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Collateral damage associated with performance-based pay: the role of stress appraisals

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ABSTRACT

Drawing on stress appraisal and self-determination theories, we hypothesized that the more requirements of performance-based pay are appraised as a challenge, the more individuals will feel less strain and be more prosocial, and that these effects will be explained by autonomous motivations. Conversely, the more requirements of performance-based pay are appraised as a hindrance, the more individuals will feel more strain and be less prosocial, and these effects will be explained by controlled motivations. An experiment ($N = 82$) provided support for the mediational hypotheses regarding challenge appraisal, intrinsic motivation, and the strain outcomes of anxiety and fatigue. Hindrance appraisal was found to directly reduce prosocial behaviour (as coded in task responses). Furthermore, in reward conditions that were directly performance-salient, hindrance appraisal resulted in greater fatigue. A field study ($N = 322$) revealed further support for the hypotheses on emotional exhaustion and organizational citizenship. Overall, there was support for the role of autonomous forms of motivation as mechanisms in these associations, but less support for controlled forms of motivation. Thus, stress appraisals of performance-based pay can improve our understanding of when “collateral damage” effects of extrinsic rewards can occur (i.e., when requirements are viewed as hindering). Moreover, effects of stress appraisals can be partially explained by different qualities of motivation from the self-determination theory perspective.

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Motivation; incentives; pay-for-performance; stress appraisals; job strain; organizational citizenship behaviours

Organizations have increasingly shifted toward linking pay more strongly with performance (Fang & Gerhart, 2012), for example, through use of incentives such as commissions and bonuses that are contingent on reaching a certain standard of performance. From a behaviourist or agency theory perspective, “pay-for-performance” operates under two key assumptions: first, when correctly administered, the presence of such incentives positively impacts employees’ motivation; and second, these schemes boost the efficiency of employees (Swiss, 2005). However, Lawler (2000) argues from an equity perspective that there are further reasons to use performance-based pay (PBP) systems, including the alignment of pay with the value individuals uniquely bring to the organization, and also, that organizations should share their success with employees. Indeed, a comprehensive review of the compensation literature across disciplines revealed positive consequences for firm performance; including cost reductions, employee retention, increases in sales growth, customer satisfaction, profit, and safety improvements (Werner & Ward, 2004).

However, despite these perceived and objective merits of PBP, there is an ongoing debate regarding whether such payment schemes undermine intrinsic motivation and/or improve performance. At least 14 meta-analyses on the effects of tangible extrinsic rewards (including money) on intrinsic motivation and/or performance have been conducted over four decades, yet the findings are mixed (Cameron, Banko, & Pierce, 2001; Cameron & Pierce, 1994; Cerasoli, Nicklin, & Ford, 2014; Condly, Clark, & Stolovitch, 2003; Deci, Koestner, & Ryan, 1999; Deci, Ryan, &

Koestner, 2001; Eisenberger & Cameron, 1996; Eisenberger, Pierce, & Cameron, 1999; Guzzo, Jette, & Katzell, 1985; Jenkins, Mitra, Gupta, & Shaw, 1998; Rummel & Feinberg, 1988; Stajkovic & Luthans, 1997; Tang & Hall, 1995; Weibel, Rost, & Osterloh, 2009; Wiersma, 1992). In relation to intrinsic motivation, there are negative, positive, and non-significant effects of performance-based extrinsic rewards. In relation to performance, effects are either non-significant or positive. Cerasoli et al.’s (2014) meta-analytic results suggest that individuals can be both intrinsically motivated (i.e., doing the work because it is enjoyable) and extrinsically motivated (i.e., doing the work to attain financial rewards) at the same time (see also Howard, Gagné, Morin, & Van der Broeck, 2016), and that both intrinsic motivation and extrinsic rewards positively influence employee performance. However, there is also evidence that the effects of extrinsic rewards depend on the type of work, with stronger positive effects of performance-based extrinsic rewards on performance for manual work (Condly et al., 2003; Stajkovic & Luthans, 1997), uninteresting work (Deci et al., 2001; Weibel et al., 2009), and for quantitative forms of performance (Cerasoli et al., 2014; Jenkins et al., 1998). Overall, the pattern of effects for performance across meta-analyses suggests that PBP may be more important for how much you do, rather than how well you do it, especially when the work is monotonous.

Drawing on self-determination theory (SDT), the mixed findings also could be explained through the differential effects of extrinsic rewards on need satisfaction and self-regulation (Gagné & Forest, 2008). Research evidence suggests that satisfying needs for competence, autonomy, and

relatedness all affect work performance, especially performance quality (Cerasoli, Nicklin, & NassreIrgawi, 2016; Van Den Broeck, Ferris, Chang, & Rosen, 2016). PBP can positively affect an individual's feelings of competence by signalling their behavioural effectiveness; however, such incentive schemes can also negatively affect one's sense of autonomy by changing the locus of causality from internal to external (i.e., "*I am only doing this for the reward*"; also referred to as the *undermining effect of extrinsic rewards*; Deci et al., 1999). Gagné and Forest (2008) suggest that these two consequences of PBP may offset each other when it comes to influencing work motivation (and other employee outcomes).

Cerasoli et al. (2014) encouraged researchers to consider other consequences of PBP beyond intrinsic motivation and performance. Certainly, organizations might boost performance by directly tying it to incentives, but if this occurs at the cost of other critical outcomes, like employee well-being, then basing pay on performance might not be worthwhile (p. 997, Cerasoli et al., 2014). This potential backfiring effect of PBP for employee well-being has been referred to as the "collateral damage" effect (Cerasoli et al., 2014), and as yet it has received limited empirical attention. At the same time, scholars are beginning to recognize the potential pitfalls for prosocial and interpersonal behaviour when pay is linked to performance (e.g. Gläser, van Gils, & Van Quaquebeke, 2017; Kuvaas, Shore, Buch, & Dysvik, 2017). Thus, our first aim was to test the collateral damage idea of PBP, not only on employee strain, a key indicator of employee well-being, but also prosocial helping, an important organizational outcome for which there is growing interest within the study of PBP.

Another reason why meta-analytic results are mixed is because research has focused on the *presence* or *salience* of PBP, without ascertaining how individuals interpret the functional significance of pay-for-performance schemes for their own well-being. Considering the mixed meta-analytic findings, it is possible that PBP has different *meanings* for different individuals. Two individuals might interpret the same incentive scheme very differently (i.e., one sees it as a positive challenge, the other as a hindrance), which could have consequences for motivation, well-being, and prosocial behaviour. Considering that the impact of extrinsic rewards could be in the eye of the beholder is a significant innovation and could help us discover new ways to design and implement pay-linked performance management systems without the hidden costs. Thus, our second aim was to make a novel contribution by examining stress appraisals (i.e., challenge and hindrance) of the requirements and conditions of PBP, rather than focusing on the mere presence or absence of PBP.

A third aim was to take a full account of the effects of stress appraisals of PBP on the distinct types of motivation proposed in SDT (Deci & Ryan, 1985; Gagné & Deci, 2005), as advocated by Cerasoli et al. (2014). Indeed, past research has focused on examining the effects of incentives on intrinsic motivation only, not even considering or assessing whether incentives actually increase extrinsic forms of motivation. We cannot equate incentive usage with extrinsic motivation, as it might be possible for an incentive not to influence it (e.g., if it is not salient or contingent enough on performance). Finally, considering all forms of

motivation allows us to also use all of them as potential explanatory mechanisms in the associations of stress appraisals of PBP with strain and prosocial behaviours. Next, we elaborate on the concept of stress appraisals of PBP and provide the justification for our hypotheses.

Using stress theory to understand the consequences of performance-based pay

One way to better understand the potential for collateral damage in PBP is to consider the stress processes invoked whilst striving for the incentive. Prior research has implicated stress in PBP. For example, laboratory studies from behavioural economics have argued that "high stakes" extrinsic rewards can actually lower performance because of enhanced stress (e.g., Ariely, Gneezy, Loewenstein, & Mazar, 2009; Cadsby, Song, & Tapon, 2016). However, these studies either do not directly (or adequately) measure the stress invoked, but assume it is the mechanism. Early research identified a link of PBP with employee burnout (Yeh, Cheng, & Chen, 2009), depression and somatic complaints (Shirom, Westman, & Melamed, 1999; see also Ganster et al., 2011, for a review), lowered organizational citizenship behavior (OCB; Deckop, Mangel, & Cirka, 1999; Deckop, Merriman, & Blau, 2004), as well as turnover (Harrison, Virick, & William, 1996). More recently, PBP has been found to be associated with "work intensification", which then has negative consequences for employee trust, satisfaction, and engagement (Ogbonnaya, Daniels, & Nielsen, 2017). In addition, a recent large-scale study of over 1,300 Danish firms revealed a 4-6% increase in the usage of anti-depressant and anti-anxiety medication after firms adopt PBP systems (Dahl & Pierce, 2018). However, importantly, this change occurred exclusively for those with lower wage changes and those 50 years or older. Thus, overall, this prior research rarely observes direct negative consequences of PBP on outcomes, usually effects are indirect or conditional on other factors. Given these insights, there is merit in exploring stress in PBP more comprehensively.

