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Satisfaction with Work-Life Balance as a Mediator Between Recovery Experiences and Burnout in Agricultural Entrepreneurs

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ABSTRACT

Objectives: Agricultural entrepreneurs face significant occupational stressors, including long working hours, and blurred work-life boundaries. These factors contribute to an increased risk of burnout, yet little research has explored how recovery experiences – psychological detachment, relaxation, mastery, and control – impact their mental health. This study examines the role of recovery experiences in reducing burnout and assesses whether satisfaction with work-life balance mediates this relationship.

Methods: A cross-sectional study was conducted using survey data from 916 agricultural entrepreneurs in France. Participants completed validated measures assessing recovery experiences, satisfaction with work-life balance, and burnout. Structural equation modeling (SEM) was used to test direct and indirect associations between recovery dimensions and burnout, while accounting for control variables such as age, sex, relationship status, number of children, weekly working hours, and farm type.

Results: Findings indicate that recovery experiences play a crucial role in maintaining satisfaction with work-life balance and reducing burnout. Psychological detachment ($\beta = 0.190, p < .001$), relaxation ($\beta = 0.254, p < .001$), and control ($\beta = 0.317, p < .001$) were positively associated with satisfaction with work-life balance, supporting H1. Satisfaction with work-life balance was significantly related to lower burnout levels ($\beta = -0.399, p < .001$), supporting H2. Direct negative associations between relaxation ($\beta = -0.153, p = .001$) and control ($\beta = -0.132, p = .001$) with burnout were observed, supporting H3. Psychological detachment ($\beta = -0.076, p < .001$), relaxation ($\beta = -0.101, p < .001$), and control ($\beta = -0.126, p < .001$) had significant indirect effects on burnout through satisfaction with work-life balance, supporting H4. Mastery did not show significant associations with satisfaction with work-life balance or burnout.

Conclusion: This study highlights the critical role of recovery experiences in mitigating burnout among agricultural entrepreneurs. While relaxation and control directly reduce burnout, psychological detachment primarily influences burnout through improved satisfaction with work-life balance. These findings suggest that targeted interventions, such as promoting structured recovery practices and satisfaction with work-life balance strategies, could enhance mental health in this high-risk population. Future research should explore longitudinal designs and cross-cultural comparisons to further understand recovery experiences among self-employed workers in agriculture.

KEYWORDS

Agricultural entrepreneurs; burnout; mental health; recovery experiences; satisfaction with work-life balance

Introduction

Agricultural entrepreneurs (non-salaried farm owners who manage and operate their own farms) must not only perform farm labor but also manage the business side of farming, handling strategic, financial, and marketing decisions.^{1,2} This dual role leads to long work hours and blurred boundaries between work and personal life, as the farm is often also the home. With no clear “off-duty” time, it is difficult for farm owners to mentally disconnect from work.^{3,4} These conditions can greatly increase stress and the risk of burnout.⁵ Indeed, farmers face numerous

stressors – from unpredictable weather and market fluctuations to heavy regulatory and financial pressures – which can erode their mental health.⁶ Burnout and psychological distress are common, and suicide rates in farming communities are significantly above the average.⁷ This situation underscores the need to identify protective factors that can help agricultural entrepreneurs maintain their mental health.

Entrepreneurship is a multifaceted concept encompassing opportunity identification, idea development, and action-oriented behaviors that enable individuals to mobilize resources and create

value.^{8,9} Following integrative approaches, we adopt a behavioral definition of entrepreneurship as a process involving the generation, development, and validation of ideas.¹⁰ This framework is sufficiently broad to encompass entrepreneurs operating in diverse sectors, including agriculture, where economic activity increasingly requires opportunity recognition, innovation, and strategic adaptation.^{11–13}

Recent literature in agricultural sciences and entrepreneurship shows that farmers can legitimately be conceptualized as entrepreneurs, as their work involves continuous decision-making under uncertainty, innovation, diversification, and strategic adaptation to environmental, climatic, and market constraints.^{11–13} These studies emphasize that modern agricultural activity is entrepreneurial in nature and requires behaviors aligned with autonomy, initiative, and proactive resource management.

Building on this perspective, we conceptualize the “agricultural entrepreneur” as an occupationally embedded entrepreneur whose entrepreneurial behavior is shaped by the specific institutional, environmental, and market conditions of the agricultural sector.¹ This view is consistent with behavioral definitions highlighting autonomy, proactive action, and opportunity pursuit¹⁴ and with empirical research showing that agricultural entrepreneurs engage in diversification, innovation, and strategic adaptation.²

From a theoretical standpoint, agricultural entrepreneurs can also be understood through key perspectives in entrepreneurship research. Behavioral approaches emphasize self-regulation, autonomy, and resource management as central to entrepreneurial action.¹⁵ In parallel, the resource-based view conceptualizes entrepreneurs as managers of scarce cognitive, emotional, and material resources essential for sustaining business activity.¹⁶ These perspectives provide a useful foundation for examining how recovery experiences function as psychological resources that support entrepreneurial functioning.

