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Deposited in *Repositório ISCTE-IUL*:

2025-05-06

Deposited version:

Accepted Version

Peer-review status of attached file:

Peer-reviewed

Citation for published item:

Costa, S., Velez, M. J. & López, A. (2024). Your coworkers can make you sick: An investigation of coworker undermining and employee health. *Journal of Occupational and Organizational Psychology*. 97 (4), 1716-1735

Further information on publisher's website:

10.1111/joop.12536

Publisher's copyright statement:

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**Title: YOUR COWORKERS CAN MAKE YOU SICK: AN
INVESTIGATION OF COWORKER UNDERMINING AND EMPLOYEE
HEALTH**

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**YOUR COWORKERS CAN MAKE YOU SICK: AN INVESTIGATION OF COWORKER
UNDERMINING AND EMPLOYEE HEALTH**

Abstract

Although mistreatment in the workplace has been widely acknowledged, the impact of coworker undermining has not been adequately explored in the literature. Using insights from the job demands-resources model, we suggest that coworker undermining is a job demand that is associated with negative affect and somatic complaints. In mitigation of this, we propose two personal resources (i.e., forgiveness and revenge cognitions) as buffers of the positive relationship between coworker undermining and somatic complaints via negative affect. We explore these relationships in a time-lagged study involving 229 participants who responded to three surveys over a month-long period. Our findings show that coworker undermining is related to high levels of negative affect in the following week, and that this spills over to somatic complaints. However, this is only true for victims of undermining who do not forgive their colleagues.

Keywords: coworker undermining, somatic complaints, personal resources, forgiveness, revenge.

Practitioner Points

- Organizations should establish clear expectations for appropriate behaviour and ensure that all employees are aware of the organization's policies on workplace conduct.
- Organizations need to communicate clearly that undermining behaviour will not be tolerated and may result in disciplinary action.
- Organizations should create opportunities for employees to provide feedback on their work environment. Employees could report incidents of coworker undermining by completing an anonymous survey without fear of negative consequences.

Introduction

Workplace mistreatment is a common occurrence in contemporary organizations (Dhanani et al., 2021). According to the International Labour Organization (ILO; 2022) one out of five people experience some form of mistreatment at the workplace. While workplace mistreatment may take many forms (e.g., insults, threats, bullying, or physical aggression), and vary in severity, persistence, and source (Herschcovis, 2011), a particular type of mistreatment – social undermining – is pervasive in the extremely competitive environment of today's organizations (Lee et al., 2016).

Social undermining refers to "behavior intended to hinder, over time, the ability to establish and maintain positive interpersonal relationships, work-related success, and favorable reputation" (Duffy et al., 2002, p. 332). While it is a relatively low-intensity form of mistreatment in comparison with other forms such as outright bullying or harassment (Dhanani et al., 2021), it is a much more enduring phenomenon (Lee et al., 2016) because these experiences are often subtler (Duffy et al., 2012) and perpetrators often go unpunished (Faldetta, 2019). Social undermining in organizations can originate from various organizational actors, such as supervisors, customers, subordinates, or coworkers (Duffy et al., 2002), and previous research suggests that the experiences differ according to their source (e.g., Duffy et al., 2002; Kammeyer-Mueller et al., 2013). The present study focuses on coworker undermining because employees typically spend most of their time with coworkers. Being undermined by a coworker with whom one must continue interacting is an especially detrimental feature of an employee's social environment (Aquino et al., 2003).

Coworker undermining encompasses a range of both subtle and overt behaviours, such as: spreading rumours, withholding information, exclusion or isolation of a colleague, claiming credit for their work, or actively sabotaging their efforts (Duffy et al., 2012). These actions erode trust, create conflict, and impede the effectiveness and collaborative dynamics within work teams or organizations (Duffy et al., 2012; Kammeyer-Mueller et al., 2013). Individuals targeted by social undermining experience feelings of insecurity and workplace

COWORKER UNDERMINING AND HEALTH

vulnerability, leading to diminished productivity, increased turnover rates, and engagement in counterproductive workplace behaviours (Duffy et al., 2002; Duffy et al., 2006).

Previous studies have highlighted coworker undermining as a significant source of strain (Duffy et al., 2002; Meier & Cho, 2019), leading to emotional exhaustion (Mostafa et al., 2021), depression, and reduced physical well-being (Hershcovis & Barling, 2010). These findings are aligned with the Job Demands-Resources model (JD-R; Bakker et al., 2023; Demerouti et al., 2001) and suggest that coworker undermining can be conceptualized as a job demand because individuals spend considerable time and energy dealing with undermining situations. Moreover, interpersonal conflicts can be considered a job demand (Bakker et al., 2023). Depleting an employee's mental resources leads, in turn, to increased distress and impaired well-being. As such, drawing on the JD-R model and based on previous research, we propose that coworker undermining triggers a health impairment process. Specifically, targeted individuals would experience negative affect, which we expect to be positively linked to impaired health, as indicated by psychosomatic complaints.

Additionally, the JD-R model also proposes a "buffer hypothesis," suggesting that employees possess job resources (e.g., support, autonomy) to mitigate the negative effects of job demands. However, we consider that job resources, although important, might not fully capture nuances of the effects that coworker undermining can have on an employee's health. Coworker undermining situations often go unnoticed by organizational leaders (Duffy et al., 2012) and it is not uncommon that job resources are not always available to employees or come at a later stage (Searle & Lee, 2015). Even if they are available, the victim might still need to continue working with the perpetrator (Thompson & Simkins, 2017), which creates a burden that does not stop the resource depletion process.

