgment ultimately benefits or suffers when the perceiver holds a stress-is-enhancing-mindset. On the one hand, as observed in Study 4, judging others as less physically affected by stress (i.e., as experiencing fewer somatic symptoms) may lead a person to refrain from providing them with needed support (Taylor, 2008). Similarly, in an organizational context, a manager's failure to identify his employees' high presenteeism levels, and his associated expectation that they achieve unrealistic goals, may further exacerbate employees' distress. Thus, when a perceiver holds a stress-is-enhancing-mindset, her social perceptions of others may lead to intensification of their strain. On the other hand, according to the self-fulfilling prophecy effect (Merton, 1948), and the Pygmalion effect (Babad, Inbar, & Rosenthal, 1982) in particular, it seems plausible that judging another person's strain level as low is akin to believing in their abilities to learn and to overcome obstacles, and this belief may contribute towards enhancing that person's self-efficacy and performance.

[4] We thank an anonymous reviewer for this valuable insight.

We also note that, in contrast to somatic symptoms, neither burnout nor presenteeism mediated the negative effect of the stress-is-enhancing-mindset condition on intentions to voluntarily offer help. This lack of a mediating effect suggests that, whereas an employee experiencing somatic symptoms is in clear need of help, burnout and presenteeism may be less likely to signal a need for help, and may be merely perceived by the manager as indications that the employee is mentally incapable of handling work assignments. This interpretation may lead the manager to take action with regard to the employee's job situation (e.g., prevent his or her promotion, in accordance with Studies 1–3), but not necessarily to voluntarily offer active support. Interestingly, presenteeism mediated the effect of stress-mindset on participants' perceptions of the target's promotability, whereas somatic symptoms did not (Study 2). These observations suggest that, when making decisions regarding others' careers, individuals rely on more proximal work performance criteria rather than on more distal personal health issues. Thus, before implementing interventions that promote a stress-is-enhancing mindset among managers, more research is needed to investigate both positive and negative interpersonal influences of the stress-mindset.

6.2. Future research directions

Future research may also target another open question regarding the nature of the stress-mindset, namely, how the stress-mindset relates to different stress entities. For example, do people perceive chronic and acute stressors differently, such that it is possible to differentiate an “acute stress mindset” from a “chronic stress mindset”? Adopting a stress-is-enhancing-mindset may be easier when acute stressors are present, as documented in a recent study of reappraisals of acute-stress-related arousal, such as an elevated pulse or facial redness (Jamieson et al., 2013). That study showed how instructing individuals to think of acute stress arousal as a helpful tool maximizes physiological reactivity, attention, and performance. However, it may be more difficult for individuals to adopt a stress-is-enhancing mindset when chronic stressors are present (e.g., night shifts, an abusive boss). Furthermore, future studies may investigate the degree to which different stress-mindsets (e.g., acute vs. chronic) affect perceivers' judgments of targets performing acute versus ongoing demanding tasks at work. Other studies may quantify the stressor level (mild or intense) needed for such effects to occur, such that both intensity and duration are taken into consideration.

8The current findings establish a causal link between stress-mindset and judgment of others' strain and provide a critical foundation for future work that can more directly address the accuracy of judgment of others' stress experiences; this is an important research avenue, given that accurate understanding of others' psychological states is essential for successful social interactions (e.g., Gleason, Jensen-Campbell, & Ickes, 2009). Furthermore, although we did not find significant differences between managers and non-managers in our studies, the fact that managers routinely observe employees' characteristics, actions, and performance and exert important influence on their subordinates attests to the importance of understanding the possible consequences of these judgments. As suggested by Fiske (1993), the high cognitive demands imposed on powerful individuals may result in a situation in which managers lack sufficient cognitive resources to accurately assess employees' characteristics. In these cases, depleted managers may be likely to project their own stress-mindsets onto their employees. Exploring these scenarios is thus an important direction for future research, and may point to a need for organizational interventions that raise managers' awareness of the potential for biased evaluations of their employees.

It would also be of interest to investigate whether the fit between the stress-mindsets of the perceiver and of the target influences the accuracy of the perceiver's strain judgments or moderates the interpersonal effects of stress-mindset. Longitudinal field or laboratory studies among dyads, such as manager-employee, teacher-student or spouse dyads, may be especially helpful in this regard, as perceptions of others' stress occur across different types of relationships.

Our study is potentially limited in its reliance on a specific social judgment paradigm and scenario. We adopted this approach in order to establish a method for testing judgments about a target's strain and to conceptually replicate findings using different mediators and dependent variables. Nevertheless, future research may overcome this limitation by using different methodologies to measure social judgments of the outcomes of stress (e.g., by screening videos and measuring actual reactions to stressful tasks or situations) and within different domains (e.g., close relationships). Future studies could develop different scenarios involving various stressors and different actors that may affect judgment of targets' strain. For example, such scenarios may compare systematic judgments of male and female employees, blue-collar and white-collar employees, young and old employees, or employees who hold managerial positions versus those who do not. Another limitation of the current study is the use of crowdsourced samples, and the lack of capacity to reliably verify participants' employment status. Because of these issues, our participant samples may not be representative of the working population (Paolacci & Chandler, 2014). Nonetheless, people, whether working or not, often do not perceive others accurately, e.g., when judging ambiguous social groups (~35% inaccurate judgments, for a review and meta-analysis, see Tskhay & Rule, 2013), or when judging the emotions of others (ranging from 9% to 98% inaccurate perceptions in various studies, for a review see Scherer, Clark-Polner, & Mortillaro, 2011). Furthermore, inaccuracy of interpersonal perceptions has been identified in various workplace relationships, including employees' relationships with customers, co-workers and supervisors (for a review see Mast & Latu, 2016). Therefore, it seems likely that similar results would be obtained in more verifiably representative samples of the working population.

Another factor that warrants future investigation is the link between individuals' stress-mindsets and their perceptions of a target's workload. Past studies have suggested that a stress-is-enhancing-mindset is associated with lower levels of perceived stress (Crum et al., 2013; Nabi et al., 2013). Correlational Study 1 found evidence for a small positive association between participants' stress mindset and their judgment of the target as experiencing workload, whereas in experimental Study 4 the random assignment of participants to the two mindset conditions resulted in non-significant differences in assessment of the target's workload.

To summarize, our findings point to both bright-side and dark-side interpersonal implications of a stress-is-enhancing-mindset. On the one hand, a stress-is-enhancing-mindset may lead to enhanced perceptions of the promotability of a stressed employee. On the other hand, a stress-is-enhancing-mindset may negatively impact the perceiver's likelihood of voluntarily providing social support to another person who is in need of it. Employees, supervisors, and managers should be made aware of the pervasive (automatic) effects of their stress-mindsets and, rather than project them mindlessly on to others, make an effort to understand and take into account others' actual stress experiences.

7. Open practices

The experiment in this article earned Open Materials and Open Data badges for transparent practices. Materials and data for the experiment are available at (will be available upon publication).

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jesp.2017.09.002.

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