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RESEARCH ARTICLE

Mental health of entrepreneurs and daily recovery experiences

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Abstract We analyze the relationships between daily recovery experiences after work (detachment, relaxation, mastery and control) and mental health (well-being and burnout) based on four surveys among French entrepreneurs (small business owners). *First*, comparing our results with those of previous studies on employees' recovery experiences, we find that French entrepreneurs have fewer recovery experiences for all four dimensions. *Second*, we find that experiences of detachment after work have the lowest scores among daily recovery experiences for French entrepreneurs. *Third*, using many controls, both linear regressions and SEM analysis show that the quality of overall daily recovery experiences increases well-being and reduces burnout. *Fourth*, we show that the detachment component is not correlated with well-being, and the mastery component is not correlated with burnout. Relaxation and control are most strongly associated with well-being, whereas control has the strongest association with burnout. Many implications (including clinical) are discussed.

Plain English Summary Daily recovery experiences (DREs) after work are crucial for the mental health of small business owners. This has been shown time and again for employees but given that small business owners enjoy more autonomy but may suffer from heavy workloads and blurred boundaries with work, it is not straightforward that DRE work out similarly across small business owners and employees. The detachment dimension of DRE seems not to contribute to mental health for small business owners. The existentialist attitude of small business owners can make detachment especially challenging, as their work is not just a job but a vital component of their identity.

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1 Introduction

Improving entrepreneurs' health is not only their personal but also a societal concern given the responsibility they have for their personnel and the role their business may play in chains, networks, and ecosystems. In line with recent calls to better understand and promote entrepreneurial well-being as a multidimensional construct (Wiklund et al., 2019), this study focuses on recovery experiences as a key determinant of mental health among small business owners. Engaging in systematic recovery experiences is a well-documented strategy for employees to replenish physical and mental resources depleted by work demands (Rivkin et al., 2024; Sonnentag & Fritz, 2007). Recovery experiences refer to "psychological states people are in during non-work time, that is, how they live through and experience their non-work time" (Sonnentag et al., 2022, p. 35).

To the best of our knowledge, the empirical link between systematic recovery experiences and the mental health of entrepreneurs (small business owners) has not been studied, with the exception of Bennett et al. (2023), Battisti et al. (2024), and Obschonka et al. (2023). However, these studies present some limitations. Bennett et al. (2023) focused on early-stage entrepreneurs, which may not represent established small business owners who face different challenges in maintaining recovery practices over time. Battisti et al. (2024) primarily examined resilience, leaving the direct impact of daily recovery experiences on mental health underexplored. Obschonka et al. (2023), while addressing psychological detachment, did not investigate the broader range of recovery dimensions such as relaxation and mastery. In contrast, our study offers a more comprehensive analysis by examining four key dimensions of recovery (detachment, relaxation, mastery, and control) and their distinct effects on both well-being and (using the WHO-5) burnout (using the BMS-10). For the remainder of the article, we will use the term "well-being" to refer to perceived well-being and "burnout" to refer to the perception of burnout. We utilize four independent datasets, which allows for a broad generalization of our findings across different groups of small business owners, ensuring robust and reliable conclusions. We use the terms "entrepreneur" and "small business owner" interchangeably throughout this article. In the present study, we use the well-known approach of the quality of daily recovery experiences (Sonnentag & Fritz, 2007).

We use data from four surveys among French small business owners and linear regressions as well as SEM analysis to study the link between overall daily recovery experiences (DREs) and its four dimensions (detachment, relaxation, mastery, and control) on the one hand and two dimensions of mental health (well-being and burnout) on the other. For the remainder of the article, we will use the terms "detachment" and "psychological detachment" interchangeably. Our setup uses the DRE approach of Sonnentag (2001) which is based on two theories: *First*, the job-stress theory and, in particular, the effort-recovery model (Meijman & Mulder, 1998), which posits that disengaging from work (physically and mentally) is necessary to start a recovery process; *second*, the resource theory, and particularly the conservation of resources model (Hobfoll, 1989), which focuses on the motivation that drives humans to both maintain their current resources and pursue new resources.

The present journal aims to make a call for the importance of replication studies in the area of small business and entrepreneurship following Anderson et al. (2019), Van Witteloostuijn et al. (2021), and Crawford et al. (2022). Without these studies, robustness of results is difficult to demonstrate (Block et al., 2023; Crawford et al., 2022; Dau et al., 2022), and false positives may proliferate and lead to misguided practices and policies. Moreover, novel insights are often created based upon attempts to understand why different empirical contexts, theoretical perspectives, or methods do not lead to results which are expected given earlier ones. Surprisingly, these replication studies still seem to be undervalued (Block & Kuckertz, 2018). However, some replication efforts are emerging in entrepreneurship research. For example, Wismans et al. (2020) replicated findings on the link between ADHD

symptoms and entrepreneurial orientation, while Leung et al. (2021) conducted a study on the relationship between narcissism and entrepreneurship, using six datasets. The present paper responds to this call and provided an example of internal replication by using four (slightly different) datasets and two methods. Moreover, our study can also be conceived as an external replication of the many studies relating recovery experiences to the mental health perception of employees.

Our findings reveal that small business owners experience less satisfying overall DRE compared to employees, with detachment emerging as the least effective dimension of recovery. Controlling for demographic and business factors, both linear regressions and SEM analysis show that while overall DRE enhances well-being and reduces burnout, detachment does not significantly correlate with well-being, nor does mastery with burnout. Control stands out as the most beneficial recovery dimension for both well-being and burnout reduction, highlighting the need for tailored recovery strategies in the entrepreneurial context. Given small business owners' unique involvement in their work, detachment appears less effective in fostering well-being, and mastery may lack impact on burnout due to the ongoing learning demands of their roles. Our study underscores the clinical relevance of emphasizing control in recovery interventions. Structured yet flexible schedules, training programs on recovery strategies, and support networks advocating planned recovery times can maximize recovery quality for small business owners, helping them maintain autonomy while enhancing psychological well-being and preventing burnout. This aligns with the concept of control, one of the four daily recovery experiences, which refers to the autonomy that small business owners have in deciding what to do, how to do it, and with whom during non-work hours (Sonnentag & Fritz, 2007).

2 Brief review of the literature

The present paper aims to contribute to the literature on small business owners' health and that on recovery. We concisely address both issues below.

2.1 Small business owners and mental health

Recent studies have shown that small business ownership can be salutogenic as well as pathogenic (Stephan, 2018; Stephan et al., 2023; Torrès & Thurik, 2019), that measuring the health of small business owners can suffer from selection effects (Rietveld et al., 2015) and that the health of small business owners is linked with personality traits, demographic characteristics, type of business, personal motivations and values, firm and financial resources, and working conditions (Stephan, 2018). To the best of our knowledge, recovery experiences are not mentioned.

There are two approaches to recovery. The *first* approach refers to the notion of activity, which initiates the recovery process; different types of activities exist, and not all of them allow recovery. Indeed, activities with few daily obligations (e.g., physical activity, watching television, seeing friends) are a source of well-being and allow recovery (Sonnentag et al., 2022), whereas activities with frequent daily obligations (e.g., cleaning, taking care of children) do not allow for recovery (Sonnentag, 2001; Steed et al., 2021). The *second* approach refers to the psychological experience underlying the activity, perceived and lived beyond work time or during breaks at work (Sonnentag et al., 2022). According to Sonnentag and Fritz (2007), four experience dimensions (detachment, relaxation, mastery, and control) are critical to recovery beyond work time. It is not only the activity that the individual performs that allows recovery but also the way it is experienced (Sonnentag & Fritz, 2007; Sonnentag et al., 2022).