Thus, to expand our understanding of employees' reactions to coworker undermining, scholars have been stressing the role of personal resources as the intra-individual factors that bolster individuals' resilience and their capacity to influence their environment (Hobfoll et al., 2018). This is because these resources are the first line of defence that individuals rely on to address mistreatment situations, regardless of the

availability of job resources (Faldetta, 2019). Moreover, further actualizations of the JD-R model by Xanthopoulou et al. (2007) and Bakker et al. (2023) have acknowledged the importance of personal resources precisely to enhance our understanding of why job resources do not always alleviate the effects of job demands (e.g., Hu et al., 2011), and also to shed light on how individuals in similar work situations experience different well-being outcomes (Bakker & Demerouti, 2014).

Compared to job resources, the role of personal resources remains underdeveloped (Schaufeli, 2017), and there is still a lack of understanding about which personal resources might strengthen or weaken the link between coworker undermining and employee health (Chiaburu & Harrison, 2008; Mostafa et al., 2023). Moreover, research on the effects of personal resources has primarily focused on individuals' positive self-evaluations and general personality traits (e.g., general self-efficacy, self-esteem, locus of control). Recent research has called attention to another personal resource that can act as a buffer to the effect of job demands (Searle & Lee, 2015). This concerns individuals' coping strategies – i.e., their cognitive and/or behavioural efforts to manage specific external and/or internal demands assessed as taxing or exceeding the resources of the person (Lazarus & Folkman, 1984). Nevertheless, research on the influence of personal resources from a coping perspective is limited (Costa & Neves, 2017; Searle & Lee, 2015). We argue that paying greater attention to personal resources, especially those related to coping with job demands, can expand theoretical knowledge about the role of personal resources within the JD-R model and open the way to more effective practical recommendations.

This study explores the buffering effect of two personal resources: self-awareness of one's own forgiveness and one's own revenge. We focused on these two cognitive coping strategies as prior research has consistently demonstrated that these are more likely to be used by individuals in undermining situations (Bradfield & Aquino, 1999; Brady et al., 2023; Faldetta, 2019), even though they function in different ways. Both forgiveness and revenge cognitions provide individuals with a sense of self-control over their work environment, making them better able to cope with job demands. Forgiveness allows individuals to

replace negative affective states (for example, anger) with a more positive affective and cognitive state (for example, empathy), and revenge cognitions give the victim a sense of relief from the negative affective states of harm, restoring victims' feelings of self-integrity and self-worth (Schumann & Walton, 2022).

This paper makes three main contributions. First, we contribute to the literature of social undermining in general, and coworker undermining specifically, by theorizing and testing a model that demonstrates how coworker undermining (as a job demand) affects employees' health. We therefore extend the list of potential job demands, suggesting that coworker undermining is itself a job demand since dealing with persistent and repeated coworker mistreatment provokes affective and physical resource depletion and, subsequently, impaired health (e.g. somatic complaints). Second, we extend previous studies focused solely on job resources, by demonstrating the role that personal resources play as a buffer to these demanding situations. Third, from a managerial perspective, our study draws attention to the importance of personal resources. As these can be developed in social situations (Hobfoll et al., 2018), our study offers novel insights for organizational programs and interventions aiming at minimizing the negative effects of these undermining situations that are often "invisible" to managers. This paper proceeds as follows: we review theory and empirical evidence on the relationships between coworker undermining, negative affect, and somatic complaints. We then discuss the role of forgiveness and revenge as personal resources.

Coworker Undermining and Somatic Complaints

The JD-R model (Bakker et al., 2023; Demerouti et al., 2001) posits that employee physical and psychological well-being is affected by several job characteristics that can be grouped into two main categories: job demands and job resources. Job demands include job-related factors (e.g., work overload, job insecurity, interpersonal conflicts; Schaufeli & Taris, 2014) that initiate a health-impairing process in that they require additional effort from employees and incur physical and psychological costs. On the other hand, job resources entail job-related aspects that enable employees to buffer the effects of job demands (e.g.,

goal clarity, trust in management, high-quality connections at work; Schaufeli & Taris, 2014) by helping them to cope with those demands and their associated physiological and psychological costs, while also stimulating their learning and development (Bakker et al., 2023).

As mentioned, coworker undermining hinders employees' ability to establish and maintain the high-quality interpersonal relationships that ensure work-related success and a good reputation (Duffy et al., 2002). Therefore, we argue that coworker undermining is a job demand for three main reasons. First, this form of mistreatment is an interpersonal conflict (Schaufeli & Taris, 2014) that hinders the ability of the target persons to establish workplace connections that allow them to access valuable organizational resources (Duffy et al., 2002). Second, research has demonstrated that the targets of undermining perceive their relationship with their peers as psychologically unhealthy and threatening (Bruk-Lee & Spector, 2006; Van den Broeck et al., 2010). Third, past research has also consistently demonstrated that coworker undermining is a stress-inducing situation associated with several manifestations of distress, such as emotional exhaustion (Mostafa et al., 2023), anxiety (Mitchell et al., 2023), depression or psychosomatic complaints (Duffy et al., 2006). Taken together, coworker undermining is consistent with the theorizing from JD-R scholars about job demands (Schaufeli & Taris, 2014, p. 64), and particularly with those job demands that pose a threat to individuals' optimal functioning (Van den Broeck et al., 2010; p.738).

JD-R scholars emphasize that exposure to job demands that threaten employees' optimal functioning trigger a health impairment process by exerting an energy-draining effect on employees (Bakker et al., 2023; Schaufeli & Taris, 2014; Van den Broeck et al., 2010). This is supported by research demonstrating a positive association between job demands and poor health indicators such as emotional exhaustion, perceived ill-health, sick-day absence, and health complaints (e.g., Bakker et al., 2003; Hakanen et al., 2006; Hu et al., 2011; Mackey & Perrewé, 2019). The JD-R model also predicts that somatic complaints are a strong manifestation of the long-term effects of job demands exposure, especially when combined with poor job resources (Schaufeli & Taris, 2014; Bakker et al., 2005).