The popular challenge-hindrance occupational stress model (Cavanaugh, Boswell, Roehling, & Boudreau, 2000), classifies different sources of stress at work as *either* a challenge stressor or a hindrance stressor. A key element of this model is the notion that different conditions and requirements of work can act as positive or negative sources of stress. Albeit stress-provoking, challenge stressors are described as job demands or requirements that have the potential to create high-performance opportunities. Hindrance stressors are described as job demands that impede and/or interfere with an individual's attainment of goals and development. These hindrance stressors are often considered to be unmanageable obstacles that thwart personal goals. Webster and colleagues (2010) found empirical support for the challenge-hindrance stressor framework, and LePine, Podsakoff and LePine's (2005) meta-analytic test also supported the main premises of the model, as challenge stressors (e.g., workload, responsibility) boost employee performance through increased motivation. Whereas, hindrance stressors (e.g., role conflict, role ambiguity) reduce employee motivation and performance. Indeed, recognizing the importance of differentiating between positive and negative sources of stress, scholars have

extended occupational stress theory to include this distinction of challenge and hindrance demands (Searle & Tuckey, 2017; see also Crawford, LePine, & Rich, 2010).

This approach of categorizing the stressor itself (as either a challenge or a hindrance) has been the dominant approach in the organizational literature invoking stress theory. However, often stressors do not clearly fall into one of these categories; most are open to personal interpretation (i.e., could be perceived as challenging in some ways and hindering in other ways). Working under PBP has the potential to be experienced as stressful, as a certain performance standard, which can be difficult to reach depending on both individual skills and difficulty level, is required in order to receive the financial rewards on offer. Thus, there also is the possibility of failing to obtain the rewards. However, contrary to this stressor categorization approach, research based in classic stress theory (Lazarus & Folkman, 1984) maintains that work stressors can be both “good” and “bad” sources of stress, depending on how an individual appraises the situation.

Such research is based in the transactional theory of stress (Lazarus & Folkman, 1984), in which it is contended that environmental conditions (i.e., stressors) are not the cause of stress reactions per se; rather, the individual’s stress appraisal determines the response. More recently, Webster, Beehr, and Love (2011) integrated the stressor categorization approach (Cavanaugh et al., 2000) with the stressor appraisal approach (Lazarus & Folkman, 1984). Their results indicated that, while some stressors could be primarily seen as a challenge or hindrance, most stressors are simultaneously appraised as both a challenge and a hindrance to varying degrees. Moreover, it was the individual’s stress appraisal, rather than the stressor itself, that was central to the stress process (i.e., stress appraisal was the more proximal predictor of strain). Importantly, it was greater hindrance appraisal of stressors that was positively related to burnout, rather than the extent of challenge appraisal. Searle and Auton (2015) further extended this research by developing new and validated measures of challenge and hindrance appraisal, finding that: 1) these appraisals act as two independent factors (i.e., although sometimes negatively correlated the appraisals also can be uncorrelated; Espedido & Searle, 2018; Prem, Scheel, Weigelt, Hoffmann, & Korunka, 2018; Searle & Auton, 2015; Tuckey, Searle, Boyd, Winefield, & Winefield, 2015), and, 2) even after accounting for the direct effects of the job demands/requirements, individuals’ appraisal of these as more of a challenge (i.e., seen as opportunity for growth/development, likely to experience gain) or more of a hindrance (i.e., seen as potential for threat/frustration, likely to experience loss) explained unique variance in indicators of burnout. In this way, work stressors can have indirect effects on burnout through the meaning ascribed, that is, the stress appraisals.

Previous research might have been limited by assuming that certain stressors will always be appraised in the same way (i.e., the categorization approach of Cavanaugh et al., 2000; LePine, Podsakoff, & LePine, 2005). Thus, in the current study, instead of classifying different PBP systems as a challenge or a hindrance stressor, we instead asked our participants about their subjective interpretation of the extent to which the requirements of their PBP were challenging and/or hindering. Thus, in this research, we consider whether the stress created by PBP is “good” or “bad” is in the

eye of the beholder; moreover, we consider that for some it can be both “good” and “bad” in competing ways. Consequently, based in stress appraisal theory (Lazarus & Folkman, 1984), we expected that the more an individual appraises the requirements of their PBP as a challenge, the more likely they will tackle the stressful experience with greater personal agency (i.e., autonomy and competence), and as such, experience less strain. However, the more an individual appraises their PBP as a hindrance, the more likely this will be detrimental to their sense of personal agency, frustrate their experience of work, and thus increase strain. In this way, PBP is beneficial or detrimental depending on how the requirements are appraised. Therefore, our direct effect hypotheses are:

H₁: There will be a negative association of challenge appraisal of PBP and strain.

H₂: There will be a positive association of hindrance appraisal of PBP and strain.

Although research has primarily focused on the impact of stress appraisal for strain-related outcomes, the original theory proposed that stress appraisals could have broad implications for a range of outcomes in the context of an unfolding stressful situation, including motivational and social consequences (Lazarus & Folkman, 1984). Indeed, scholars have found that challenge appraisal of workplace stressors is negatively associated with workplace procrastination (Prem et al., 2018), whereas hindrance appraisal is associated with more procrastination (Prem et al., 2018) and less creative performance (Espedido & Searle, 2018; Li, Chen, & Lai, 2018). Moreover, there is research that demonstrates challenge job stressors (e.g., workload, responsibility, complexity) are positively associated with citizenship behaviours, whereas hindrance job stressors (e.g., role ambiguity, conflict, hassles) are negatively associated with citizenship behaviours (Rodell & Judge, 2009; Kim & Beehr, 2018; see also Webster et al., 2010), and that these associations can be both direct and indirect through affective and motivational processes.

In the context of PBP, challenge appraisal of PBP could have positive effects for prosocial behaviour potentially due to greater confidence and openness to learning at work, which would support collaboration and helping behaviours directed at coworkers. Conversely, negative effects of hindrance appraisal of PBP could potentially occur due to a process of goal narrowing (i.e., focus on attaining rewards at all costs; perception there is less time available to collaborate or help others) and/or increased competition as employees pursue the limited pool of extrinsic rewards available. Indeed, research does indicate that when employees feel under pressure, then they are less likely to engage in helping behaviours at work (Troughakos, Beal, Cheng, Hideg, & Zweig, 2015). Thus, drawing on stressor appraisal theory, as well as on the associations of challenge and hindrance stressors with OCBs, we also anticipated:

H₃: There will be a positive association of challenge appraisal of PBP and prosocial behaviour.

H₄: There will be a negative association of hindrance appraisal of PBP and prosocial behaviour.

Motivational mechanisms in the stress appraisal process

To better understand *why* stress appraisals of PBP influence strain and prosocial behaviour, it is important to investigate how stress appraisals influence self-regulatory efforts, that is, how employees motivate themselves in their work in light of the cognitive appraisal process. To understand self-regulatory effort, we draw on SDT. SDT adopts a multidimensional view on motivation that considers the reasons people have for engaging in motivated behaviour (Deci & Ryan, 1985; Gagné & Deci, 2005). According to SDT, intrinsic motivation, that is, doing something out of enjoyment and interest, is the most autonomous form of motivation. Extrinsic motivation involves doing something for an instrumental reason that can vary in terms of how autonomous it is: identified regulation is an autonomous extrinsic form of motivation, whereby people engage in a behaviour because it is meaningful and important to them. More controlled forms of extrinsic motivation include introjected regulation (i.e., doing something out of ego-involvement or self-esteem contingencies) and external regulation (i.e., doing something to obtain a reward or avoid a punishment). Individuals can demonstrate several differing types of motivation concurrently, so essentially have a motivation profile (Howard et al., 2016). For example, an employee may complete a task out of personal interest (i.e., intrinsic motivation) as well as to be rewarded with an incentive (i.e., extrinsic regulation – material).

This differentiated view of motivation provides a basis for investigating the effects of stress appraisals of PBP in a more careful and rigorous way. We anticipate that these distinctions could be important, because, in general, it has been shown that autonomous forms of motivation are related to better performance and well-being outcomes as compared to controlled forms of motivation (Gagné et al., 2015). Moreover, there is also evidence that the distinct form of self-regulation is important. For example, while both intrinsic motivation and identified regulation explained the beneficial effects of “active work” on performance; in the context of “high strain” work, it was less intrinsic motivation that explained the consequences for performance, and identified regulation did not (Parker, Jimmieson, & Amiot, 2017a). Thus, taking a comprehensive approach can provide for a more nuanced understanding of the role of different motivational processes.

In this research, we anticipate that the way in which an employee appraises the requirements of their PBP could be associated with different forms of motivation. Indeed, from an SDT perspective, contexts do not directly influence the initiation and regulation of behaviour, the *functional significance of the meaning to the individual* is what motivates (Deci & Ryan, 1987, p. 1025). Stress processing that results in a sense of personal agency and engagement (i.e., akin to challenge appraisal) is thought to fuel the internalization of the value of an activity (i.e., identified regulation) and enjoyment of it (i.e., intrinsic motivation; Weinstein & Ryan, 2011). Challenge appraisal of PBP means the individual sees the requirements as an opportunity to learn something new and test their skills. We, therefore, expect greater autonomous motivation to be present when PBP requirements are appraised as challenging. Autonomous motivations are then associated with effort,

commitment, and persistence in the face of obstacles (De Cooman, Stynen, Van Den Broeck, Sels, & De Witte, 2013; Gagné & Forest, 2008; Hodgins et al., 2010; Hodgins, Yacko, & Gottlieb, 2006; Koestner & Losier, 2002; Koestner & Zuckerman, 1994; Parker, Bindl, & Strauss, 2010; Parker & Ohly, 2008). Moreover, autonomous forms of motivation also have been related to prosocial behaviours and less strain (Ryan & Connell, 1989; Millette & Gagné, 2008; Weinstein & Ryan, 2010, 2011). Thus, the following indirect effects were hypothesized:

H₅: Challenge appraisal of PBP is associated with more autonomous forms of motivation (i.e., intrinsic motivation and identified regulation), and autonomous motivations are associated with less strain and more prosocial behaviour. Thus, there will be (a) a negative indirect effect of challenge appraisal of PBP on strain and (b) a positive indirect effect of challenge appraisal of PBP on prosocial behaviour.