In many dimensions of mental health, small business owners show better results than employees do, with the exception of burnout. Empirical work reports higher burnout levels among business owners than among employees (Jamal, 2007; Lin et al., 2020). Small business owners are subject to work overload (Thurik et al., 2023), constant pressure (Lechat & Torrès, 2016a), emotional demands (Lechat & Torrès, 2016b; Tahar et al., 2023), lower sleep quality (Guiliani & Torrès, 2018; Gunia, 2018; Kollmann et al., 2019) and high stress (Dahl et al., 2010; Wach et al., 2021; Williamson et al., 2021), which can lead to a state of burnout (Fernet et al., 2016; Torrès & Kinowski-Moysan, 2019) or even depression and exit (Hessels et al., 2018). However, recent studies have started to challenge this notion, suggesting that entrepreneurs

may not systematically experience more burnout than employees. For instance, research has highlighted that the relationship between entrepreneurship and burnout may depend on several factors, including personality traits and coping strategies (Hessels et al., 2017; Obschonka et al., 2023). These studies suggest that while entrepreneurs face high levels of stress, their experience of burnout may be more complex and contingent on individual and contextual variables.

Burnout is a "state of physical, emotional, and mental exhaustion caused by a long-term involvement in situations that are emotionally demanding" (Pines & Aronson, 1988: p. 9). Since burnout was first documented in the 1970s among social and health care workers (Freudenberger, 1974; Maslach, 1976), it has gradually been recognized as a ubiquitous phenomenon (Maslach & Leiter, 2016). However, the burnout of small business owners has only recently attracted scholarly interest (De Mol et al., 2018; Fernet et al., 2016; Hatak et al., 2015; Jamal, 2007; Lechat & Torrès, 2016b; Omrane et al., 2018; Shepherd et al., 2010; Soenen et al., 2019; Tahar et al., 2023; Torrès et al., 2022a; Wei et al., 2015).

2.2 Recovery

Recovery was initially studied in the fields of physical illness, physical disability, and substance abuse and later in mental health (Ralph, 2000). The goal was to improve physical and mental symptoms to a degree sufficient for them to no longer interfere with daily functioning (Davidson et al., 2005; Moos & Schaefer, 1984). Sonnentag (2001) expanded on research concerning employee downtime, exploring how evening recovery activities not only contribute to stress reduction but also enhance overall well-being. Moreover, this novel approach investigated the experiences of recovery following these activities, providing a perspective on how individuals recalibrate and restore their energy. This perspective serves as an alternative to traditional well-being models that focus primarily on work characteristics, such as the job demands–resources model (Demerouti et al., 2001) or the challenge-hindrance framework (Cavanaugh et al., 2000). Recovery refers to "unwinding and restoration processes during which a person's strain level that has increased as a reaction to a stressor or any other demand returns to its pre-stressor level" (Sonnentag et al., 2017, p. 366). The recovery process plays a "crucial intervening role in the relationship between stressful work characteristics on the one hand, and health, well-being and performance capability on the other hand" (Sonnentag & Geurts, 2009, p. 2). Unlike sleep, which is largely governed by automatic biological processes (Scott et al., 2021), the dimensions of detachment, relaxation, mastery, and control offer entrepreneurs the ability to actively engage in their recovery. This approach allows to explore strategies that entrepreneurs can consciously adjust to enhance well-being and reduce burnout. Moreover, while the link between sleep and mental health is well-established in the literature (Guiliani & Torrès, 2018; Gunia, 2018), our study provides a fresh perspective by emphasizing non-work activities that entrepreneurs have more direct control over.

The initial theoretical framework for examining recovery experiences is the effort-recovery model (ERM) (Meijman & Mulder, 1998), derived from the load-capacity model in physiology, which incorporates psychological effort and resource restoration. The ERM proposes that individuals utilize psychological resources such as energy in their work-related activities, which are essential for task completion and fostering both individual and collective performance, albeit at the cost of resource depletion. Recovery can take place once these activities cease, which may reduce stress levels (Sonnentag & Fritz, 2015), diminish emotional exhaustion (Donahue et al., 2012), and alleviate emotional rumination (Sonnentag & Bayer, 2005). Similarly, research on managers has demonstrated that recovery opportunities significantly affect well-being by mitigating work-home interference and stress, leading to better overall health outcomes (Taris et al., 2006). Additionally, the conservation of resource (COR) model proposed by Hobfoll (1989) complements this understanding by emphasizing the importance of preserving and accumulating personal resources. This is especially pertinent for small business owners, who face high demands and unpredictable work environments and require effective resource management to maintain health and business success. Both the ERM and COR models are supported by empirical evidence primarily involving employed populations (Bennett et al., 2016, 2023; Bosch et al., 2018; Feldt et al., 2013; Sonnentag & Fritz, 2007). However, employees tend to benefit from more structured work environments and clearer boundaries between work and non-work life, while small business owners often struggle with blurred

boundaries and elevated demands. These contextual differences justify the relevance of studying DRE specifically among entrepreneurs. Like employees, small business owners mobilize resources at work on a daily basis. Thus, by extension, we expect daily recovery to be positively related to small business owners' well-being. We advance the following hypotheses:

H1. Daily recovery experiences are positively related to small business owners' well-being.
H2. Daily recovery experiences are negatively related to small business owners' burnout.

The quality of recovery from daily activities after work depends on the emotions and state of mind they generate. Sonnentag and Fritz (2007) distinguish four sources of recovery: *Detachment* is mentally disconnecting from work, ceasing to think about work or ruminate. *Relaxation* consists of relaxing (muscularly and/or emotionally). *Mastery* refers to changing horizons, learning new things, or doing different activities from those experienced at work. *Control* is having a sense of control over one's time and schedule (even if only for a short period of time each day).

Bennett et al. (2018) suggested that daily recovery experiences (DRE) impact fatigue and vigor through two processes. The *first* process involves reducing or halting the psychological load from work tasks, which is achieved primarily through psychological detachment and relaxation. This cessation helps stop prolonged negative effects, such as fatigue, allowing states to return to normal levels. The *second* process focuses on the creation of additional psychological resources, which typically occur through mastery and control experiences. Given these dual pathways, we cannot expect the four subdimensions of recovery to be related to well-being and burnout among small business owners in similar ways. We have no firm a priori ideas about the relative effects of the four sources of daily recovery activities on our two measures of mental health. We leave our expectations open for ex post interpretation.

3 Data and measurement

In this section, we start with a presentation of our total survey, followed by a description of the dependent variables, DRE, and control variables. Our total survey consists of four mildly different surveys. Their differences may extend the scope of our findings, provided that, of course, they show similar links between recovery experiences, well-being, and burnout. Supplementary material 1 contains the details of the four surveys: CMA30, AG2R La Mondiale, Amarok, AIPALS.

3.1 Our total survey

We conducted our study via online questionnaires sent out in the period from April 2021 through January 2022. Only responses from complete questionnaires were retained. In addition, the responses of individuals who systematically replied similarly to a large number of questions were eliminated. In total, we retained 1043 responses.

To minimize potential sample selection bias, we retained only fully completed questionnaires and excluded responses that followed uniform patterns across a large number of items. While we did not apply formal correction methods (e.g., Heckman model), this pre-processing step ensured that only reliable data were analyzed. We acknowledge that selection bias cannot be entirely ruled out and address this limitation in the Section 5.