We posit that coworker undermining should be positively related to somatic complaints, because this form of mistreatment forces the target to exert extra cognitive and emotional effort to interpret and cope with the abuse that erodes their mental and physical resources (Davcheva et al., 2024; Demerouti et al., 2001; Lee et al., 2016). Recent theoretical developments in the literature regarding victims' reactions to workplace incivility (see Cortina et al., 2022) also support this argument, by suggesting that workplace incivility (such as coworker undermining) triggers a physiological stress response in the bodies of targets, revolving around activation of the Sympathetic Nervous System (e.g., increased heart rate and blood flow to muscle) and the hypothalamic-pituitary-adrenal axis (e.g., increased levels of cortisol) (Cortina et al., 2022; p. 741). This physiological response of the body manifests in somatic complaints such as sleep problems, backaches, headaches, and stomach issues (Mackey & Perrewé, 2019; Ng et al., 2022; Schaufeli & Taris, 2014) and may also have lingering effects over time (Hershcovis et al., 2017). Supporting this, meta-analytic results highlight that experiencing incivility is considered a stressful workplace event linked to occupational well-being factors, such as somatic symptomatology (e.g., an indicator of physical strain; Chris et al., 2022). Given the theoretical and empirical arguments presented above, we hypothesize the following:

Hypothesis 1: Coworker undermining (time 1) is positively associated with somatic complaints (time 3).

The mediating role of Negative Affect

To further elaborate on the pathways linking coworker undermining to somatic complaints, we draw on the role of negative affect. We focus on the role of affect due to the nature of this type of job demand, i.e., interpersonal conflict. Scholars agree that because employee interactions are frequent, long-standing, and highly interrelated due to the need to achieve common organizational goals (Baumeister & Leary, 1995), they are also particularly emotionally meaningful (Cortina et al., 2022, p. 743). This suggests that although coworker undermining represents a relatively low-intensity form of mistreatment compared to others (e.g., bullying, harassment; Dhanani et al., 2021), it is a significant affective event (Bunk &

Magley, 2013; Yao et al., 2022), due precisely to the interactional and relational nature of the work relationship between the victim and the perpetrator (Cortina et al., 2022). Therefore, coworker undermining is a proximal cause of affective reactions (Bunk & Magley, 2013; Weiss & Cropanzano, 1996) and should elicit a strong emotional response (Bunk & Magley, 2013; Yao et al., 2022). Moreover, coworker undermining should be strongly related to the experience of negative affect (Bunk & Magley, 2013; Duffy et al., 2002; Yao et al., 2022) because it is a type of job demand precisely perceived as a threat for employees (Bunk & Magley, 2013; Van den Broeck et al., 2010) i.e., an obstacle to personal growth, learning, and goal achievement (Bunk & Magley, 2013). As such, we propose that:

Hypothesis 2: Coworker undermining (time 1) is positively associated with negative affect in the following week (time 2).

Furthermore, when individuals experience negative affect, encompassing emotions such as anger, frustration, sadness, and anxiety, it can degrade their physical well-being and lead to somatic complaints (Schat et al., 2005). In fact, Bakker et al. (2015) developed the multilevel model of employee well-being based on JD-R and argued that negative affect is an important outcome and mechanism between job conditions and outcomes. Past research supports this notion by associating negative affect with the depletion of physiological resources, increased release of cortisol (Hogh et al., 2012), and elevated cardiovascular activity (Schneider et al., 2001), all contributing to physical fatigue and reduced energy levels (Cohen & Herbert, 1996). Accordingly, and in line with previous research that proposes negative affect as a linking mechanism between different forms of workplace mistreatment and negative outcomes (Balducci et al., 2011; Bunk & Magley, 2013; Michel et al., 2016; Tremmel & Sonnentag, 2018), we suggest that coworker undermining is indirectly related to somatic complaints via negative affect. That is, coworker undermining is a job demand (Van den Broeck et al., 2010) that elicits negative affective responses (Bunk & Magley, 2013) that can contribute to the development of somatic complaints (Cortina et al., 2022) such as sleeping problems, back pain, headaches, and stomach problems. As such, we hypothesize that:

Hypothesis 3: Negative affect (time 2) mediates the positive relationship between coworker undermining (time 1) and somatic complaints (time 3).

The Moderating Role of Forgiveness and Revenge

The JD-R model further argues that despite job demands, individuals' health is also affected by job resources (Bakker et al., 2023). Previous research has provided strong evidence of the moderating role of job resources (e.g., social support, autonomy) in assisting individuals to attain work goals while dealing with high job demands (Guglielmi et al., 2012). The JD-R buffering hypothesis proposes that the relationship between job demands and strain is weaker for those enjoying plentiful job resources (Bakker et al., 2003, 2023). The work of Xanthopoulou et al. (2007) further expanded this hypothesis by drawing attention to the role of personal resources. This type of resource is theoretically analogous to coping strategies and pertains to those features of the self (i.e., characteristics, skills, traits, or abilities) that boost the individual's ability to successfully control and act upon her/his environment (Hobfoll, 2018). Taking personal resources into consideration has expanded our understanding about individuals' reactions to job demands, notably when job resources are not directly available or are lacking (Hu et al., 2011; Searle & Lee, 2015), and also with regard to understanding different individuals' reactions to the same job demands (Bakker & Demerouti, 2014).

Previous studies have demonstrated that personal resources have positive effects on physical and emotional well-being (Pierce et al., 1989; Scheier & Carver, 1992) by weakening the relationship between unfavourable work characteristics and their associated negative outcomes (Mäkikangas & Kinnunen, 2003; Van Yperen & Snijders, 2000). We contend that the consideration of personal resources is particularly relevant to understanding employees' reactions to coworker undermining because these situations often go unnoticed by organizational leaders (Duffy et al., 2012), making it difficult to implement corrective measures or delaying them (Searle & Lee, 2015). Additionally, even if job resources are available, targets of coworker undermining may still have to continue working with the perpetrator (Thompson & Simkins, 2017). Therefore, the targets' personal resources not only

assist them in immediately dealing with intrapersonal reactions to undermining situations, but also help them to cope with the ongoing, and anticipated, threats and fears associated with daily interactions with the perpetrator (Brady et al., 2023; Faldetta, 2019).