In contrast, stress processing that is avoidant and defensive (i.e., akin to hindrance appraisal) is thought to result in less personal agency, more specifically, greater negative emotion, avoidance coping, and disengagement (Lazarus & Folkman, 1984; Weinstein & Ryan, 2011). Hindrance appraisal of PBP means the individual sees the requirements as frustrating, as a barrier to their goal attainment and limiting to their performance. However, greater hindrance appraisal does not necessarily mean individuals will avoid the stressor, especially in the context of PBP. Although some individuals might find striving for their rewards frustrating, and thus perceive the requirements as hindering, they will still likely engage with the pursuit of the reward in order to have the potential additional income. It is for these reasons, with more hindrance appraisal, we expect more controlled types of motivation to be present, such as the motivation to ensure one can meet the requirements to get the reward (i.e., external regulation), and the motivation to maintain a positive self-image (i.e., introjected regulation). As these controlled forms of motivation have been associated with less effort, less persistence, and lower quality commitment (De Cooman et al., 2013; Gagné & Forest, 2008; Hodgins et al., 2010, 2006; Koestner & Zuckerman, 1994), as well as with more job strain (Parker et al., 2010; Van Den Broeck, Van Ruysseveldt, Smulders, & De Witte, 2011), we expect that in the context of greater hindrance appraisal of PBP that greater controlled motivation will be then associated with more strain and less prosocial behaviour. As such, the following indirect effects were also anticipated:

H₆: Hindrance appraisal of PBP is associated with more controlled forms of motivation (i.e., introjected and external regulation), and controlled motivations are associated with more strain and less prosocial behaviour. Thus, there will be (a) a positive indirect effect of hindrance appraisal of PBP on strain, and (b) a negative indirect effect of hindrance appraisal of PBP on prosocial behaviour.

To sum up, this research examines the direct and indirect effects of stress appraisals of PBP on strain and prosocial behaviour. The unique contribution of this work is the application of challenge-hindrance stress appraisals in understanding

the potential collateral damage associated with PBP. Moreover, we examine motivation as an explanatory factor, which is in line with the challenge-hindrance stressor framework (LePine, LePine, & Jackson, 2004); however, we take an expanded approach by considering the many different facets of work motivation in line with SDT. We test these ideas using different research methods in two different samples experiencing PBP. First, we used an experiment where PBP is manipulated during a work simulation, which will help us see if the direct and indirect effects of stress appraisals hold under different forms of PBP (i.e., varied for salience and difficulty of the performance requirement). Second, we used a survey-based study with a heterogeneous sample of employees working under PBP, to examine the generality of our predictions regarding stress appraisals of PBP to a variety of real-world PBP systems.

Study 1

Method

Participants, design, and procedure

Via Amazon's Mechanical Turk (MTurk) we recruited 453 Americans to participate in a short 2-min screening survey, presented under the guise of a study on "Activities and Preferences", for which they were paid \$0.20 USD (i.e., the market rate for MTurk is \$6 USD per hour). MTurk is a crowdsourcing website that connects researchers with participants, and has been found to produce reasonably high quality and low-cost data (Buhrmester, Kwang, & Gosling, 2011). Participants ($N = 206$) of the screening survey were then selected for inclusion in the experiment if they: 1) held full-time work, and 2) passed careless responder attention check questions (Meade & Craig, 2012; see also Keith, Tay, & Harms, 2017). These participants were emailed and offered a bonus study and informed payment could be up to \$5 USD based on engagement with a work simulation. They were told this bonus study would likely take approximately 30-min time in total (i.e., including the work simulation, instructions, and surveys). There was an 42.72% response rate to this invitation, with $N = 88$ participants attempting the experiment.

We assessed the possibility of non-response bias using data we had available in the screening survey (i.e., gender, age, average hours worked per week, education level attained, total household income). A chi-square test demonstrated no significant gender difference for those who did respond (57% women, 43% men) versus did not respond (46% women, 54% men) to the invitation, $\chi^2(1, 206) = 2.546, p = .111$. Independent groups t-tests revealed no significant differences in age across those who did respond ($M = 36.56; SD = 11.24$) versus did not respond ($M = 35.96; SD = 11.08$), $t(205) = -0.382, p = .703$; nor differences in average hours worked each week for those who did respond ($M = 40.83; SD = 9.25$) versus those who did not respond ($M = 39.84; SD = 10.04$), $t(205) = -0.724, p = .470$; nor differences in education level attained for those who did respond ($M = 4.26; SD = 1.46$) versus did not respond ($M = 4.21; SD = 1.37$), $t(205) = -0.260, p = .795$ (i.e., level of education had eight options ranging from "less than high school" to "doctoral/PhD degree"); nor differences in total household

income level for those who did respond ($M = 6.01; SD = 1.99$) versus did not respond ($M = 5.94; SD = 2.22$), $t(205) = -0.235, p = .814$ (i.e., household income had nine options ranging from "under \$10,000" to "over \$150,000").

Unfortunately, the program failed mid-way through the work simulation for $n = 6$ of the participants willing to participate, and as such we could not use their data. These participants were compensated for their time. The final sample ($N = 82$) had 48 women and 32 men (with 2 not reporting gender), with a mean age of 37.17 years ($SD = 11.34$). Participants indicated occupational category: managerial (21%), professional (20%), administrative (20%), and sales (8%) were among the most common.

The work simulation was an inbox activity (Parker et al., 2017a; Parker, Jimmieson, & Techakesari, 2017b). Participants were asked to assume the role of a HR Manager and had 15 min to respond to 10 emails from their "employees". The emails contained problems needing solutions (e.g., training needs, complaints about appraisals). The order of the presentation of emails was randomized to reduce sequencing effects. To produce realism, information about the company's branding, organizational structure, and example HR forms were provided.

To enhance the generality of our analysis of stress appraisals across different forms of PBP, the experiment employed a three-level between-participants reward manipulation drawing on the classifications of Cerasoli et al. (2014): directly performance-salient (i.e., direct performance requirements with an easy or hard requirement set) or indirectly performance-salient (i.e., a base salary for engagement with the work). To ensure the same task objectives for all participants, all were informed that both the quantity and quality of email responses was important and would be evaluated. More specifically, a good quality response was defined as "a response that addresses the main concern of the employee". Moreover, all participants were encouraged to try and complete all the emails in the time available.

Participants were randomly assigned to one of the three conditions by an online program once the study link was accessed. In the directly performance-salient condition (easy) participants were informed they would earn 50 cents for each good quality email response (i.e., up to \$5, as there were 10 emails to reply to). In the directly performance-salient condition (hard), participants were informed they would receive a \$5 bonus payment if they provided at least 8 "good quality" email responses. If they failed to complete 8 good quality email responses then they would only receive 50 cents. Those in the indirectly performance-salient condition were informed that they would receive a \$5 payment for engagement with the work simulation (i.e., there was no clear, direct link to performance, but a vague or implied link through engagement with the task, e.g., a base salary; Cerasoli et al., 2014). The performance requirements for the directly performance-salient conditions (easy and hard) were also inspired by prior experimental work on "performance-contingent" extrinsic rewards (i.e., attaining a specified level of performance; Deci et al., 1999). Moreover, the indirectly performance-salient condition is akin to what Deci et al. classified as an "engagement-contingent" extrinsic reward (i.e., rewards

offered for engaging in a task; Deci et al., 1999). Bonus payments were awarded a few days after the work simulation based on reward condition (i.e., this varied participant by participant).

Measures

Reliability coefficients for each scale are shown in Table 1.

Stress appraisals

After exposure to the reward manipulation and immediately before starting the inbox activity, we assessed participants' appraisal of the reward requirements of the inbox activity. This measure was adapted from Searle and Auton (2015). The scale consisted of three challenge items (e.g., "Conditions and requirements of my pay will help me to learn a lot.") and three hindrance items (e.g., "Conditions and requirements of my pay will hinder any achievements I might have."). All items were rated on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Task motivations

A situational motivation scale adapted from Guay, Vallerand, and Blanchard (2000) and Parker et al. (2017a) was administered after the inbox activity in a post-task survey. The scale included 12 items assessing why participants engaged with the inbox activity. It consisted of three intrinsic motivation items (e.g., "Because the activity was interesting"), three identified motivation items (e.g., "Because the activity was meaningful for me"), three introjected motivation items (e.g., "Because I was obligated to do it"), and three extrinsic motivation items (e.g., "Because I will get a bonus payment."). All items were rated on a 7-point scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Strain indicators

The anxiety and fatigue subscales of the Profile of Mood States were used as indicators of strain (McNair, Lorr, & Droppleman, 1971). These items were administered at baseline (i.e., before exposure to the reward manipulations) and then again at the conclusion of the inbox activity in a post-task survey. The

fatigue scale (i.e., *exhausted, fatigued, weary, worn out*) and anxiety scale (i.e., *anxious, nervous, on edge, and panicky*) each asked participants to report on how they feel "right now". Items were rated on a 5-point scale, ranging from 1 (not at all) to 5 (extremely).