This study was approved by the IRB at Montpellier Business School, Montpellier. Participants recruited for the survey received study information, a description of potential risks and benefits, and a statement that participation was voluntary and could be stopped at any time. To preserve survey participant anonymity, written consent was not obtained; instead, consent was implied by clicking the link to proceed with the survey.

3.2 Measures

Table 1 summarizes some descriptive statistics from our total survey for our seven main variables. Cronbach's alpha is largely sufficient for all multi-item variables. We see that among the four dimensions of DRE that between detachment and relaxation has the highest and that between detachment and mastery has the lowest correlation. Correlations of DRE, well-being, and burnout for the four surveys are available in our Supplementary material 2 (Tables B1 through B4).

Table 1 Means, Cronbach alphas, and correlations of the total survey

Variables	Mean	Cronbach's α	(1)	(2)	(3)	(4)	(5)	(6)
(1) Overall DRE	2.87	0.92						
(2) Detachment	2.28	0.88						
(3) Relaxation	2.80	0.91		0.60**				
(4) Mastery	2.93	0.90		0.27**	0.43**			
(5) Control	3.26	0.91		0.43**	0.56**	0.48**		
(6) Well-being	46.9	0.91	0.52**	0.32**	0.46**	0.37**	0.46**	
(7) Burnout	3.67	0.92	−0.56**	−0.39**	−0.46**	−0.35**	−0.51**	−0.66**

$n = 1043$

*$p < 0.05$; **$p < 0.01$

Given that our data collection relied on self-reported measures, we conducted Harman's one-factor test to assess the presence of common method bias (Podsakoff et al., 2003). The analysis revealed that the first factor explained 37.8% of the total variance, which is well below the recommended threshold of 50%. This result indicates that common method bias is not a significant concern.

3.2.1 Dependent variables

Well-being is a subjective measure of some positive dimensions of mental health. It was assessed via a measurement instrument (the 5-item World Health Organization Index, WHO-5), which is derived from the WHO-28 developed for the WHO European Regional Office (Johansen, 1989). The WHO-5 was first presented at a WHO meeting in Stockholm (Johansen, 1998) and provides a score based on responses to five standardized questions. The items followed a headline stating, "Over the past month…" A sample item is "I felt good and in a good mood."

The response modalities and the values assigned to them are as follows: never = 0; from time to time = 1; less than half the time = 2; half the time = 3; most of the time = 4; all the time = 5. The well-being score is calculated by first summing the values obtained for the five questions (i.e., a number from 0 to 25) and then multiplying this sum by 4 to obtain a score of 0–100. The mean of the total survey is 46.9 while the Cronbach alpha is 0.91.

Burnout is a state of fatigue or inability to function normally in the workplace when demands exceed an individual's ability to meet them. The risk of burnout has been assessed by a measurement instrument (Burn-out Measure Short version, BMS) developed by A. Pines (Malach-Pines, 2005). The 10-item version (BMS-10) of the instrument translated into French by Lourel et al. (2007) was administered. This instrument produces a score based on the answers to 10 standardized questions. The items followed a headline stating, "When you think about your work, currently, how often…" A sample item is "Do you feel tired?".

The response modalities and the values assigned to them are as follows: never = 1; almost never = 2; rarely = 3; sometimes = 4; often = 5; very often = 6; always = 7. The burnout score is obtained by averaging the answers to the 10 questions; it takes a value between 1 and 7. A higher score indicates a greater presence of symptoms associated with burnout. The mean of the total survey is 3.67 while the Cronbach alpha is 0.92.

3.2.2 Daily recovery experiences

Daily recovery experiences were assessed via an instrument developed by Sonnentag and Fritz (2007) and validated for the French language by Le Moal et al. (2024). This instrument distinguishes between four dimensions (detachment, relaxation, mastery, and control), each of which is measured via four items (questions). The items follow a headline stating, "Please indicate your level of agreement with doing or not doing each of the following after your workday: …." A sample item for Detachment is "I forget about work." A sample item for Relaxation is "I decompress and relax." A sample item for Mastery is "I learn new things." A sample item for Control is "I feel like I can decide what to do for myself."

The response scores assigned are as follows: Strongly Disagree = 1; Somewhat Disagree = 2; Neither Agree nor Disagree = 3; Somewhat Agree = 4; Strongly Agree = 5. The scores per dimension are obtained by averaging the responses to the four questions, which range from 1 to 5. The overall DRE score is obtained by averaging the four scores per dimension. A high score indicates a better quality of recovery in daily life. The mean of the total survey is 2.87 while the Cronbach alpha is 0.92.

3.2.3 Control variables

With respect to gender, age, and life partner, 49% are women, the average age is 49.4 years, and 61.7% live with a life partner. With respect to education level, 30.9% of the respondents had a master's degree or higher. The average executive experience is 10.9 years. In terms of business size, 81.9% of our sample consists of very small businesses (with 10 or fewer employees). On the other hand, businesses without employees account for 33.8% of our sample. Concerning capital ownership, 59.2% of the respondents own 100% of their company's capital. In terms of the type of entrepreneur (ToE), 61.2% of the respondents are business founders, while 11.2% represent a family takeover. See Table A.1 of Supplementary material 1 for more details of the above numbers for the separate four surveys.

We refer to Section 4.1 for a justification about why we use these controls and what their expected link would be with our mental health measures.

3.3 Daily recovery experiences for employees and small business owners

Table 2 provides an overview of the DRE scores for employees in some recent studies. The overall score for employees ranges from 3.26 to 3.74. With respect to the score for small business owners as calculated via the samples of the present study, the overall score ranges from 2.63 to 3.15. We may conclude that overall DRE is lower for small business owners than for employees. Based on the four dimensions, we arrive at the following conclusions: The detachment of small business owners (ranging between 2.14 and 2.47) is lower than that of employees (ranging between 2.54 and 3.39). The relaxation of small business owners (ranging between 2.60 and 3.24) is lower than that of employees (ranging between 3.29 and 3.93). The mastery of small business owners (ranging between 2.76 and 3.31) is lower than that of employees (ranging between 3.04 and 3.63), except for one study that overlaps with two studies of

Table 2 Average recovery experiences' scores for small business owners versus employees

Study	Respondents	N	Detachment	Relaxation	Mastery	Control	Overall DRE
Sonnentag and Fritz (2007)	Employees	271	3.00	3.29	3.04	3.70	3.26
Donahue et al. (2012)	Employees	118	3.10	3.62	3.63	3.47	3.46
Feldt et al. (2013)	Employees	298	3.16	3.61	3.44	3.70	3.48
Kinnunen and Feldt (2013) T1	Employees	274	2.96	3.64	3.43	3.66	3.42
Kinnunen and Feldt (2013) T2	Employees	178	3.00	3.64	3.32	3.68	3.41
Bennett et al. (2016) T1	Employees	575	3.39	3.93	3.56	4.07	3.74
Bennett et al. (2016) T2	Employees	469	2.88	3.42	3.54	3.63	3.37
de Bloom et al. (2018)	Employees	831	2.97	3.78	3.35	3.90	3.50
Gnacinski et al. (2020)	Employees	144	2.54	3.45	3.51	3.72	3.31
Unweighted mean	Employees	3158	3.00	3.60	3.42	3.73	3.44
This study (2021)—CMA30	SB owners	360	2.28	2.65	2.78	3.25	2.74
This study (2021)—Amarok	SB owners	251	2.47	3.24	3.31	3.58	3.15
This study (2022)—AG2R La Mondiale	SB owners	345	2.14	2.60	2.76	3.00	2.63
This study (2022)—AIPALS	SB owners	87	2.26	2.98	3.18	3.45	2.97
Unweighted mean	SB owners	1043	2.29	2.87	3.01	3.32	2.87

small business owners (3.04 reported by Sonnentag & Fritz, 2007, with 3.31 and 3.18 for the Amarok and AIPALS samples, respectively). The control of small business owners (ranging between 3.00 and 3.58) is lower than that of employees (ranging between 3.47 and 4.07), except for one study that overlaps with one study of small business owners (3.47 reported by Donahue et al., 2012, with 3.58 for the Amarok sample) Means, standard deviations, and the scale are provided on Table A.4 in the Supplementary material 1. Overall, we note that small business owners are, on average, worse off than employees in terms of all dimensions of DRE and that this effect is most prominent for detachment and mastery. A possible explanation for this difference is that entrepreneurs often work more hours than employees (Block et al., 2022; Wellschmied & Yurdagul, 2021), reducing the time available for engaging in recovery activities (Wach et al., 2021). This workload and the limited flexibility in managing their schedule may explain why entrepreneurs score lower in recovery.