In the context of coworker undermining, employees may use different individual coping strategies to address the situation. Scholars suggest that the targets of mistreatment commonly lean on antisocial (e.g., revenge and avoidance) and/or prosocial strategies, such as forgiveness (Brady et al., 2023; Tripp et al., 2007; Zdaniuk & Bobocel, 2015). We focus on two personal resources: forgiveness and revenge. Both forgiveness and revenge cognitions occur as a response to a triggering event (McCullough et al., 2008) such as being undermined. On the one hand, forgiveness is an “intra-individual prosocial change toward a transgressor” (McCullough et al., 2003, p. 540) and an internal act of letting go of anger, resentment, and desire to seek revenge (North, 1997). Thus, forgiveness constitutes a positive process by which individuals replace avoidant and vengeful thoughts and behaviours with benevolent thoughts and behaviour toward the offender (McCullough et al., 2001). This allows the targeted individual to grow and move on with their life, abandoning worries and rumination about the negative experience (Worthington, 1998).

Revenge, on the other hand, refers to the thoughts that the target entertains regarding retaliation against the perpetrator (Aquino et al., 2006; Bradfield & Aquino, 1999). It is an “attempt to redress an interpersonal offense by voluntarily committing an aggressive action against the perceived offender” (McCullough et al., 2001, p. 602). Thus, although revenge carries negative effects for interpersonal relationships, it can help individuals to perceive a restoration of justice and release stress (Donnerstein & Hatfield, 1982; McCullough et al., 2013).

Applying the JD-R theory, we argue that these personal resources can alter the perceptions and cognitions evoked by coworker undermining, thereby buffering the health-impairment process initiated by it. While we expect that both forgiveness and revenge should buffer this process, they should do so for different reasons, as we discuss next.

Forgiveness Cognitions. Forgiveness is a positive and active way of coping with the environment by attempting to change an individual's attitudes, emotions, and behaviors toward the offender (Aquino et al., 2003). Previous research links forgiveness to positive outcomes when used to manage negative workplace events (such as coworker undermining). It can, for example, reduce the victim's stress and improve their general health (i.e., physical, and mental health) (Costa & Neves, 2017; Cox et al., 2012). Forgiveness may be especially effective in coworker undermining situations since the victim and the offender must often continue to work together (Faldetta, 2019). In these situations, using forgiveness could be a valuable strategy to repair the relationship and restore trust (Toussaint et al., 2018). It can also be used as a conflict management strategy (Brady et al., 2023) and be instrumental in maintaining long-term relationships among coworkers, which are the foundation of high-quality performance and productivity (Faldetta, 2019). Forgiveness involves letting go of negative feelings, resentment, or the desire to seek revenge on the person who has harmed or wronged the target (Tripp et al., 2007). It is a psychological process that involves accepting the wrongdoing, experiencing empathy, and moving toward reconciliation or resolution (Fehr & Gelfand, 2012). By forgiving the offender, individuals may be able to mitigate the emotional distress caused by the undermining behaviour. In so doing, these individuals may experience weaker negative affect because they are less likely to dwell on the negative experience or seek revenge (Aquino et al., 2006). It is important to note that forgiveness does not necessarily imply condoning or forgetting the coworker's undermining behaviour. Rather, forgiveness is a personal choice aimed at releasing oneself from the emotional burden and negative effects of past experiences (Palanski, 2012).

Revenge Cognitions. On the other hand, revenge cognitions are thoughts about what actions to take in response to perceived harm or wrongdoing inflicted by another party and is motivated by the desire to restore justice (Bradfield & Aquino, 1999). That is, employees who perceive that their coworkers are undermining them usually experience resentment and negative feelings (Liu & Kwan, 2010), goal obstruction, violation of norms and rule, and status and power derogation (Tripp & Bies, 2010), which can lead them to

contemplate how justice may be restored. Revenge cognitions focus on restoring the self, relieving individuals from emotional exhaustion (Fridja, 1994) and emotional pain (Goldberg, 2004). Revenge-related cognitions are thoughts that linger in the realm of fantasy and can play a constructive and adaptive psychological role (McCullough, 2008). To elaborate, these cognitions can work as self-preserving mechanisms, i.e., as an inclination to prevent further harm (Goldberg, 2004; McCullough et al., 2013), and also as stabilizing thoughts, which involves efforts to attain emotional and cognitive coherence (Goldberg, 2004) and demonstrating that the victim is not powerless (Bies & Tripp, 1998). It is important to note that revenge cognitions are a frequent response to wrongdoing (Bies & Tripp, 1996; Potegal, 2010).

In past research, victims described vivid and often violent dream scenes in which they would make the perpetrator suffer. For instance, in the study of Tripp and Bies (2010), in one participant's revenge fantasy "she kidnapped her boss, tied him up with duct tape, poured honey all over him, and released bees" (p.423). This participant said that she would never do anything like this but thinking about it helped to relieve the stress associated with the event. This supports the idea that revenge cognitions may contribute to the process of healing from emotional pain and anger (e.g., Fridja, 1994; Goldberg, 2004). Moreover, revenge cognitions may help to restore victim's psychological well-being by reducing "any post-revenge anxiety or stress that would follow from making poor or unsafe choices about how to enact their revenge" (Jones, 2014, p. 63).