Prosocial behaviour

We objectively coded participants' responses for how helpful they were to the "employees" of the work simulation. We defined prosocial helping as voluntary behaviour intended to benefit another, involving caring, helping, sharing and volunteering. Coders, who were blind to hypotheses, coded email responses as 1 (not at all prosocial), 2 (somewhat prosocial), or 3 (very prosocial). Responses scored as a '1' did not make any offer to help the employee personally with the problem. Responses scored as a '2' offered some minimal help (i.e., share advice, resources, or connect the employee with others who can help). Responses rated as a '3' made suggestions to help the employee out with their issue in ways that went above and beyond (e.g., personally training them to help them with the problem/situation). Kappa for interrater reliability was .72. An average score was computed for each participant (i.e., total score divided by the number of emails completed).

Results

Data screening

Descriptives

Table 1 displays the descriptive statistics and correlations among all variables. On average, participants completed 6.46 emails in the 15 min provided. Because of the nature of the performance requirement, participants in the more difficult directly performance-salient condition did complete more emails ($M = 7.22$), compared to the other two conditions ($M_s 6.57$ & 5.57), $F(2, 78) = 3.719$, $p = .029$, which is why it was important to use an average score for the prosocial behaviour coding. Importantly, other indicators of effort (i.e., average number of words written, average quality of the

Table 1. Study 1 descriptive statistics and correlations among variables ($N = 82$).

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Challenge appraisal	5.41	0.96	(.84)												
2. Hindrance appraisal	2.32	1.21	-.45**	(.86)											
3. Intrinsic motivation	5.31	1.46	.49**	-.13	(.93)										
4. Identified regulation	5.66	1.07	.62**	-.23*	.82**	(.77)									
5. Introjected regulation	2.02	1.23	-.21	.18	-.00*	-.12	(.75)								
6. External regulation	6.03	0.87	.14	-.18	.26*	.21	-.08	(.67)							
7. Post-task anxiety	1.82	1.01	-.10	.07	-.23*	-.22*	.23*	-.05	(.90)						
8. Post-task fatigue	1.61	0.93	-.19	.16	-.19	-.26*	.23*	.03	.52**	(.96)					
9. Prosocial behavior	2.15	0.54	.18	-.28*	.21	.18	.14	.05*	.00	.09	(.72)				
Demographics/Controls															
10. Gender ^a	-	-	-.09	.06	-.06	-.12	.16	-.05	.09	.02	-.06	-			
11. Age	37.17	11.34	-.04	.04	.08	.16	-.04	-.05	-.15	-.37**	-.06	.10	-		
12. Baseline anxiety	1.37	0.52	-.14	.28*	.04	-.16	.19	-.18	.39**	.45**	.04	.09	-.16	(.76)	
13. Baseline fatigue	1.50	0.88	-.13	.17	.06	-.08	.08	.12	.17	.70**	-.02	-.14	-.27*	.51**	(.97)
Dummy-coded Rewards															
Performance-Salience ^b	1.68	0.47	-.02	.14	-.01	-.07	.20	-.10	.06	.12	.01	.19	-.10	.14	.13
Performance-Difficulty ^c	1.48	0.50	.02	.02	.05	.02	.05	.03	.06	-.08	-.14	-.12	-.02	.18	.03

Notes. ^a 1 = male, 2 = female; ^b 1 = indirectly performance salient, 2 = directly performance salient (easy and hard conditions); ^c 1 = easy directly performance-salient, 2 = hard directly performance-salient; Age reported in years; Reliabilities (Cronbach's alpha and kappa) reported in parenthesis on the diagonal.

** $p = .01$, * $p = .05$

responses rated as: poor, average, good; Parker et al., 2015) revealed no significant differences across conditions: number of words, $F(2, 78) = 1.556, p = .218, ns$; quality rating, $F(2, 78) = 0.858, p = .429, ns$. In this way, participants in the directly performance-salient condition (hard) did increase their quantity of performance to meet the requirement for their performance pay, however, they did this in a way where the quality of their performance was not compromised as compared to the other participants.

Interaction of challenge and hindrance appraisals

We conducted a preliminary analysis to test for interactions of challenge appraisal and hindrance appraisal onto the motivations and outcome variables. This effect could occur if the stress appraisals are not independent from each other. Thus, we conducted a series of moderated regressions including the interaction of challenge appraisal and hindrance appraisal onto each motivation (i.e., intrinsic motivation, identified regulation, introjected regulation, external regulation) and the outcomes (i.e., anxiety, fatigue, prosocial behaviour). None of the interactions were significant ($ps > .219$). We, therefore, proceeded to our main analyses (H1-6).

Main analysis

Mediation analyses were conducted using the PROCESS macro in SPSS. All possible indirect effects were tested simultaneously for each predictor and outcome pairing. This procedure enabled the estimation of path coefficients in a multiple mediator model and generation of bootstrapped confidence intervals for direct and specific indirect effects of the predictor on the outcome. Bootstrapping is a resampling statistic that generates random samples from the data set used to test the mediation model (Hayes, 2009, 2013). In this analysis, 10,000 samples were redrawn from the original data set. Using these values, 95% confidence intervals were produced. In the analyses with challenge appraisal as the predictor we controlled for hindrance appraisal, and in the analyses with hindrance appraisal as the predictor we controlled for challenge appraisal.

According to Baron and Kenny's (1986) traditional causal steps approach to mediation, there must be a significant

correlation between the predictor and the outcome (path c; see Table 1) to ensure there is a direct effect to mediate. More recently, scholars argue that no direct effect is required for some forms of mediation (Hayes, 2009, 2013; Mathieu, DeShon, & Bergh, 2008). However, mediation analysis does require a significant effect between the predictor and the mediator (path a). As required, the correlations between challenge appraisal and both autonomous forms of motivations were significant (see Table 1); however, hindrance appraisal was only significantly negatively correlated with identified regulation. Furthermore, there must be a significant association between the mediator and outcome, after the influence from the predictor is controlled for (path b). This was assessed in the mediation analyses.

Direct effects

Table 2 outlines the direct and indirect effects for each outcome. There was no support for H₁ or H₃, as there were no direct effects of challenge appraisal on the outcomes. There was no support for H₂, as hindrance appraisal was not directly associated with strain. There was support for H₄, as more hindrance appraisal was associated with less prosocial responding in the email replies.

Indirect effects

In support of H₅, path *a* from challenge appraisal to intrinsic motivation, $B = .81, p < .001$, and to identified regulation, $B = .71, p < .001$, was positive and significant. Path *b* from intrinsic motivation to post-task anxiety, $B = -.31, p = .021$, as well as fatigue, $B = -.18, p = .047$, was also significant. As per Table 2, in support of H_{5a}, through greater intrinsic motivation, those with higher challenge appraisal reported less strain (i.e., less post-task anxiety and fatigue). There was no support for H_{5b} regarding the indirect effects of challenge appraisal on prosocial behaviour.

There was no support for H₆, as hindrance appraisal was not associated with controlled forms of motivations (i.e., introjected or external regulation). In the PROCESS analysis, hindrance appraisal was not associated with autonomous forms of motivation either. A summary of the significant regression paths is presented in Figure 1.

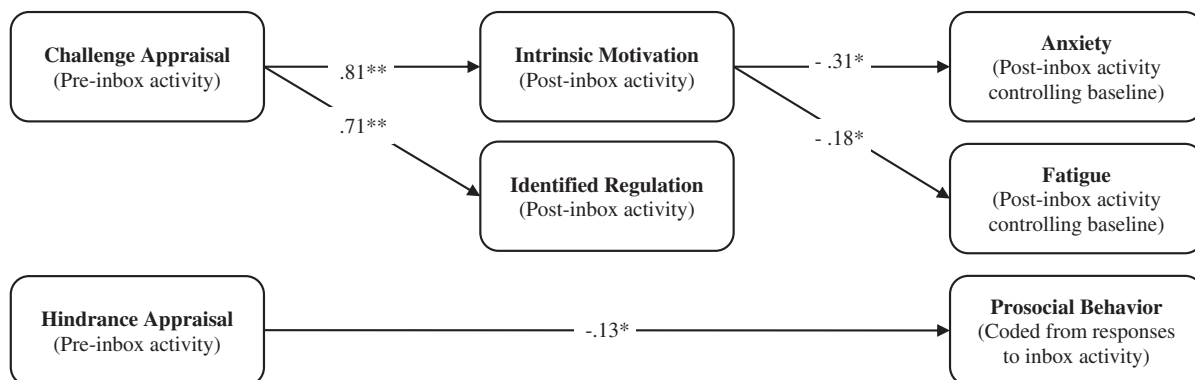


Figure 1. Study 1 significant regression paths. Unstandardized beta coefficients are reported from PROCESS analysis. Controlled task motivations were included in the analysis, but for ease of display these are not included in the Figure as there were no significant associations involving these variables.

* $p < .05$; ** $p < .001$.

Table 2. Study 1 summary of direct and indirect effects (N = 82).