4 The link between daily recovery experiences and well-being and burnout

In this section, we present the results of linear regressions and SEM.

4.1 Linear regression results of the link between DRE and mental health

We used linear regressions as a first-level statistical approach to identify general associations and verify the consistency of our findings across subgroups. In addition, SEM was employed to capture latent constructs and test the structural relationships between recovery dimensions and mental health outcomes, following recommendations for modeling psychological constructs (Sarstedt et al., 2014).

Linear regression analyses were conducted to examine the links between well-being, burnout, and overall DRE while controlling for gender, age, life partner, education level, executive experience, business size, capital ownership, and type of entrepreneur. These controls were selected because extensive research shows that they shape mental-health outcomes. Gender is linked to distinct burnout profiles, with women typically reporting higher emotional exhaustion and men higher depersonalization (Purvanova & Muros, 2010). Age matters because older workers generally regulate emotions better and therefore experience lower burnout (Mendes & Miguel, 2024). Having a life partner provides social support that buffers stress and reduces burnout (O'Sullivan et al., 2025). Education level is positively but modestly associated with adult subjective well-being, accounting for about 1–3% of its variance (Witter et al., 1984). Executive experience is critical because managers show slightly higher burnout prevalence than non-managers, reflecting the cumulative strain of decision authority and role overload (Membrive-Jiménez et al., 2020). Business size differentiates entrepreneurs' job demands; employer-entrepreneurs face more burnout-inducing pressures than solo entrepreneurs (Obschonka et al., 2023). Capital ownership raises exposure to financial risk—especially the threat of bankruptcy—which heightens burnout risk (Torrès et al., 2022a, 2022b). Finally, the type of entrepreneur matters: the overlap between family and firm roles gives family-business CEOs and successors a unique vulnerability to leadership-role burnout (Llanos-Contreras & Ibáñez, 2022).

See Table 3 for regression results of the four databases with well-being and burnout as dependent variables; the R^2 for well-being is 0.29, and that for burnout is 0.33. For each of the four separate databases (Supplementary material 3, Tables C.1 through C.4), the R^2 values for well-being range from 0.25 to 0.50, and those for burnout range from 0.21 to 0.57. Most importantly, all regression analyses consistently show that overall DRE has a positive effect on well-being ($p < 0.001$) and a negative effect on burnout ($p < 0.001$).

We also ran linear regressions in which we replaced overall DRE with the four separate DRE dimensions. For all the databases combined, our results indicated a positive correlation between the four DRE dimensions and well-being. See Table 4. Relaxation and control were the dimensions with the highest coefficients. The detachment dimension, however, did not show a significant link. When the four databases were separated (results are available from the authors), the results were consistent with this pattern, with one exception: the AIPALS database showed detachment as having the highest link, with relaxation and control dimensions being nonsignificant. This exception may be due to the relatively small sample size.

Table 3 Regression of the four databases with well-being and burnout as dependent variables ($n = 993$)

Variable	Well-being		Burnout	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	7.38	5.62	6.51**	0.30
Overall DRE	15.17**	0.82	−0.86**	0.04
Gender	−4.75**	1.38	0.36**	0.07
Age (years)	0.08	0.08	−0.01*	0.00
Life partner	−0.67	1.40	0.14	0.08
Education level	0.23	0.52	−0.10**	0.03
Executive experience	−0.01	0.09	0.00	0.00
Business size	0.57	1.84	0.15	0.10
Capital ownership	−0.04	0.02	0.00	0.00
ToE: family takeover	−5.90*	2.44	0.14	0.13
ToE: business founders	−3.68*	1.58	0.19*	0.08
R^2/AjustedR^2/F	0.29/0.28/39.2		0.33/0.32/47.90	

Gender: male = 0, female = 1; life partner: yes = 0, no = 1; education level: none = 1 to PhD = 6; business size: less than 10 employees = 0, more than 10 employees = 1; family takeover: no = 0, yes = 1; business founders: no = 0, yes = 1

*$p < 0.05$; **$p < 0.001$

Table 4 Regression of the four databases and the four dimensions of DRE with well-being and burnout as dependent variables ($n = 993$)

Variable	Well-being		Burnout	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	8.07	4.83	6.50**	0.27
Detachment	0.53	0.82	−0.16**	0.04
Relaxation	5.48**	0.85	−0.21**	0.05
Mastery	2.97**	0.71	−0.05	0.04
Control	5.48**	0.78	−0.40**	0.04
Gender	−4.44**	1.38	0.37**	0.08
Age (years)	0.08	0.08	−0.01*	0.00
Life partner	−0.75	1.39	0.13	0.08
Education level	0.08	0.52	−0.11**	0.03
Executive experience	−0.00	0.09	0.00	0.00
Business size	0.61	1.88	0.15	0.10
Capital ownership	−0.04	0.02	0.00	0.00
ToE: family takeover	−6.25*	2.43	0.18	0.13
ToE: business founders	−4.16*	1.57	0.23*	0.08
R^2/AjustedR^2/F	0.30/0.29/32.20		0.35/0.34/37.20	

Gender: male = 0, female = 1; Life partner: yes = 0, no = 1; Education level: none = 1 to PhD = 6; Business size: less than 10 employees = 0, more than 10 employees = 1; family takeover: no = 0, yes = 1; business founders: no = 0, yes = 1

*$p < 0.05$; **$p < 0.001$

For burnout, the DRE dimensions showed a negative association, with the control dimension showing the largest coefficient. The mastery dimension did not have a significant effect. See Table 4. When the databases were separated, the results were consistent with this pattern.

We ran several more heterogeneity tests in addition to those based on the four separate databases. The three most important factors are gender, the 2021 lockdown, and business size. The effects of overall DRE on burnout and well-being do not seem to depend upon gender, nor do those of the controls with four exceptions: for males, having a life partner has a positive effect on burnout (i.e., burnout increases), whereas this effect is absent for females. For males, education level has a negative effect on burnout (i.e., burnout decreases), whereas this effect is absent for females. For females, the type of entrepreneur has a positive effect on well-being (i.e., well-being increases), whereas this effect is absent for males. Finally, the effect of overall DRE on well-being is greater for males than for females. This seems to be due mainly to the relaxation and mastery dimensions.

As the CMA30 dataset was collected during the third national lockdown in France (April 2021), we tested whether the relationship between daily recovery experiences and mental health could have been affected by the pandemic context. We created a binary variable identifying CMA30 (1) versus all other survey waves (0) and ran linear regressions including interaction terms between the CMA30 indicator and each of the four DRE dimensions. Results showed that while the level of burnout was slightly higher and of well-being slightly lower among CMA30 respondents, none of the interaction terms were statistically significant (all $p > 0.25$ for well-being; all $p > 0.27$ for burnout). These results suggest that the strength of the association between recovery experiences and mental health was not moderated by the lockdown context, supporting the robustness of our findings.