Based on the abovementioned arguments, we suggest that both forgiveness and revenge will weaken the relationship between coworker undermining and somatic complaints through negative affect. Specifically, when forgiveness and revenge are high, high levels of coworker undermining will not generate high negative affect or somatic complaints. Conversely, when forgiveness and revenge are low, perceptions of coworker undermining should lead to higher negative affect and thus increase somatic complaints. We thus hypothesize that:

Hypothesis 4a: The relationship between coworker undermining (Time 1) and somatic complaints (Time 3) via negative affect (Time 2) is moderated by forgiveness cognitions, such that the relationship is weaker when forgiveness cognitions are high.

Hypothesis 4b: The relationship between coworker undermining (Time 1) and somatic complaints (Time 3) via negative affect (Time 2) is moderated by revenge cognitions, such that the relationship is weaker when revenge cognitions are high.

INSERT FIGURE 1 HERE

Method

Participants and Procedure

Undergraduate students of Management were recruited as participants in exchange for course credit. Each student then invited five more individuals to participate in the study. Informed consent was obtained upon explanation of the study objective and participation requirements. Participants were also informed that participation was voluntary and confidential, and that they could withdraw at any time. After agreeing, each participant received a unique code created by the research team allowing access to each survey. Three surveys were sent to participants over one month. At time 1, 584 surveys were sent out. We received 356 usable responses (a 63.0% response rate). One week later these 356 participants received the link to survey 2, and we received 305 usable surveys (an 85.7% response rate). Survey 3 was sent two weeks later to the remaining 305 participants and there were 242 usable responses (a 79.3% response rate). We removed participants who failed the attention checks and all of those who did not complete the three surveys. The final sample was 229 employees, 52.2% females and 47.8% males. The average age was 36 (sd=12), ranging from 19 to 60 years. Regarding education, 4.4% had less than a high school qualification, 26% had completed high school, and 69.6% had a university degree. These participants were from different countries (81.7% from Portugal, 5% from Switzerland, 3% from the USA and Canada, 2.5% from Uruguay, 2.5% from France, 1.5% from the UK,

1.5% from Germany, 1% from Bulgaria, and .5% from Lithuania)¹. Concerning industry and job titles: 18.69% had management jobs (such as human resources manager and project manager); 14.65% worked in administration and accounting jobs (such as administrative, bank administration, accountant); 13.64% performed technical jobs (such as tax assistant, technical assistant, IT technician); 8.08% worked in education (such as teacher); 7.07% worked in commercial and consultancy jobs (such as salesperson and marketing consultant); 7.07% worked in the healthcare sector (i.e., physicians and nurses); 5.05% in engineering (i.e., chemical engineers); 2.53% worked in research; and the remaining 23.23% had other occupations.

Measures

Coworker undermining (Time 1) – We measured individual coworker undermining behaviour using Duffy et al.'s (2002) 13-item measure. The items had response options that ranged from 1 ("never") to 5 ("almost always"). A sample item is "My coworkers gave me the silent treatment".

Forgiveness cognitions (Time 2) – We measured forgiveness cognitions using a 4-item scale from Aquino et al. (2006). A sample item is: "I would let go of the negative feelings I had against them".

Revenge cognitions (Time 2) – We measured revenge cognitions with Wade's (1989) 4-item scale. A sample item is: "I wished something bad would happen to them".

Negative affect (Time 2) – Negative affect was assessed with 10 items from Watson et al.'s (1988) Negative Affect Schedule (PANAS). Participants were instructed to indicate how they felt in that week on a five-point intensity scale ranging from 1 (not at all) to 5 (extremely). Sample negative affect adjective descriptors include "afraid," "nervous," "irritable," "hostile," "upset," and "distressed".

¹ We tested the differences between groups (Portuguese vs. non-Portuguese employees) in the core variables of our model. The results were non-significant (coworker undermining: $F = .52$, $p = .471$; negative affect: $F = .62$, $p = .43$; forgiveness: $F = 3.52$, $p = .06$; revenge: $F = 2.31$, $p = .13$; somatic complaints: $F = .11$, $p = .74$).

Somatic complaints (Time 3) – We asked how often the respondents felt psychosomatic symptoms during that week with six items adapted from Nomura et al. (2007) Sample items include: sleeping problems; headaches; backaches; fatigue/lack of energy.

Control variables. Following recommendations by Becker et al. (2016) about controlling for variables that are both theoretically and empirically related to the study's outcomes, we controlled for gender as it seems to be related to somatic complaints such as sleep problems (Baranowski & Jabkowski, 2023), and is also related to somatic complaints in our sample.

Results

Table 1 presents descriptive statistics, correlations, and Cronbach's alphas for our measures.

INSERT TABLE 1 HERE

Measurement model

To assess the quality of our measurement model, we performed confirmatory factorial analysis and compared the fit of nested models using MPLUS 7. The hypothesized five-factor model presents a good fit when compared with the nested models ($\chi^2_{(484)} = 942.76$; CFI = .924; TLI = .918; RMSEA = .048; SRMR = .055). The nested models included a four-factor model comprising the independent variable, combined both moderators, the mediator, and the outcome; a three-factor model combining the independent variable and the mediator, the moderators, and the outcome; a two-factor model merging the independent variable, mediator, and moderators, and the outcome; and a single-factor model aggregating all items in a single latent variable. The fit indices are displayed in Table 2.

We also examined a model that includes a common latent factor to assess the presence of common method variance by loading all items on this factor (Podsakoff et al., 2012). As expected, the fit shows a slight improvement ($\chi^2_{(577)} = 838.65$; CFI = .940; TLI = .930; RMSEA = .044; SRMR = .050), but CMV accounted for 16.9% percent of the total variance, which is below the 25% threshold (Williams et al., 1989).

INSERT TABLE 2 HERE

Hypotheses Testing

We tested our hypotheses using simple regression analyses and the PROCESS macro (Hayes, 2017) models 4 (mediation) and 9 (moderated mediation with two moderators), which provide statistical inferences based on bootstrapping methods (with 5,000 bootstrap samples) that are more robust than the alternatives (Hayes, 2013). Moreover, this focuses on the indirect effect and other statistics in the conditional process analysis and provides results as a whole (Hayes et al., 2017).