Direct and Indirect Effects	Post-task Anxiety (controlling for baseline)		Post-task Fatigue (controlling for baseline)		Prosocial Behavior (Coded)	
	Effect (SE)	95% CI	Effect (SE)	95% CI	Effect (SE)	95% CI
Challenge Direct (c')	.09 (.15)	-.20; .38	.07 (.10)	-.14; .27	.02 (.08)	-.15; .18
Challenge Indirect (via Intrinsic)	-.25 (.13)	-.57; -.05	-.15 (.07)	-.33; -.04	.05 (.06)	-.06; .18
Challenge Indirect (via Identified)	.11 (.15)	-.19; .40	.01 (.09)	-.17; .19	-.01 (.08)	-.16; .15
Challenge Indirect (via Introjected)	-.03 (.03)	-.15; .00	-.03 (.02)	-.10; .00	-.02 (.02)	-.06; .00
Challenge Indirect (via External)	.00 (.02)	-.02; .08	.00 (.01)	-.01; .04	-.00 (.01)	-.04; .01
Hindrance Direct (c')	-.04 (.10)	-.23; .15	.01 (.07) *	-.13; .14	-.13 (.05)	-.24; -.02
Hindrance Indirect (via Intrinsic)	-.03 (.05)	-.17; .03	-.02 (.03)	-.10; .02	.00 (.01)	-.00; .06
Hindrance Indirect (via Identified)	.01 (.02)	-.02; .10	.00 (.01)	-.02; .03	-.00 (.01)	-.03; .02
Hindrance Indirect (via Introjected)	.01 (.03)	-.02; .10	.02 (.02)	-.01; .08	.01 (.01)	-.00; .05
Hindrance Indirect (via External)	-.01 (.02)	-.07; .01	-.00 (.01)	-.03; .02	.00 (.01)	-.02; .03

Notes: Unstandardized effects reported. For analyses on post-task anxiety and fatigue, baseline measures are controlled for. Asterisk (*) indicates effects that are moderated by reward condition.

Exploratory analyses

To explore the generality of our hypotheses under different types of PBP, we then assessed if the direct and indirect effects depended on the reward condition participants were randomly assigned to. That is, we treated the experimental manipulations of PBP as moderators of our hypothesized effects. Because there were three different reward conditions, we used dummy coding. We designed the dummy-coded contrasts to be comprehensive, while also limiting the number of statistical tests required. Thus, we compared the indirectly performance-salient condition (coded as "1") to the two directly performance-salient conditions (easy and hard; coded as "2"), and then used another dummy-code to contrast the two directly performance-salient conditions, which varied in the difficulty involved in obtaining the monetary reward (i.e., easy coded as "1" vs hard coded as "2"). One-way ANOVAs demonstrated that reward condition assigned did not directly vary appraisals ($ps > .471$), nor motivations ($ps > .200$), nor the outcomes ($ps > .341$).

Including the reward condition dummy-codes as moderators in the PROCESS analyses did not change the indirect effects of challenge appraisal already reported (i.e., supporting H_{5a} , see Table 2). Nor did the inclusion of these moderators introduce any new or otherwise different effects involving challenge appraisal. However, the inclusion of these moderators did introduce a new effect involving hindrance appraisal.

The analysis revealed a 2-way interaction of hindrance appraisal and performance salience of reward condition for post-task fatigue, $\beta = .23$, $p = .019$, $sr = .19$, see Figure 2. Graphical representation of the significant interaction was derived using the unstandardized regression coefficients (B values) of the regression lines for participants high and low on the moderator variable of reward condition. Simple slopes analyses revealed higher hindrance appraisal resulted in less fatigue for those in the indirectly performance-salient condition, $B = -0.67$, $t(75) = -2.368$, $p = .021$. In contrast, higher hindrance appraisal resulted in more fatigue for those in the directly performance-salient conditions (easy and hard combined), $B = 0.51$, $t(75) = 2.223$, $p = .029$. This means the combination of hindrance appraisal and a directly performance-salient reward resulted in more strain, in the form of fatigue, thus there was support for

H_2 under directly performance-salient rewards (i.e., easy and hard conditions).

Finally, as displayed in Table 2, there were no moderating effects of the reward conditions onto the previously reported effects of hindrance appraisal, nor the motivations (for either controlled or autonomous forms of motivation).

We performed further post hoc analyses based on the feedback of one of our anonymous reviewers, who noted the correlation of age and post-task fatigue ($r = -.37$, Table 1). First, we checked that the indirect effect of challenge appraisal through intrinsic motivation on post-task fatigue remained significant controlling for age, and it did, $IE = -.18$ ($SE = .07$), 95% CI $[-.34, -.06]$. Second, we checked that the interactive effect of hindrance appraisal and performance salience on post-task fatigue remained significant controlling for age, and it did as well, $\beta = .18$, $p = .009$, $sr = .21$.

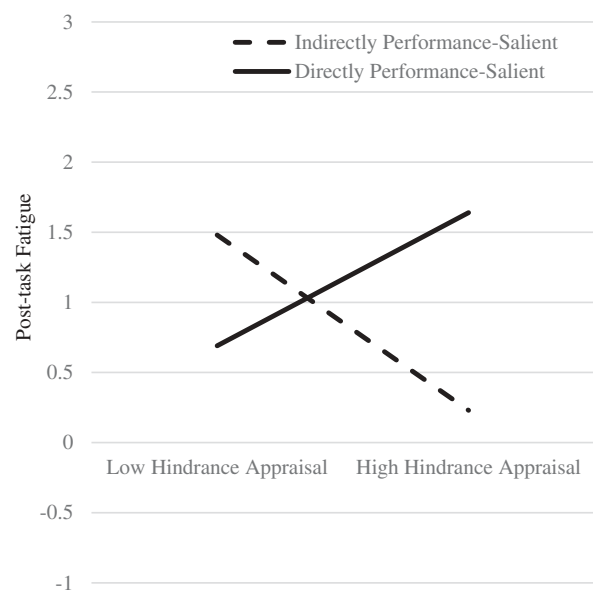


Figure 2. Study 1 2-way interaction of hindrance appraisal of reward requirement by reward performance salience (i.e., indirectly performance-salient vs directly performance-salient easy and hard) onto post-task fatigue controlling for baseline fatigue.

Study 2

Method

Participants, design, and procedure

Using MTurk, the study was advertised to an American sample of employees from diverse professions, organizations, and industries. In total, 707 participants attempted the survey; however, participants were immediately screened out of the survey for failing two pre-screening questions on employment status and provision of PBP. $N = 506$ employees who passed these pre-screening questions then completed the survey. All of these participants were reimbursed for their time at the market rate (i.e., the market rate on MTurk is \$6 USD per hour, as the survey was under 10 min they were reimbursed \$1).

Additional data cleaning was then conducted to ensure a quality sample, which meant 124 responses were removed as the additional information these participants provided on their pay did not meet our inclusion criteria. For example, some participants were excluded if their incentives were not described as dependent on job performance. We also used items to detect careless responders which resulted in the removal of a further 60 participants, as they did not pass the attention check items (Meade & Craig, 2012).

As such, the final sample comprised of 322 employees. There were 48.10% female participants. One participant did not report their gender. The mean age was 35.17 years ($SD = 9.80$; range = 19–68). Mean tenure in work role was 5.76 years ($SD = 5.34$). Most (70.50%) participants had some kind of tertiary-level or postgraduate-level education (e.g., bachelor's degree, master's degree, PhD). There were 85.40% full-time workers, 9.60% part-time workers, 4.70% contract workers, and 0.30% casual workers. The most common work industries were retail trade (15.80%), finance and insurance (12.10%), communication services (10.90%), health and community services (10.90%) and personal/other services (10.60%). The mean annual income was \$47,738 USD ($SD = \$28,769$).

In relation to participants' PBP, the most common incentives were individual bonuses (74.84%) and commission (24.85%), with piece rate pay (9.94%), team bonuses (6.83%), and other incentives (5.90%) being less common. While most participants reported one type of incentive (61.20%), some participants

reported multiple (i.e., two or more were reported by 38.80% of participants). Of those working with team bonuses, only 2.20% had no concurrent individual bonus, commission, etc. available. On average, participants achieved their incentives (i.e., bonuses, commissions) half of the time to often/most of the time ($M = 3.69$, $SD = 1.10$; '1' = Never, '2' = Rarely/Sometimes, '3' = Half of the time, '4' = Often/Most of the time, '5' = Always). The mean monetary value of participants' incentives, regardless of incentive type, was \$2,337.68 USD ($SD = \$4,893.48$).

Measures

Descriptives and reliability coefficients for each scale are shown in Table 3.

Stress appraisals

The Challenge and Hindrance Appraisal Scale (Searle & Auton, 2015) was adapted to be suitable to stress appraisals of PBP. Four items were used to measure challenge appraisals (e.g., "Conditions and requirements of my pay-for-performance scheme will help me to learn a lot") and four items for hindrance appraisals (e.g., "Conditions and requirements of my pay-for-performance scheme will restrict my capabilities"). A 7-point scale was used, from 1 "strongly disagree" to 7 "strongly agree".

Work motivations

This was measured using the Multidimensional Work Motivation Scale (MWMS; Gagné et al., 2015). When investigating these constructs in the work context, scholars expand external regulation to reflect social rewards (e.g., praise) as well as material rewards (e.g., money; Gagné et al., 2015). Thus, five types of motivation were measured: three items on intrinsic (e.g., "Because I have fun doing my job"), three items on identified (e.g., "Because I personally consider it important to put efforts into this job"), four items on introjected (e.g., "Because otherwise I will feel ashamed of myself"), three items on external social (e.g., "Because others will respect me more"), and three items on external material (e.g., "Because others will reward me financially only if I put enough effort in my job"). A 7-point scale was used, from 1 "not at all" to 7 "completely".