The effects of overall DRE on burnout and well-being do not seem to depend upon business size, nor do those of the controls, with one exception: having a life partner for owners of small firms has a positive effect on burnout (i.e., burnout increases) and no effect on well-being, whereas having a life partner for owners of small firms has no effect upon burnout and a positive effect on well-being.

4.2 Structural equation modeling and the link between DRE and mental health

We used covariance-based structural equation modelling (CB-SEM) to analyze our data. CB-SEM is particularly suitable for research questions that specify a set of systemic relationships among multiple latent variables that can be tested empirically (Sarstedt et al., 2014). We employed the maximum likelihood with robust standard error (MLR) estimator to accommodate potential nonnormality and missing data in our dataset. The MLR estimator provides robust standard errors and a Satorra–Bentler scaled chi-square test statistic, which ensures that model estimations remain valid when complex, real-world data are used (Brown, 2015). We used a partial-latent model approach, as our analyses include 11 variables, 2 of which are latent ones (Well-Being and Burnout, measured using 5 and 10 items, respectively), 3 of which are 1-item variables (gender, age, life partner, education level, executive experience, business size, capital ownership. and type of entrepreneur), and 1 of which is a second-order latent variable (overall DRE) composed of 4 first-order factors (Detachment, Relaxation, Mastery, and Control, measured using 20 items in total). The maximum number of model parameters was 93. With 1043 observations, we are within the parameters and observations ratio suggested by Kline (2016).

4.2.1 Preliminary analyses

Prior to testing the structural model, we tested the measurement model without control variables, including the two latent variables and the second-order factor. This initial step allowed us to establish the validity and reliability of the constructs independently, ensuring that the latent variables and the second-order factor adequately represent the underlying dimensions before introducing additional complexity through control variables. The three-factor measurement model provided a satisfactory fit to the data (χ^2 [df = 427, $N = 1043$] = 2637.182, $p < 0.001$, robust CFI = 0.913, robust RMSEA = 0.069 [0.066, 0.072], SRMR = 0.067).

We also tested two alternative models. In the first alternative model, we grouped well-being and burnout together into a single composite measure of mental health. This alternative two-factor model provided inadequate fit to the data and a higher chi-square (χ^2 [df = 429, $N = 993$] = 4313.586, $p < 0.001$, robust CFI = 0.844, robust RMSEA = 0.092 [0.090, 0.095], SRMR = 0.075). In the second alternative model, we grouped the four subdimensions of DRE into a single first-order factor and deleted the second-order factor. This alternative model provided inadequate fit to the data and a higher chi-square (χ^2 [df = 465, $N = 1043$] = 7531.387, $p < 0.001$, robust CFI = 0.713, robust RMSEA = 0.125[0.122, 0.128], SRMR = 0.087). In comparing these alternative models to our original measurement model, we did not find a significant advantage in using an alternative model. In addition, using a second-order latent construct to measure DRE is in line with the current conceptualization (Bakker et al., 2015; Le Moal et al., 2024; Sonnentag & Fritz, 2007); therefore, we decided to proceed with our original measurement model.

4.2.2 *Hypothesis testing*

The means, standard deviations, and bivariate correlations for all the variables are given in Tables 1 and 2. With the inclusion of the control variables, the structural model provides a satisfactory fit to the data: (χ^2 [df = 688, N = 993] = 3101.577, $p < 0.001$, robust CFI = 0.899, robust RMSEA = 0.059 [0.056, 0.061], SRMR = 0.063).

Hypothesis 1 predicts that DRE is positively related to small business owners' well-being. Our results (Fig. 1) show that DRE has a significant positive relationship with well-being ($\beta = 0.597$, $p < 0.001$), where β denotes the standardized regression coefficient. Thus, hypothesis 1 is supported.

Hypothesis 2 predicts that DRE is negatively related to small business owners' burnout. Our results (Fig. 1) show that DRE has a significant negative relationship with burnout ($\beta = -0.598$, $p < 0.001$). Thus, hypothesis 2 is supported.

4.2.3 *Post hoc analyses*

We conducted post hoc analyses to explore the extent to which the four components of DRE have similar effects on the well-being of small business owners. We ran a model without the second-order construct, adding instead a direct path from detachment, relaxation, mastery, and control to well-being and burnout. The model (Fig. 2) provides a satisfactory fit to the data (χ^2 [df = 680, N = 993] = 3037.439, $p < 0.001$, robust CFI = 0.902, robust RMSEA = 0.058 [0.056, 0.060], SRMR = 0.060).

The components of DRE show positive links with well-being and burnout, with two exceptions. We found that psychological detachment was not significantly related to well-being ($p > 0.05$), while mastery was not significantly related to burnout ($p > 0.05$). We find similar effect in our analysis using linear regressions (Table C.6 of the Supplementary material 3).

In terms of effect sizes, when controlling for age, gender, education, and type of entrepreneurship, we found that control has the strongest positive effect on well-being and the strongest negative effect on burnout.

4.3 Comparing the linear regression and SEM results

Comparing our findings from multiple regression analyses and SEM clearly reveals that for the model evaluating the relationships between overall DRE, well-being, and burnout, both methods effectively

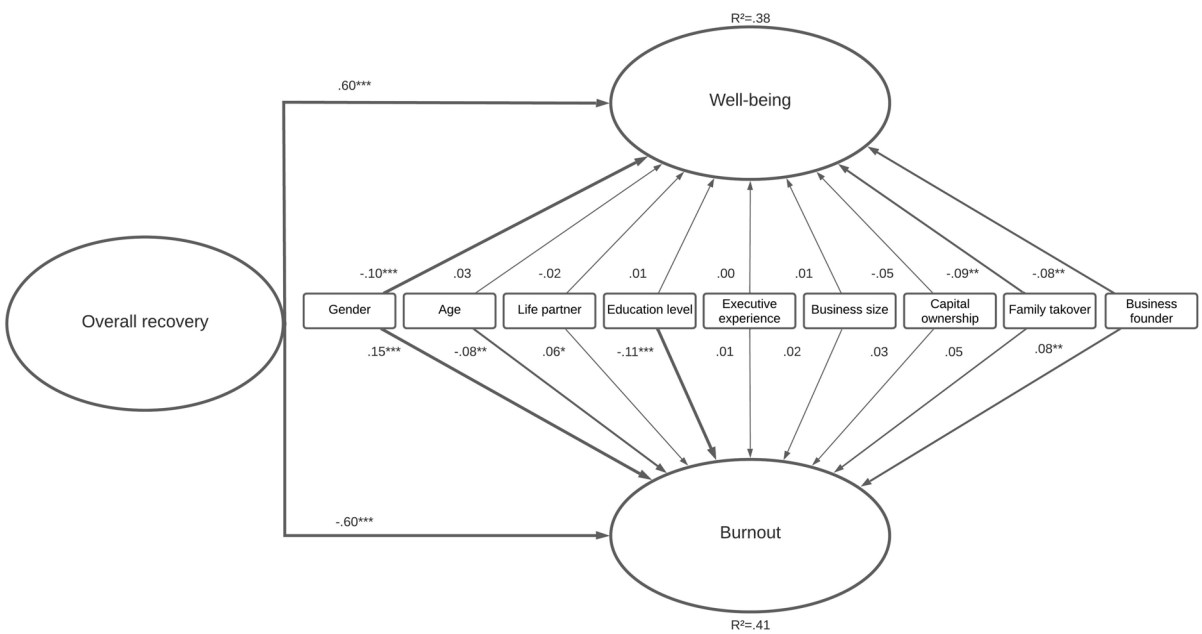

Fig. 1 Structural equation model (MLR method) to test the hypotheses. *$p < .05$; **$p < .01$; ***$p < .001$