Results from simple regression showed that coworker undermining is positively related to somatic complaints ($B = .32$, $p > .01$, while controlling for gender), thus supporting hypothesis 1. In accordance with our prediction, we found that coworker undermining obtained a significant relationship with negative affect in the following week ($B = .33$, $p < .01$, while controlling for gender), which supports hypothesis 2. To test the mediation model we first examined the relationship between negative affect and somatic complaints, which was positive and significant ($B = .46$, $p < .01$). The indirect effect of coworker undermining on somatic complaints via negative affect was significant and positive (effect = .13, $se = .04$, 95%CI = .047, .218), which validates hypothesis 3.

Before testing the moderated mediation model, we examined the moderating role of forgiveness and revenge on the relationship between coworker undermining and negative affect. The results indicate a significant effect for forgiveness ($B = -.25$, $p < .01$), but not for revenge ($B = .07$, $p > .05$). We plotted the significant interaction (Figure 2), which shows a significant slope for low forgiveness ($B = .63$, $p < .01$), but not for high forgiveness ($B = .03$, $p > .05$).

 INSERT FIGURE 2 HERE

Results from PROCESS model 9 showed that the index of moderated mediation is significant for forgiveness (index = $-.12$, 95% CI = $-.239$, $-.023$), but not for revenge (index = $.01$, $se = .05$, 95% CI = $-.084$, $.101$), which supports our hypothesis 4a but not 4b. The

conditional indirect effect of coworker undermining on somatic complaints via negative affect is significant for low levels of forgiveness (effect=.28, se=.09, 95% CI= .109, .478) but not for high levels of forgiveness (effect=.01, se=.06, 95% CI= -.111, .133).

Discussion

Our study contributes to a growing body of research exploring aggressive behaviours at the workplace, particularly in the mostly overlooked area concerning potential buffers of the social undermining process. We were interested in examining the moderating role of personal resources (i.e., forgiveness and revenge cognitions) on the relationship between coworker undermining and negative outcomes for employees' emotional well-being (such as negative affect) which, in turn, impact physical health (somatic complaints). Specifically, we found that coworker undermining in one week is related to negative affect in the following week, which then impacts an individual's somatic complaints. We also found that forgiveness (but not revenge) minimizes the impact of this health impairment process. In other words, individuals who forgave their colleagues did not report high levels of negative affect. Moreover, we found that negative affect mediated the relationship between the coworker undermining X forgiveness interaction and somatic complaints, such that coworker undermining was related to somatic complaints through an increase in negative affect, only when forgiveness was low.

These results are aligned with the JD-R model, which proposes that personal resources would buffer the impact of job demands on the health-impairment process (Bakker et al., 2023). Thus, our study shows that personal resources (i.e., forgiveness) are especially important in the highly demanding conditions caused by coworker undermining. Individuals can effectively minimize the negative effects of coworker undermining by enhancing forgiveness since it “is a way for individuals to repair damaged workplace relationships and overcome debilitating thoughts and emotions resulting from interpersonal injury” (Aquino et al. 2003, p. 210). Surprisingly, our results also show that there is a weak but positive association between forgiveness and somatic complaints. This effect may be explained by the fact that forgiveness requires an adjustment or suppression of negative affect (Zhang et

al., 2023), which can deplete the individual's energy and contribute to somatic complaints. Another possible explanation may be related to the fact that forgiveness works fully only when it is discretionary. In other words, when an employee forgives because (s)he feels that there is no option, (s)he may experience poorer health (Cox et al., 2012). This may be the case of our participants.

Concerning revenge cognitions, we did not find a similar pattern, suggesting that it may operate in a different way. In our study revenge is not associated with low levels of forgiveness or high levels of negative affect and somatic complaints. Some plausible explanations may be discussed. First, previous research has suggested that revenge cognitions are a consequence of blame attribution and rumination (Bradfield & Aquino, 1999). It may be that our participants were still attributing blame and were not yet focused on revenge cognitions. Second, the perpetrator may be considered socially attractive, which will diminish revenge cognitions and increase the likelihood of forgiveness (Bradfield & Aquino, 1999; Miller & Vidmar, 1981). Third, if the undermining occurred in an overall positive and close relationship, the victim may value the relationship and forgive the transgressor(s) rather than think about revenge (Exline et al., 2004). A final explanation is related to the fact that the potential escalation may prevent individuals from even considering revenge as an option (Schumann & Ross, 2010).

Theoretical Implications

This research makes valuable contributions to the mistreatment literature. First, it shows that coworker relationships have the power to damage one's health. In line with past research (e.g., Ng & Sorensen, 2008), the present study emphasizes that in the work domain social relations are critical to workers' well-being. Even though both supervisors and coworkers are the major sources of support impacting workers' outcomes, research on workplace mistreatment has focused on the leader as the mistreatment source that provokes more detrimental effects on the victims (because leaders are seen as influential authority figures). However, given that "coworkers possess social power to influence the quality of everyday social relationships" (Han et al., 2022, p. 503), our research contributes to the

study of coworker undermining by addressing this as a key source of social undermining that has been overlooked in the literature.

Second, our study also advances the mistreatment literature by demonstrating the powerful role of forgiveness in coping with coworker mistreatment. Forgiveness is a transformative process that enhances victim psychological, emotional, and relational well-being and it is a constructive response after being harmed by others (Schumann & Walton, 2022). Being able to forgive is the first step to restoration and conciliation between the parties, which is necessary to preserve the future of the relationship (Aquino et al., 2003). Forgiveness is not only a coping strategy but also an instrument to deal with mistreatment and maintain long-lasting and high-quality relationships (Aquino et al., 2003). Furthermore, research shows that restorative actions, such as forgiveness, enhance constructive communication, reduce aggression, and foster feelings of closeness (Fehr & Gelfand, 2012; Fincham, 2000). In fact, forgiveness has a direct, causal effect on commitment between victims and offenders in both long-term, deeply entrenched relationships and newly formed ones (Terzino & Cross, 2009).