Table 3. Study 2 descriptive statistics and correlations among variables ($N = 322$).

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Challenge appraisal	4.93	1.31	(.89)											
2. Hindrance appraisal	2.35	1.20	-.15**	(.91)										
3. Intrinsic motivation	4.85	1.88	.50**	-.14*	(.95)									
4. Identified regulation	5.66	1.42	.44**	-.25**	.64**	(.89)								
5. Introjected regulation	4.89	1.53	.02	-.04	-.01	.03	(.83)							
6. External regulation (S)	5.05	1.63	.32**	-.09	.22**	.27**	-.08	(.71)						
7. External regulation (M)	4.92	1.40	.25**	-.06	.16**	.23*	-.11	.31**	(.62)					
8. Emotional exhaustion	3.19	1.60	-.45**	.29**	-.60**	-.41**	-.01	-.12*	-.03	(.96)				
9. OCB	2.53	1.13	-.48**	.39**	-.60**	-.69**	.10	-.23**	.12*	.50**	(.84)			
Demographics/Controls														
10. Gender ^a	-	-	.05	-.04	.01	.15**	.00	.03	.02	.07	-.13*	-		
11. Age	37.15	9.80	-.09	-.13*	.02	.07	.11	-.01	-.08	-.04	-.12*	.07	-	
12. Income	47,738	28,769	.07	.05	.18**	.06	.06	.09	.10	-.12*	-.06	-.17**	.16**	-
13. Tenure	5.76	5.34	.00	-.07	.11*	.07	.08	-.01	-.04	-.10	-.11*	.09	.52**	.23**

Notes. S = Social; M = Material; OCB = organizational citizenship behaviour. ^a 1 = male, 2 = female. For income, values reported are in US Dollars. Tenure and Age reported in years. Internal consistencies reported in parenthesis on the diagonal.

** $p = .01$, * $p = .05$.

Emotional exhaustion

The emotional exhaustion subscale of the Maslach Burnout Inventory – General Scale (MBI-GS; Schaufeli, Leiter, Maslach, & Jackson, 1996) was used as our indicator of employee strain. This includes five items (e.g., *I feel emotionally drained from my work*). A 7-point scale was used, from 1 “never” to 7 “always”.

OCB

To capture an organizationally relevant indicator of prosocial behaviour, we used three items from Lee and Allen (2002) measure of OCB, which distinguishes the intended target or beneficiary of the behaviour as other individuals rather than the organization as a whole. The items we selected contain relevant content on willingly helping others with work-related problems, which is a key dimension of prosocial behaviour. We also selected the more commonly occurring behaviours, as per the approach of Fu Lam, Wan, and Roussin (2016). An example item is “willingly gave my time to help others who have work-related problems”. A 7-point scale was used, from 1 “never” to 7 “always”.

Confirmatory factor analyses

We conducted confirmatory factor analysis (CFA) including all latent constructs (challenge appraisals, hindrance appraisals, external regulation – material, external regulation – social, introjected regulation, identified regulation, intrinsic motivation, emotional exhaustion, and OCB) to assess factor structure. A model with all nine factors had an adequate fit ($\chi^2[428] = 1035.16$, $p < .001$; CFI = .927; TLI = .915; RMSEA = .066; SRMR = .063). We did not allow cross-loadings or perform any modifications. A 1-factor model did not fit the data well ($\chi^2[70] = 6753.27$, $p < .001$; CFI = .324; TLI = .282; RMSEA = .186; SRMR = .152).

Accounting for common method variance

Given the data was self-report, the extent of common method variance (CMV) was assessed using the common latent factor (CLF) technique proposed by Podsakoff, MacKenzie, Podsakoff, and Lee (2003). The factor loadings of three items from identified regulation were affected by the addition of a CLF as the deltas for the factor loadings of these three items were above .20. To assess the impact of CMV, we saved the weighted composites of the factors (i.e., CMV partialled out) and then conducted the main

analysis with these weighted composites. The results using composites with CMV partialled out were the same as we report next. Thus, we can tentatively conclude that CMV did not seriously affect the interpretation of the results reported.

Results

Main analysis

Analyses were conducted using the MODEL INDIRECT command in Mplus, which enabled us to estimate the path coefficients in a multiple mediator model for direct and indirect effects of the predictor on the outcome. We tested all possible indirect effects for each predictor and outcome pairing simultaneously in one path model. Results are summarized in Table 4 and Figure 3. The path model had adequate fit to the data, $\chi^2[6] = 15.06$, $p < .001$; CFI = .985; TLI = .914; RMSEA = .068; SRMR = .031.

Challenge appraisal

After accounting for the mediators, the direct effect of challenge appraisal on emotional exhaustion was still significant. Therefore, H_1 was supported for strain: the more PBP is appraised as a challenge, the less individuals experience job strain. In relation to the indirect effects involving motivation, in support of H_{5a} , the path a from challenge appraisal to intrinsic motivation was significant, $B = .70$, $p < .001$, as was path a from challenge appraisal to identified regulation, $B = .44$, $p < .001$. The path from challenge appraisal to external regulation (social) was also significant, $B = .28$, $p = .001$, as was external regulation (material), $B = .26$, $p < .001$. Path b from intrinsic motivation to emotional exhaustion was significant, $B = -.43$, $p < .001$, but not for identified regulation to emotional exhaustion. Interestingly, a path between external regulation (social) and emotional exhaustion was also significant, $B = .14$, $p < .001$. Greater external regulation (social) was associated with greater emotional exhaustion. As per Table 4, two indirect effects were significant, and the effect through intrinsic motivation was negative (supporting H_{5a}), but positive through external regulation (social). The strength of the specific indirect effects was also compared. The indirect effect through intrinsic motivation was significantly stronger than through external regulation – social, $\Delta IE = .25$, $SE = .04$, [.19;.33].

Table 4. Study 2 summary of direct and indirect effects (N = 322).

Direct and Indirect Effects	Emotional Exhaustion			OCB		
	Effect (SE)	95% CI	p	Effect (SE)	95% CI	p
Challenge Direct (c')	-.27 (.07)	-.41; -.13	< .001	.13 (.06)	.02; .25	.023
Challenge Indirect (via Intrinsic)	-.30 (.05)	-.39; -.21	< .001	.04 (.04)	-.03; .12	.239
Challenge Indirect (via Identified)	.00 (.04)	-.07; .08	.930	.11 (.04)	.03; .18	.004
Challenge Indirect (via Introjected)	.00 (.00)	-.01; .01	.875	.00 (.01)	-.01; .01	.762
Challenge Indirect (via External social)	.04 (.02)	.01; .07	.014	.00 (.01)	-.03; .03	.997
Challenge Indirect (via External material)	.02 (.01)	-.01; .05	.114	.00 (.02)	-.03; .03	.816
Hindrance Direct (c')	.23 (.06)	.11; .35	< .001	-.16 (.07)	-.29; -.03	.015
Hindrance Indirect (via Intrinsic)	.04 (.03)	-.02; .11	.170	-.01 (.00)	-.02; .01	.441
Hindrance Indirect (via Identified)	-.00 (.02)	-.04; .04	.932	-.05 (.02)	-.10; -.01	.019
Hindrance Indirect (via Introjected)	-.00 (.00)	-.01; .01	.808	-.00 (.00)	-.02; .01	.636
Hindrance Indirect (via External social)	.03 (.01)	.01; .07	.026	.00 (.01)	-.02; .02	.997
Hindrance Indirect (via External material)	-.00 (.00)	-.02; .01	.719	.00 (.00)	-.01; .01	.928

Notes. Unstandardized effects reported.

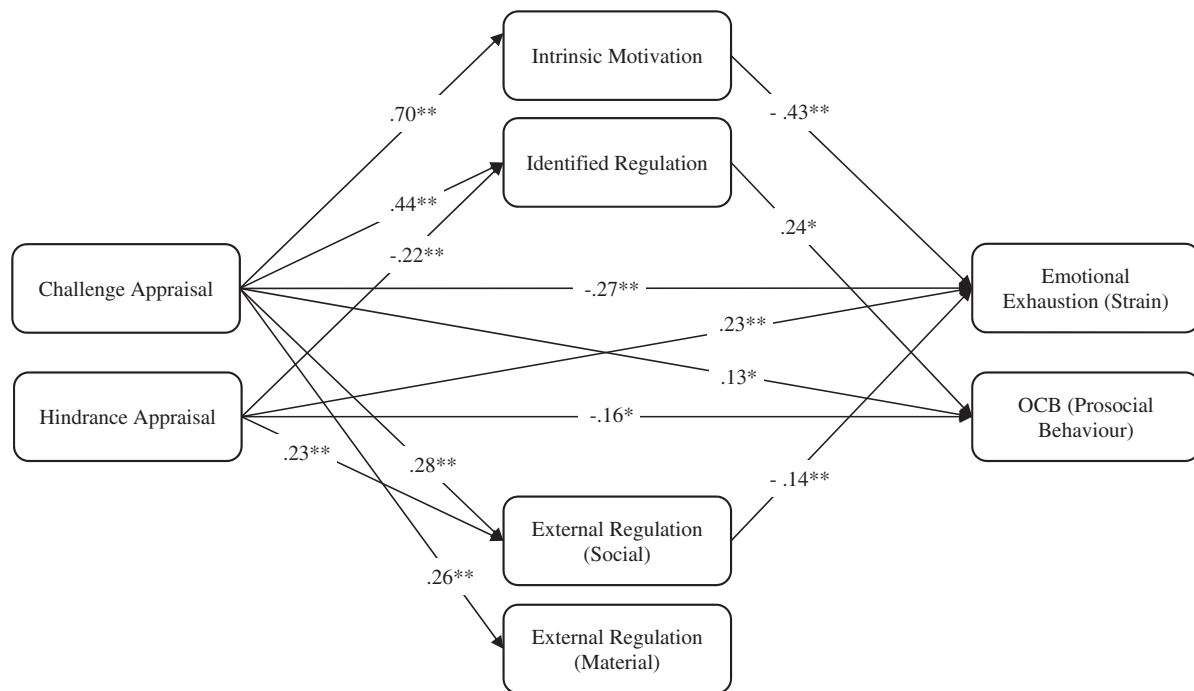


Figure 3. Study 2 regression paths. Unstandardized beta coefficients are reported. Introjected regulation was included in the analysis, but is not depicted here for ease of display and because there were no significant associations involving this type of work motivation. The indirect effects are summarized in Table 4.