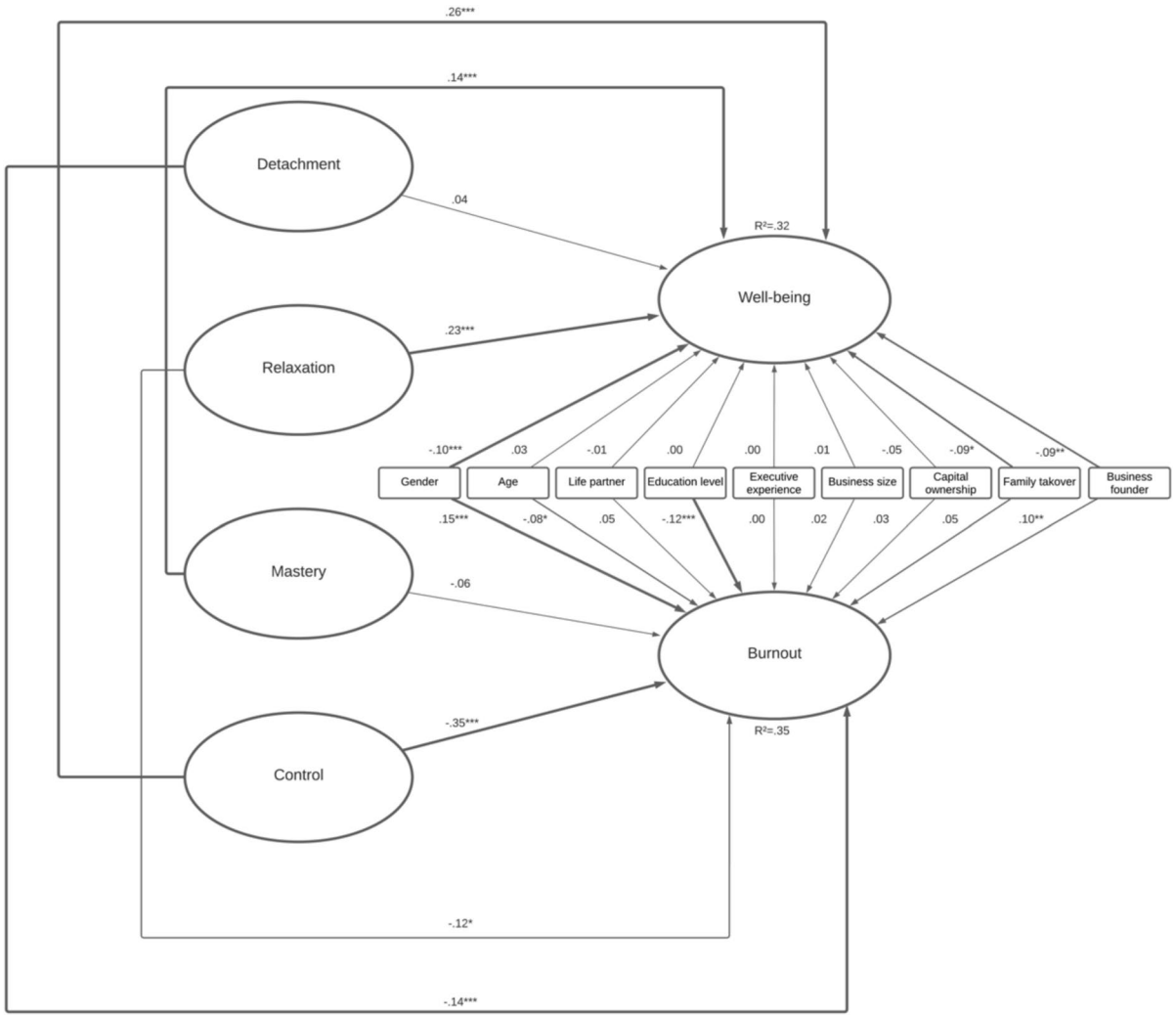

Fig. 2 Structural equation model (MLR method) to test the post hoc ideas. *$p < .05$; **$p < .01$; ***$p < .001$

support our hypotheses. With respect to the models that examine the links between the four DRE dimensions and well-being and burnout, our results consistently indicate that control is the recovery experience with the strongest positive association with well-being and the strongest negative association with burnout. Conversely, psychological detachment shows no significant relationship with well-being, and mastery is not significantly related to burnout. A key distinction between the regression analyses and SEM lies in the differing impacts of relaxation; in regression analyses, relaxation appears to be as influential as control, whereas in SEM, its effect is less pronounced than that of control.

5 Discussion

5.1 Differences in DRE between employees and entrepreneurs

In our study, we explored the effects of the overall DRE scores and its underlying four elements—psychological detachment, relaxation, mastery, and control—on the well-being and burnout of small business owners.

Comparing the levels of the four dimensions of DRE between employees and small business owners (Table 2) reveals that small business owners generally exhibit lower DRE levels than employees do. These

lower levels may be attributed to several factors. Small business owners often manage multiple aspects of their businesses, which results in greater autonomy and responsibility (Krieger et al., 2018). This involvement may impede their ability to detach psychologically from work, which is critical for recovery. Additionally, the boundaries between work and personal life are often blurred for small business owners (Bennett et al., 2017), with irregular and intrusive work schedules compromising their ability to relax and manage personal time, thus reducing recovery opportunities. The uncertainties and demands of their roles can lead to elevated stress levels for small business owners (Wach et al., 2021; Williamson et al., 2021). Furthermore, recovery is crucial for various aspects of well-being. It plays a significant role in improving sleep quality (Kollmann et al., 2019) and has a significant impact on creativity (Weinberger et al., 2018). Moreover, their personal investment and passion for their businesses make it challenging for small business owners to mentally and emotionally distance themselves from their work (Williamson et al., 2021), adversely affecting their ability to detach and relax. Unlike employees, who often benefit from organizational support structures, small business owners typically rely on limited resources (Stephan, 2018), which restricts their access to activities that promote mastery and control.

5.2 Effects of DRE dimensions on well-being and burnout

Our findings indicate positive relationships between all four recovery dimensions and well-being and negative relationships with burnout. See Table 4. This finding aligns with Nikolaev et al. (2020), who emphasized the importance of psychological functioning—particularly autonomy and competence—in explaining the well-being of entrepreneurs. This view is consistent with the eudaimonic perspective on entrepreneurial well-being proposed by Shir and Ryff (2022), which emphasizes meaning and self-realization. The positive relationships we established were consistent across multiple regression analyses and SEM. Control not only showed the highest average level but also presented the strongest correlations with both well-being enhancement and burnout reduction. However, not all relationships were statistically significant in both the regression analyses and the SEM. Specifically, psychological detachment did not have a significant positive effect on well-being, and mastery did not significantly reduce burnout. These results differ from what has been found for employees (Kinnunen & Mäkikangas, 2023; Siltaloppi et al., 2009, 2012).