This study also contributes to the JD-R model literature by examining a particular demand-resource combination. We propose an additional job demand (i.e., coworker undermining) to the job demands list originally put forward (Demerouti et al., 2001). We suggest that coworker undermining is itself a job demand since prolonged exposure to coworker undermining increasingly erodes subordinates' personal energy and exceeds subordinates' adaptive capability, engendering feelings of exhaustion (Halbesleben & Buckley, 2004). Additionally, building on the buffering hypothesis of JD-R (Bakker et al., 2023), which proposes that personal resources moderate the impact of job demands on employee well-being, we found that forgiveness helps employees to cope with mistreatment at the workplace because it allows them to let go of negative feelings and increases their ability to successfully control and impact their environment, which in turn enables employees to reshape and redefine their experience of coworker mistreatment. Thus, being able to

forgive reduces employees' negative affect toward the transgressor and might contribute to repairing the relationship (e.g., Zheng & van Dijke, 2020).

This research provides theoretical and empirical support on the relationship between workplace mistreatment and JD-R by expanding the content domain of coworker undermining research by examining personal resources (i.e., forgiveness and revenge) as moderators of the relationship between job demands (i.e., coworker undermining) and both emotional and physical well-being (i.e., negative affect and somatic complaints). Our study provides additional support for the buffering hypothesis of the JD-R model (Bakker et al., 2023) by showing that enhanced forgiveness alleviates the negative influence of coworker undermining on negative affect and somatic complaints since forgiveness occurs as "people release negative and eventually increase positive emotions toward a transgressor" (Brady et al., 2022, p. 263).

Practical Implications

Our study brings important insights for organizations and managers who wish to prevent and minimize employee health issues related to mistreatment. Organizations need to invest in interventions that could reduce coworker undermining. For example, promoting a culture of workplace civility can enhance harmonious work environments. This may be achieved through the implementation of programs focused on cultivating respect at work by, for example, establishing a framework based on strong ethical codes and professional conduct, and executing systematic monitoring of the social work environment. Organizations can further encourage respect among employees by introducing norms to cultivate a positive environment (Porath & Pearson, 2013). Also, strengthening regulations about abusive behaviours at the workplace could help protect workers from aggressive behaviors. These regulations could be included in the health and safety legislation and procedures (Schindeler & Ransley, 2015) with clear guidelines for victims on how to report incidents and clear consequences for perpetrators. However, top-down policies may not be enough, and it would be useful to facilitate the reporting process and provide support in a timely manner to minimize and prevent these types of events. (Alfandari et al., 2022).

COWORKER UNDERMINING AND HEALTH

Beyond these suggestions, organizations can also provide training to managers and employees about coworker relationships, specifically on how to spot problems, create awareness, and develop skills to prevent them. It is important to reinforce the idea that forgiveness plays a central role in conflict management (Brady et al., 2023), by reconciling the parties involved in a damaged social relationship (Caldwell & Dixon, 2010).

Additional courses of action could be to provide training for employees to enforce a positive environment, and to make a case for the perpetrators to be punished. Additionally, forgiveness can be included as a coping strategy for stress at work. Employee training may be especially valuable because individuals usually work with colleagues by assignment rather than by choice (Thompson & Simkins, 2017). This means that even when an employee is undermined by a coworker, they still have to continue interacting with the aggressor (Aquino et al., 2003). In these situations, forgiveness is instrumental to maintaining the long-term relationships among coworkers that are the foundation of high-quality performance and productivity (Faldetta, 2019). Nevertheless, forgiveness cannot be forced as that would increase stress levels (Cox et al., 2012).

It is also worth noting that even if the victim has no further contact with the aggressor, forgiveness is an important personal resource that assists the individual's emotion regulation process (Brady et al., 2023). As forgiveness so positively affects individual performance and can contribute to proficient conflict resolution, organizations may also benefit from recruiting and hiring employees who possess robust emotion regulation skills.

Limitations and Future Research

This study includes some limitations. First, despite using a time-lagged design, which strongly suggests the direction of the relationships, our findings could be further strengthened using an experimental design. Second, common method variance or bias may be present because we collected data from the same source. However, our study's time-lagged design discourages that threat and our common method variance analyses provided evidence that this is not the case. It has also been suggested that self-reported data is appropriate for gathering information about psychological states and perceptions (Chan,

2009), such as the variables in this study. Nonetheless, validation of our results using data from different sources is warranted in future studies. We note here that previous research has reported inconsistencies among different sources of measurement (i.e., individual, coworker, and managers), suggesting that triangulating information from different sources may be critical to fully understanding workplace aggression occurrences and results (Alfandari et al., 2022). Although following previous studies on measuring coworker undermining (Duffy et al., 2002) by using a frequency response scale (never to always), it would be insightful to collect data about coworker undermining several times to make sure that it is a repeated and consistent phenomenon.

Third, we collected data over a one-month period using one-to-two-week intervals between surveys. Future research could explore different time frames to verify whether coworker undermining worsens if the negative chain of events is constant (accumulated shocks), or whether employees adjust to it and accept it (habituation effect). This is important as previous research showed that in some cases certain types of undermining are considered normal and therefore accepted and tolerated by employees (e.g., Taris, 2022). To better understand fluctuations in the quality of coworkers' relationships it would also be useful to compare previous events and future expectations regarding the development of the relationships between coworkers.