* $p < .05$; ** $p < .001$.

After accounting for the mediators, the direct effect of challenge appraisal on OCB was still significant, $B = .13$, $p = .023$. Therefore, H_3 was supported for OCB: the more PBP is appraised as a challenge, the more individuals report engaging in OCBs to benefit other individuals at work. Path b from identified regulation to OCB was significant, $B = .24$, $p < .001$. Only one indirect effect was significant, and that indirect effect was positive through identified regulation. Thus, identified regulation was a mediator in this model, which provides some support for H_{5b} .

Hindrance appraisal

After accounting for the mediators, the direct effect of hindrance appraisal on emotional exhaustion was still significant, $B = .23$, $p < .001$. Therefore, H_2 was supported for this indicator of strain: the more PBP is appraised as a hindrance, the more individuals experience job strain. In relation to the indirect effects involving motivation, in support of H_{6a} , path a from hindrance appraisal to external regulation (social) was positive and significant, $B = .23$, $p < .001$. A path from hindrance appraisal to identified regulation, $B = -.22$, $p < .001$, was also significant, however, was negative. One indirect effect was positive and significant via external regulation (social), supporting H_{6a} . Thus, in partial support of H_{6a} , external regulation (social) was a mediator of the positive indirect effect of hindrance appraisals on strain; however, the other controlled motivations (i.e., introjected regulation and external regulation – material) were not.

After accounting for the mediators, the direct effect of hindrance appraisal on OCB was still significant, $B = -.14$, $p = .011$.

Therefore, H_4 was supported for OCB: the more PBP is appraised as a hindrance, the less individuals report engaging in OCBs to benefit others at work. In relation to the indirect effects involving motivation, there was no support for controlled motivations as mediators, but rather one form of autonomous motivation. One indirect effect was significant, and this was negative through identified regulation (see Table 4).

Sensitivity checks

Interaction of challenge and hindrance appraisals

We tested if the effects of stress appraisals were independent. None of the interactions of challenge appraisal by hindrance appraisal onto other variables in our model (i.e., intrinsic motivation, identified regulation, introjected regulation, external regulation – social, external regulation – material, emotional exhaustion, and OCB) were statistically significant ($ps > .192$).

Combining forms of external regulation

We also tested if the results held with a combined measure of external regulation (i.e., combining social and material types). As such, we re-ran the analyses with just four motivations included as mediators: intrinsic motivation, identified regulation, introjected regulation, and a combined measure of external regulation (i.e., all six items; $\alpha = .74$). All the same direct effects emerged, as did the indirect effects involving intrinsic motivation and identified regulation. No indirect effects emerged involving introjected regulation (as before), nor any indirect effects involving the combined measure of external

regulation. As such, we are confident the indirect effects reported involving external regulation (social) are unique to that form of external regulation.

Potential control variables

We also tested to see if the results held for employees with different levels of tenure or total income. Table 3 indicates these potential control variables were significantly correlated with some of the core variables of our research model. As per Becker et al. (2016), we conducted our main analyses while controlling for these variables in order to compare this analysis with our original results. The inclusion of these control variables had no bearing on the significance or interpretation of our results.

Finally, on the advice of one of our anonymous reviewers, we checked if the results held when participants who had a team-based incentive ($n = 22$) or only team-based incentives ($n = 7$) were excluded. The exclusion of these participants (using either approach) had no bearing on the significance or interpretation of the results already reported.

Discussion

Overall, in support of the hypotheses, individuals who appraised their PBP requirements as more of a challenge, and therefore an opportunity for learning and growth, were more autonomous in their work motivation (i.e., found enjoyment in their work; were goal-oriented and internally driven), and also experienced less strain and more prosocial behavior. The effects of challenge appraisal of PBP on strain and prosocial behaviour were direct (Study 2) and indirect through autonomous forms of motivation (Study 1 and 2). Interestingly, the indirect effect analyses revealed that it was intrinsic motivation that explained the effect of challenge appraisal of PBP onto indicators of strain (observed in both studies); and identified regulation that explained the effects of challenge appraisal of PBP onto an indicator of prosocial behavior (i.e., self-reported OCB observed in Study 2).

On the other hand, individuals who appraised their PBP requirements as a more of a hindrance, and therefore an obstacle to performance at work, engaged in less prosocial behavior (as observed in Study 1 and 2), were more externally regulated by social evaluative reasons in their work motivation (as observed in Study 2), and experienced more strain (as observed in Study 2). In the field study, a direct positive effect was found between hindrance appraisal of PBP and emotional exhaustion. Prior work design research has found similar associations between hindrance stressors/appraisals and job strain (Crawford et al., 2010; Tuckey et al., 2015; Webster et al., 2011). Our research has shown hindrance appraisal of the requirements of PBP is also associated with job strain. A particularly novel observation, is the direct effect of hindrance appraisal of PBP on prosocial behaviour, which was found in both the experiment (i.e., prosocial behaviour as coded in email responses) and the field study (i.e., self-reported ratings of OCBs).

Supporting the hypotheses, in the field study, hindrance appraisal of PBP was associated with greater strain both directly, as well as indirectly through greater external regulation (social). Here, when an individual was concerned or worried about the social evaluations of others, then this reason for putting efforts

into their job was related to increased emotional exhaustion from work. Thus, investing effort for the social rewards (i.e., impressing others) is implicated in the process of strain from PBP. This is consistent with Gagné and Forest (2008), who suggest that pay-for-performance schemes should be equitable in design and should acknowledge effective individual performance without incorporating elements of competition among teammates, or pressure to “meet the numbers”. This is also in line with research on the interpersonal consequences of PBP (Gläser et al., 2017; Kuvaas et al., 2017). In field settings, it is possible that hindrance appraisal of PBP could partially result from heightened feelings of competition, but also, hindrance appraisal could result in goal narrowing (i.e., focus on doing what is required for the reward at the expense of extra-role helping behaviour), which could make individuals less willing to help out co-workers whether they are striving for the same pool of financial incentives or not.

Emergent findings for challenge and hindrance stress appraisals of PBP

There were effects of stress appraisals and motivation that were not hypothesized. First, it was observed in Study 2 that the association of challenge appraisal of PBP and strain was partially mediated by external regulation (social). Here, although challenge appraisal of PBP reduced strain directly and indirectly through greater intrinsic motivation (as hypothesized), challenge appraisal also increased strain indirectly through external regulation (social), albeit a weaker effect, as external regulation (social) was associated with greater emotional exhaustion. Although this effect was not predicted, nonetheless, it makes theoretical sense; when an individual appraises the requirements of their PBP as a challenge, they become both more internally motivated (i.e., intrinsic and identified motivations) and also externally motivated, and together this contributes to job strain in competing ways. This is a particularly interesting finding, as other research on the challenge-hindrance stressor framework has invoked a unidimensional form of motivation as a mechanism involved in the development of job strain (LePine et al., 2004), however, we have found that, in the context of stress appraisal of PBP, different qualities of motivation can have competing effects, and also, more or less importance for different employee outcomes (see also Gagné et al., 2015).

Second, contrary to hypotheses, as observed in Study 2, it was less identified regulation that explained the effect of hindrance appraisal of PBP on OCB (rather than forms of controlled motivation). Prior research has shown that PBP can increase controlled motivation, which does increase work effort to a certain extent (Kuvaas, Buch, Gagné, Dysvik, & Forest, 2016). However, overall, there was limited support for the role of controlled forms of motivation as an explanatory mechanism. Prem et al. (2018) did find more support for self-regulation as a mechanism for the effect of challenge appraisal of work demands on workplace procrastination (i.e., all predictions pertaining to challenge appraisal were supported, whereas for hindrance appraisal only one-third of the expected indirect effects were supported). Thus, hindrance appraisal might have a more limited impact on self-regulatory processes. However, Albrecht (2015) found that hindrance stressors at work were associated with reduced need

satisfaction, which was then associated with greater job strain. If PBP requirements are appraised as a hindrance, then this might threaten one's sense that the work environment satisfies basic psychological needs, which can explain why hindrance appraisals undermine identified regulation. However, in our research, this process did not increase strain, it reduced OCB. Other research has shown that internalized motivations do play an important part in prompting prosocial behaviour (Weinstein & Ryan, 2010), and in our research, we have found an antecedent to this process is hindrance appraisal of PBP, which can diminish internalized motivations and prosocial behaviours like OCB. However, it seems that more research is needed on the self-regulatory consequences of hindrance appraisals.