In line with the SEM results, linear regressions revealed that among the four recovery dimensions, control consistently showed the strongest association with both increased well-being and reduced burnout, while relaxation also displayed a strong link to well-being. Interestingly, psychological detachment had no significant effect on well-being, and mastery did not reduce burnout, suggesting distinct underlying mechanisms. These patterns reinforce the central role of perceived control in entrepreneurial recovery and highlight potential priorities for intervention design.

Some gender differences were observed in our analyses. For instance, the positive association between overall recovery experiences and well-being appeared stronger for men, particularly through the relaxation and mastery dimensions. Additionally, certain control variables showed gender-specific effects (e.g., the presence of a life partner was associated with higher burnout in men but not in women). These results may reflect differences in social roles and recovery needs between male and female entrepreneurs. For example, prior research suggests that women may experience greater work–family conflict and emotional demands (Lechat & Torrès, 2016b), which could influence both their ability to recover and the effectiveness of specific recovery dimensions. This could be explained by different work–family interface experiences across genders, as highlighted by Jennings and McDougald (2007). While our study was not primarily designed to explore gender differences, these findings suggest that future research should further investigate gender-specific recovery processes in entrepreneurial settings.

5.3 Exploring specific DRE dimensions

Our findings warrant special attention given the distinct roles and challenges that come with entrepreneurship compared with salaried employment. Below, we discuss the specific dimensions of psychological detachment, mastery experiences, and control

experiences: why the link between psychological detachment and well-being may be weak, why the link between mastery experiences and burnout may be weak, and why control can be expected to have the greatest influence.

According to Etzion et al. (1998, p. 579), psychological detachment is defined as an "individual's sense of being away from the work situation." Sonnentag and Fritz (2007) broaden this notion by describing it as a psychological disengagement from work-related concerns, essentially severing all ties with work and not thinking about it. In the entrepreneurial context, the strong commitment of owners to their enterprises makes them particularly prone to experiencing burnout, particularly since entrepreneurs are said to possess an existentialist outlook, viewing their business undertakings as a personal mission that reflects their core values and life purpose (Torrès et al., 2022b). This existentialist stance can make detachment especially challenging, as their work is not just a job but a vital component of their identity. Elias (1956) highlighted the dialectical relationship between engagement and detachment, suggesting that these two states can coexist. The substantial workload of small business owners heightens the risk of burnout (Bué et al., 2008). Thus, detachment provides a necessary break for mental and physical recovery (Etzion et al., 1998; Sonnentag & Bayer, 2005). However, in regard to well-being, the relationship is less straightforward. Fritz and Sonnentag (2005, 2006) demonstrated that positive thoughts toward work during rest periods can enhance well-being. Given that many small business owners derive high satisfaction from their work, these moments can indeed be beneficial. Studies such as those by Benz and Frey (2008), Larsson and Thulin (2019), Millán et al. (2013), and Van der Zwan et al. (2018) confirm that small business owners are generally more satisfied with their work than employees are. Moreover, Wach et al. (2021) suggest that small business owners find it challenging to detach from their businesses cognitively and emotionally. This closeness may mean that even when these individuals do detach, the positive effects on their well-being are limited. Fritz et al. (2010) also highlighted that moderate levels of detachment may be more beneficial for work performance. Complete detachment might prove counterproductive for a small business owner. Additionally, small business ownership is often perceived as a vocation rather than merely a job (Clinton et al., 2017). The well-being of the small business owner is therefore closely tied to their commitment to their business. In this framework, complete detachment could reduce the risk of burnout without necessarily improving well-being. In conclusion, psychological detachment is essential for reducing burnout among small business owners. However, it does not guarantee an increase in well-being. Future research could provide valuable insights into the ambivalent effects observed, confirming or challenging the distinctions made here between small business owners and employees. However, the relationship between detachment and well-being is nuanced. While psychological detachment is crucial for mitigating burnout, it does not invariably enhance well-being, particularly for small business owners, who often find solace and satisfaction in their work. This complex interplay suggests that other recovery dimensions should also be considered.

According to Sonnentag and Fritz (2007), mastery experiences refer to the act of expanding one's skills beyond professional activities, developing new resources (e.g., diversity of knowledge, improved self-awareness) and promoting innovation. However, for small business owners, the efficacy of mastery experiences in mitigating burnout seems to be limited as a result of several specific factors. While small business owners are naturally inclined toward innovation, a characteristic supported by various studies (Koellinger, 2008; Li et al., 2018), this tendency also implies that leisure activities designed to foster innovation may not offer them the mental respite required to combat burnout. A further complicating effect is the multitude of challenges facing small business owners, such as financial constraints and intense competition (Anitha & Veena, 2022; Sinha, 2023). Given that their work life is replete with such hurdles, mastery experiences, which often entail facing new challenges, may not offer the mental respite needed to reduce burnout. Additionally, small business owners place high value on continuous learning and skill development in their professional spheres (Hessels et al., 2020; Van Praag et al., 2013). This propensity makes mastery experiences less effective for recovery, as they may not provide the "switch-off" mechanism essential for genuine recovery. Furthermore, small business owners typically work longer hours than salaried employees do, thereby reducing their options for activities outside of work (Block

et al., 2022; Wellschmied & Yurdagul, 2021). Given small business owners' heavy workload, engaging in time-consuming leisure activities may not be conducive to reducing burnout. Finally, according to Karasek (1979), decision latitude is a worker's ability to participate in decisions that concern them and to fully utilize their skills in their work environment. Given that small business owners have high decision latitude, they already develop numerous skills within the scope of their work (Niedhammer et al., 2007). Hence, off-the-job mastery experiences may not add much value in the effort to reduce burnout. In summary, although mastery experiences generally have a positive effect on well-being, their efficacy in reducing burnout among small business owners seems compromised. This limitation points toward a need for tailored approaches that consider the unique aspects and challenges of entrepreneurship. However, the effectiveness of mastery experiences in mitigating burnout is limited by the intrinsic challenges of entrepreneurship, such as financial pressures and continuous competition. These experiences, while enriching, may not provide the complete "switch-off" needed for genuine recovery.

Control refers to the autonomy that small business owners have in deciding what to do, how to do it, and with whom during nonworking hours (Sonnentag & Fritz, 2007). Small business owners typically enjoy considerable autonomy in their professional roles, which may extend to their preferences for DRE (Deci & Ryan, 2000; Wrzesniewski & Dutton, 2001). The ability to control recovery time could reinforce their inherent need for autonomy, thus directly enhancing their psychological well-being and indirectly mitigating burnout symptoms (Ryan & Deci, 2017). Additionally, the entrepreneurial role involves constant decision-making and flexibility. When small business owners apply similar control to their recovery activities, it likely creates a sense of continuity that eases the transition between work and rest, enhancing the effectiveness of recovery (Sonnentag & Fritz, 2007). Moreover, by actively choosing their downtime activities, small business owners can better detach themselves from work-related stressors, which is crucial in preventing burnout. This active disengagement allows for psychological resources to be replenished more effectively (Sonnentag, 2001). Importantly, our tests for multicollinearity, including variance inflation factor (VIF), confirmed that there were no significant concerns that could undermine these findings. Our results align with Battisti et al. (2024), who found that control is the only recovery experience that significantly enhances entrepreneurs' resilience. This resonates with the idea that health represents a form of human capital crucial for entrepreneurial success (Hatak & Zhou, 2021).