In addition, our results suggest that coworker undermining is a rare phenomenon, and that the negative affect is also low. Coworker undermining is a low base rate phenomenon (similar to reported abusive supervision, Mackey et al., 2017; Fisher et al., 2021), but with strong effects on employee well-being and behaviour (Duffy et al., 2002). Moreover, respondents may be reluctant to report coworker undermining and, consequently, the levels of this sensitive variable may have been artificially suppressed. However, our data are aligned with previous research on social undermining, that is, our study reported a mean level of coworker undermining of 1.66, which is similar to those found in previous studies, (e.g., Duffy et al., 2012; Jing et al., 2022; Reh et al., 2018; Shukla et al., 2024; Tai et al., 2023). The same holds true for the negative affect: with an average value of 1.62, our study

is aligned with previous research (e.g., Caesens et al., 2016; Kafetsios & Zampetakis, 2008; Zhou et al., 2015). A careful inspection of our data also suggests that most employees experience little coworker undermining but use the full range of the scale, which means that there are some employees in our sample who experienced and reported high levels of coworker undermining. The effects may be considered small, but strong and significant when we confirm the positive relationship between coworker undermining, negative affect, and somatic complaints. Nevertheless, since low base rates present statistical challenges when studying the effects of intermediate and high levels of abuse, we suggest that future researchers undertake experimental studies (Fischer et al., 2021). These studies can ensure the observation of statistically significant levels of abusive behaviours (Fischer et al., 2021).

Finally, we examined only one mechanism, while others may provide further insights on how coworker undermining may harm one's health. For instance, rumination or resource depletion processes may also contribute to somatic complaints. Related to this, we used a subjective measure of employee health by asking how employees felt. Future studies are invited to triangulate subjective and objective measures, such as cortisol levels, diagnosis of illness or heart rate (Alfandari et al., 2022). Finally, other coping mechanisms may be in place when coworker undermining occurs. For instance, coping strategies such as avoidance can allow employees to reduce disagreeableness in their work life (Tripp et al., 2007).

Conclusion

This study employs a time-lagged design to show that coworker undermining can harm one's health. By applying JD-R, we advance our understanding of the process through which coworker undermining impacts workers' health, and about two personal resources (i.e., forgiveness and revenge cognitions) that can be effective in avoiding health issues. We hope to ignite interest in this topic because it can provide organizations with insights into how to prevent coworker undermining or how to minimize its negative impact.

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COWORKER UNDERMINING AND HEALTH

Table 1. Descriptive statistics and zero-order correlations ^a

	Mean	Sd	1	2	3	4	5	6
1 Coworker undermining (T1)	1.66	.55	(.89)					
2 Negative affect (T2)	1.62	.63	.23	(.89)				
3 Forgiveness Cognitions (T2)	3.03	1.07	.04	-.05	(.93)			
4 Revenge Cognitions (T2)	1.65	.79	.07	.03	-.03	(.90)		
5 Somatic complaints (T3)	1.93	.74	.22	.36	.17	-.01	(.82)	
6 Gender	--	--	.04	.01	.06	-.09	.30	--

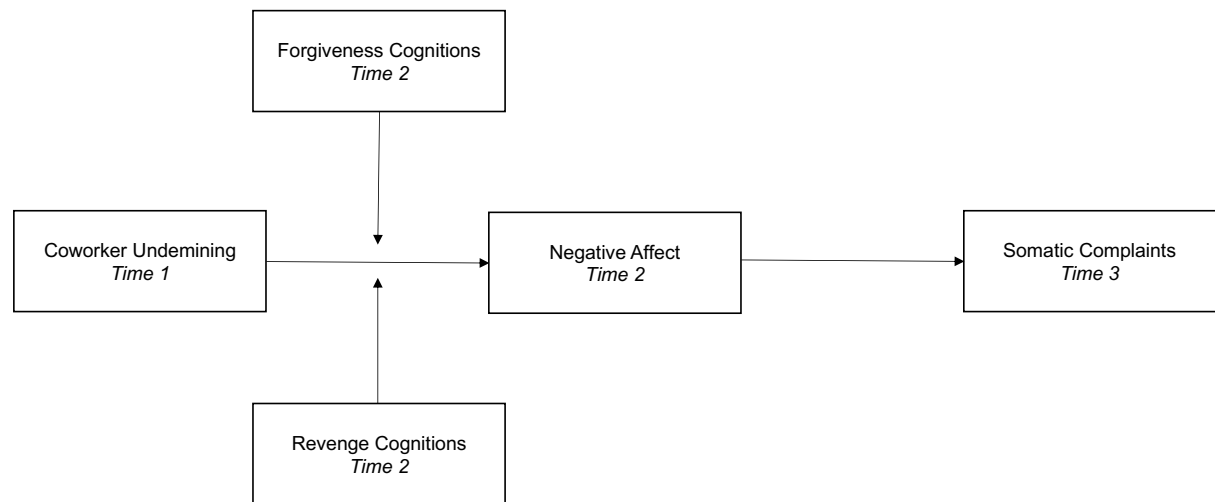
Note: correlations above .14 are significant at $p < .05$, correlations above .18 are significant at $p < .01$

Table 2. Comparison of the proposed model against alternative models

Model	χ^2	df	CFI	TLI	SRMR	RMSEA (CI)	$\Delta\chi^2$
5-factor model	942.76	614	.924	.918	.055	.048 (.042, .054)	
4-factor model	1550.43	618	.785	.769	.085	.081 (.076, .096)	607.67
3-factor model	2370.55	621	.597	.568	.111	.111 (.106, .116)	1427.79
2-factor model	2902.18	623	.475	.439	.146	.126 (.122, .131)	1959.42
1-factor model	3253.04	624	.394	.354	.152	.136 (.131, .140)	2310.28

COWORKER UNDERMINING AND HEALTH

Figure 1. Conceptual Model



COWORKER UNDERMINING AND HEALTH

Figure 2. Interaction effect