Finally, our exploratory analysis in the experimental study revealed some interesting insights about the effects of hindrance appraisal of PBP under different reward conditions. In the experiment, we were able to vary the design of participants' pay system, to make monetary rewards more or less performance salient, and more or less difficult to obtain. Here, it was revealed that the combination of directly performance-salient rewards and greater hindrance appraisal of the requirements of the reward resulted in more fatigue by the end of the work simulation (controlling for baseline levels of fatigue). This effect did not depend on the difficulty of the performance requirement. Interestingly, the effects of challenge appraisal observed in the experimental study were independent of the design of the reward participants were randomly assigned to. These findings are novel and potentially important for advancing debate on the hidden costs of extrinsic rewards. Our findings suggest it is important to consider not only the design of PBP pay systems (e.g., salience, difficulty), but also how individuals view the meaning of the incentive for their personal well-being and success (Ryan, Mims, & Koestner, 1983; Srivastava, Locke, & Bartol, 2001).

Theoretical and practical implications

These findings add to our understanding of the potential for collateral damage from PBP (Cerasoli et al., 2014). Stress appraisal theory is useful for understanding the meaning individuals ascribe to the requirements involved in attaining extrinsic rewards. Thus, stress appraisals provide a lens through which to examine the functional significance of PBP to individuals. We support contentions that individuals appraise the conditions and requirements of their work differently (Prem et al., 2018; Searle & Auton, 2015; Webster et al., 2011), and we found that this stress appraisal process can occur when employees are making sense of the requirements of pay systems. Moreover, we found that stress appraisals of PBP are associated with employee motivation, strain, and prosocial behaviour. Our findings demonstrate the importance of measuring stress appraisals of PBP; as these appraisals reveal important effects that would otherwise be missed or misunderstood (Searle & Auton, 2015).

The majority of studies investigating the effects of PBP on motivation have been conducted with a dichotomous conceptualization of intrinsic versus extrinsic motivation (Cerasoli et al., 2014; Gagné & Deci, 2005). However, our results suggest that there is merit in adopting an expanded approach to motivation. For instance, our findings suggest that intrinsic motivation is an

explanatory factor for the potential strain experienced from PBP, whereas identified regulation is an explanatory factor for prosocial behaviour. Indeed, intrinsic motivation had a higher correlation with well-being than identified regulation in the validation study of the MWMS (Gagné et al., 2015). Intrinsic motivation also has been identified as the more specific form of autonomous motivation implicated in the performance impairments associated with high strain work (Parker et al., 2017a). In relation to the role of identified regulation and prosocial behaviours, this could be because prosocial behaviour might not always be "fun" or easy to enact, especially in the context of PBP, thus might require identified reasons for enactment (i.e., this work is good/important for me to do; also see Gagné & Deci, 2005; Koestner & Losier, 2002), which people are better able to internalize when they view their reward requirements as a challenge. Indeed, in the validation study of the MWMS (Gagné et al., 2015), identified regulation was a slightly better predictor than intrinsic motivation for dimensions of work performance.

Furthermore, expanding external regulation to reflect material and social types has provided greater insight into the role of these motivations in stress appraisals of PBP. External regulation (social) was the only controlled motivation detected as a mediator. External regulation by material things (i.e., money) and introjected regulation (i.e., internal pressures) were not implicated in either study. This indicates that being motivated by "the money" is not necessarily contributing to the stressor-strain process invoked under PBP, but rather it is the social-evaluative pressure from others that is associated with more strain when PBP schemes are appraised as a hindrance (and also when appraised as a challenge; see also Ryan et al., 1983). Regarding introjected regulation, there is debate regarding whether introjected regulation is related more to external regulation or identified regulation (Chemolli & Gagné, 2014; Gagné et al., 2015), and perhaps because this form of motivation is not clearly internalized or externalized is why it did not play a role as a mechanism in the stress appraisal process. Although adopting a multidimensional approach to motivation increases complexity, this nuanced approach is worthwhile to consider in future research on PBP and also in practice. Considering the full continuum of motivation (i.e., rather than focusing on one or two reasons for work motivation) could help managers and HR professionals to think more carefully about some of the potential motivational "side effects" of certain PBP schemes.

These findings also can inform the design and management of PBP systems. For example, organizations could include questions within their employee surveys that ask about challenge and hindrance appraisals of PBP schemes. They could then compare stress appraisals of individuals on different pay schemes, and in addition, evaluate the consequences of scheme type, and also stress appraisal, for well-being, engagement, performance, and even turnover. Using this information, organizations could try to devise ways to help employees perceive requirements as a challenge rather than a hindrance. Understanding the meaning of PBP to one's employees could help to create shared meanings amongst employees about challenge stressors in the workplace, as well as educating employees about the resources available to them to help them achieve challenging targets, while still supporting their coworkers and being a "good" organizational citizen. That said, organizations must provide employees with

resources to succeed (e.g., training, feedback, etc.). Without adequate resources, long-term exposure to demanding challenge stressors has the potential to develop into chronic distress problems (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; LePine et al., 2005). However, and somewhat more importantly, monitoring employee stress appraisals of PBP could also inform improvements to the actual design of pay systems. Such changes would be especially important if certain pay systems or requirements, on average, were being appraised more negatively, and if deleterious consequences were observed for important employee or team outcomes. However, future research is needed to determine how employees respond to changes to PBP, and also how to best support employees and teams during such changes to PBP.

Limitations and future directions

The main limitation of the experimental study was the small sample size, which was determined by the budget of the project. We followed the advice of Highhouse (2009) in designing our experiment, and chose to recruit an employee sample, rather than rely on a student sample, to enhance the generalizability of our findings. In any case, future experimental research with larger samples is needed. A second limitation was that due to the individual nature of the work simulation task, we were unable to measure external regulation (social) as a mechanism in that study, thus unable to find convergence across the studies on the role of that particular motivational mechanism. Future experimental work might benefit from the use of team-based work tasks, which would also allow for further consideration of the role of competition in PBP and the implications of this for stress appraisals and motivations. Future experimental research might also benefit from manipulating the size of the incentives on offer (i.e., the monetary value), especially as insights from behavioural economics suggests that larger rewards can cause detriments to performance (Ariely et al., 2009).

There are two main limitations to the cross-sectional and survey-based nature of Study 2: 1) causality cannot be inferred based on these findings, and 2) CMV may have inflated the associations between variables. However, using the CLF technique (Podsakoff et al., 2003), we found CMV was unlikely to be a serious threat to the interpretations of our findings. In any case, future studies could overcome these issues by using more than one source of data. For example, secondary data could be used to assess outcome variables such as OCB (e.g., supervisor ratings). Future research also could use longitudinal designs, which could track the stress response to PBP over time, as well as track responses to changes in PBP systems.

In addition, unfortunately, we were unable to examine the moderating effects of performance salience or difficulty in our field study, as we did not have enough variability in the types of incentives employees were operating under. It would be very useful, in future research, to have compensation experts objectively code employee incentives (e.g., see Shirom et al., 1999) according to performance salience and difficulty. This would enable examination of these effects with quasi-experimental

methods to further our understanding of the joint impact of reward design and stress appraisal. Study of the characteristics of pay systems that are more likely to lead to challenge versus hindrance appraisal could inform how to design pay systems in a way that prompts greater challenge rather than hindrance appraisal. In addition, it might be useful to study the job features that also could contribute to stress appraisals of PBP (e.g., job control; Karasek, 1979; or other job demands and resources; Demerouti et al., 2001).

Finally, research to date using the challenge-hindrance stressor framework has assumed that hindrance appraisals and threat appraisals are empirically and conceptually equivalent (Searle & Tuckey, 2017). Recent research has proposed the addition of threat appraisals to capture the potential for personal loss or harm (i.e., threats), as well as the potential to block goal attainment (hindrance) or to promote gain (challenge; Tuckey et al., 2015). Future research could examine the effects of all three appraisals to better inform our understanding of stress appraisals in the context of PBP.

Conclusions

The more employees appraised the requirements of their PBP as a challenge, the less they experienced strain and more they engaged in prosocial behaviour, and this was explained by forms of autonomous motivation (i.e., intrinsic and identified, respectively). Conversely, the more employees appraised the requirements of PBP as a hindrance, the less they engaged in prosocial behaviour. In the field study, the effect of hindrance appraisal onto OCB was partially explained via less identified regulation. The effect of stress appraisals on emotional exhaustion was also partly explained by more external regulation (social). As observed in the experiment, hindrance appraisal coupled with a directly performance-salient reward resulted in more strain (i.e., post-task fatigue). Overall, there was less support for the role of controlled forms of motivation in the effects, with neither study implicating introjected regulation nor external regulation (material) in the stressor appraisal-strain process involved in PBP.

This is the first research to examine the potential “collateral damage” of stress appraisals of PBP on employee well-being and prosocial behaviour. These findings challenge the current understanding of how pay-for-performance schemes impact employees, by considering the *meaning* ascribed to such schemes rather than the mere *presence* of such schemes. This has practical implications for organizations: that is, when designing compensation systems, organizational leaders might do all of the right things, but if their employees appraise their incentive schemes as more hindering and/or less challenging, this can have detrimental consequences for work motivation, strain, and prosocial behaviour. Future research is needed that can unpack why hindrance appraisals have detrimental consequences, beyond the motivation explanation we examined here. In addition, future research could determine what features of pay systems, work design, and also individual differences, contribute to the development of stress appraisals of PBP.

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No potential conflict of interest was reported by the authors.

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