5.4 Implications for practice and clinical applications

Several intervention strategies have already been suggested to enhance DRE among small business owners. Williamson et al. (2021) proposed effective interventions that activate various DREs, including respite—taking breaks from work for tangible relief through activities such as spending time in nature, socializing, and listening to music—along with mental relief through mindfulness and positive reflections. Reappraisal involves changing perceptions via cognitive−behavioral therapy, stress optimization, positive thinking, and experimental disclosure. The regime includes adding structure through sleep hygiene, exercise routines, and structured breaks. These interventions are clear and appear well structured; however, given our findings and the focus on the experience of control, it is crucial to tailor interventions to meet the specific needs of each small business owner. Allowing individuals to choose what they enjoy most, how and with whom they engage in these activities, and when they undertake them is essential. Entrepreneurial training programs could incorporate modules on effective recovery strategies, emphasizing the importance of control over leisure time. Additionally, support networks for small business owners should advocate for structured recovery times, where individuals plan and control their activities to maximize recovery quality.

Expanding these approaches to include so-called *primary*, *secondary*, and *tertiary* interventions can further increase their effectiveness. Primary interventions focus on establishing practices and environments that prevent stress, such as promoting work−life balance and proactive stress management education. For instance, addressing workplace "telepressure"—the urge to respond immediately to work-related communications—can enhance recovery experiences like psychological detachment and control over leisure time, which can be critical for

maintaining work−life balance (Barber et al., 2019). Secondary interventions aim at the early detection and management of stress symptoms by regularly assessing stress levels and providing immediate coping strategies tailored to individual preferences and control needs. For example, secondary interventions could involve personalized stress management workshops that teach small business owners how to recognize their unique stress triggers and to effectively manage their responses, choosing specific stress-reduction techniques that suit their personal and professional lifestyles, and scheduling these practices at their convenience. Tertiary interventions involve strategies for managing the long-term effects of chronic stress or recovery from burnout, which might include professional counselling and support groups. By layering these interventions, entrepreneurial training and support networks can offer a comprehensive framework that not only addresses immediate recovery needs but also builds resilience against future stress and burnout.

Integrating these strategies ensures that small business owners not only recover from current stressors but also enhance their mental health and prepare them to handle future challenges more effectively. This holistic approach fosters a sustainable work environment where mental health is prioritized, reducing the likelihood of burnout and improving perceived well-being. Future research should also consider incorporating objective physiological measures of recovery, such as cortisol levels, as these provide a more robust understanding of recovery from work stress. For instance, Elfering et al. (2018) used cortisol measurements on rest days to assess recovery from work stress. Their findings indicate that physiological recovery on non-work days could predict well-being and stress levels, offering an additional perspective beyond self-reported measures. Incorporating such methods could complement current subjective recovery data, providing a more comprehensive understanding of recovery in small business owners.

5.5 Limitations and future research

The present study has several limitations. The study was conducted solely in France, and although it utilized four databases from slightly different entrepreneurial subpopulations, the findings may not be straightforwardly generalizable to other cultural or geographic contexts. Moreover, although we took steps to minimize sample selection bias by excluding incomplete and patterned responses, we cannot rule out the possibility that our sample overrepresents individuals more inclined to complete such surveys or those with specific recovery profiles. In addition, the research design was cross-sectional, which does not enable deeper insights into the temporal dynamics and causal relationships between DRE and its impacts on well-being and burnout. While we recognize the limitations of cross-sectional data in inferring causality, cross-sectional surveys are widely used to identify associations in emerging areas of research, such as the recovery experiences of entrepreneurs. Despite the lack of longitudinal data, cross-sectional methods allow to capture a broad range of relationships and provide a foundation for future longitudinal studies. Previous literature supports the appropriateness of this approach in understanding how recovery influences well-being and burnout in the entrepreneurial context (Wach et al., 2021). In other words, our interpretation takes the effect of DRE on well-being and burnout as a starting point and does not explore the reverse relationships—how varying levels of well-being and burnout might influence DRE. For example, entrepreneurs experiencing higher levels of burnout may work longer hours and consequently have less time and energy to engage in recovery activities. This is consistent with findings in employee studies, where burnout reduces the likelihood of engaging in recovery (Sonnentag & Fritz, 2015). Although we do not have longitudinal data to test these reverse relationships, evidence from related studies suggests that recovery is more likely to mitigate burnout than to be a consequence of it (Kühnel et al., 2012). Finally, the observed effects on well-being were smaller than those on burnout (as indicated by lower R-squared values), which may be attributed to the use of a general well-being scale rather than one specifically tailored to assess work-related well-being, whereas burnout was directly related to the work context. These limitations underscore the need for further research incorporating broader demographic samples, longitudinal designs, dynamic approaches, and more precise measurement tools tailored to the work environment.

Taken together, our study highlights that DREs, especially relaxation and control, are closely linked

to well-being among French small business owners, while control is strongly associated with burnout reduction. Future studies should examine whether the longitudinal links between job characteristics and recovery experiences observed by Kinnunen and Feldt (2013) in employees extend to entrepreneurs. Such research could clarify whether the absence of significant well-being outcomes holds also true for entrepreneurial populations or if unique entrepreneurial stressors create different recovery dynamics. These findings underscore the critical importance of tailored recovery strategies that address the unique needs of small business owners, which are distinct from those of traditional employees. Moving forward, we aim to expand the scope of this research internationally by including small business owner populations from Hungary, the Netherlands, and Japan. This cross-cultural expansion will allow comparisons of how DREs influence well-being and burnout across different cultural contexts and work environments. By incorporating these diverse settings, we can enhance the generalizability of our findings, explore cultural variations in recovery processes, and better understand the general applicability of intervention strategies aimed at improving small business owners' well-being and reducing burnout. These efforts are essential for developing targeted interventions that can be customized on the basis of cultural specifics and the unique challenges faced by small business owners worldwide.

6 Conclusion

This study examined how daily recovery experiences—detachment, relaxation, mastery, and control—relate to the mental health of small business owners in France. By relying on four surveys and combining linear regressions with SEM analysis, we addressed a gap in the literature concerning the recovery mechanisms available to entrepreneurs, a population facing high demands and unique structural constraints. Our findings show that overall recovery quality is positively linked to well-being and negatively associated with burnout. Among the recovery dimensions, control emerged as the most significant for both outcomes, while detachment was not linked to well-being and mastery had no significant effect on burnout. These patterns highlight the importance of tailoring recovery strategies to the specific context of entrepreneurship, where autonomy and blurred boundaries with work are key factors. The present study contributes to the literature by extending established recovery models—previously tested among employees—to the entrepreneurial domain, while also emphasizing the differentiated effects of each recovery dimension. Theoretical implications include the confirmation of the distinct mechanisms behind burnout and well-being, as well as the potential refinement of recovery models to better suit self-employed individuals. Our strategy was to start with the many studies performed in the area of employees and to redo it for small business owners (external replication) while also create room for internal replication, using four (slightly different) datasets and two methods. The external replication perspective led to a re-evaluation of the role of detachment while the internal replication shows the robustness of our results.

As mentioned earlier, our study has some limitations, including its cross-sectional nature and focus on a single country. Moreover, although we took steps to minimize sample selection bias by excluding incomplete and patterned responses, we cannot rule out the possibility that our sample overrepresents individuals more inclined to complete such surveys or those with specific recovery profiles. Future research would benefit from longitudinal and cross-cultural designs to further assess causality and generalizability. Integrating physiological measures of recovery, such as cortisol levels or sleep tracking, would also strengthen the validity of findings.

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Author contribution Le Moal: calculations, literature and writing; Thurik: coordination, design and writing; Torrès: idea, data and critical reading; Soenen: calculations, literature.

Data availability Data are publicly available at osf.io/q7h6u.

Declarations

Ethical approval IRB approval has been obtained for the current research.

Conflict of interest The authors declare no competing interests.

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