One promising avenue is the study of recovery experiences – the off-work processes that help restore resources depleted by work. In occupational health psychology, recovery is defined as the process of unwinding and returning to

a baseline, low-stress state after work.¹⁷ Four core recovery experiences have been identified that facilitate this: psychological detachment (mentally disengaging from work during non-work hours), relaxation (engaging in calm, low-effort activities), mastery (pursuing non-work activities that provide a sense of achievement or learning), and control over leisure time (having choice in how one spends off-work time).¹⁸ Engaging in these experiences allows workers to replenish their energy and reduce the negative effects of work stress. However, in agricultural contexts, the separation between work and off-work time is often much less clear. Farm owners frequently experience structural overlaps between professional and personal roles, as work is carried out in or near the home and unfolds over irregular hours. This blurring of domains limits opportunities for psychological detachment, contributes to increased stress, and makes recovery particularly challenging.^{19,20} In such contexts, the notion of “after work,” commonly used in recovery research to designate periods following the workday, requires conceptual clarification. In family farming systems, work is not organized around fixed shifts or clearly delimited schedules but rather unfolds as a continuum embedded in daily life. Therefore, “after work” cannot be understood as a strictly bounded temporal segment, but rather as moments of temporary disengagement from active work tasks within an ongoing work – life integration. By explicitly adopting this broader interpretation, we adapt the recovery framework to the structural realities of agricultural life while maintaining consistency with the validated terminology of the Recovery Experience Questionnaire.¹⁸ The importance of recovery is further underscored by established theories. The effort-recovery model holds that expending effort at work causes fatigue which must be offset by adequate rest; without enough recovery, fatigue accumulates and leads to exhaustion and burnout.²¹ Likewise, conservation of resources theory suggests that stress builds when individuals lose valued resources (such as energy or time) and cannot replenish them, resulting in a downward spiral of strain.²² Empirical studies confirm that detaching from work and relaxing during off-hours can alleviate burnout.^{23,24} However, entrepreneurs often struggle to achieve

such recovery because their work responsibilities spill into evenings and weekends, leaving little opportunity to truly unplug.^{5,25} When entrepreneurs do manage to engage in recovery activities, they can reap significant benefits. Studies of small business owners find that those who regularly practice recovery strategies – for example, deliberately relaxing or pursuing hobbies – report lower burnout and higher resilience and work engagement.^{26,27} This implies that improving recovery experiences may help protect entrepreneurs' mental health.²⁸ It is not yet clear, however, whether these benefits extend to agricultural entrepreneurs, who have especially blurred work – life boundaries. To build on this perspective and clarify the mechanisms examined in this study, we next describe the key constructs included in our conceptual model.

Another important factor for agricultural entrepreneurs' health is work – life balance – the ability to meet work and personal life demands in a satisfactory way. Satisfaction with work – life balance was included as a mediator because prior research has shown that effective recovery can reduce work – family conflict and enhance perceived balance between life domains.^{18,29} This construct captures a key outcome in the entrepreneurial context, where the boundaries between professional and personal roles are often permeable.^{15,30} Finally, burnout was selected as the outcome variable because it is a well-documented risk in agricultural professions, and a critical indicator of deteriorating mental health.^{31,32} Consistent with a prevention-oriented perspective, we focus on exhaustion as the core component of burnout rather than adopting a multidimensional diagnostic approach.³³ Exhaustion is widely recognized as the central and earliest manifestation of burnout and represents the most robust indicator of strain in occupational contexts. This focus is particularly relevant in field-based research involving time-constrained self-employed populations such as agricultural entrepreneurs. Together, these constructs form a theoretically coherent model rooted in the effort – recovery model and the conservation of resources theory, both of which emphasize the role of recovery in preventing resource depletion and psychological strain.^{21,34} In this study, burnout is conceptualized

as a strain-related state characterized by emotional exhaustion and chronic resource depletion, rather than as the opposite pole of psychological well-being. Entrepreneurs may simultaneously experience high exhaustion and high levels of meaning or satisfaction, which supports the distinction between burnout and general well-being.^{33,35} While dissatisfaction with work – life balance is often associated with psychological strain, satisfaction with work – life balance represents a cognitive and evaluative judgment regarding the alignment between professional and personal roles rather than a direct indicator of mental health.^{36,37} Burnout, in contrast, reflects a strain-based outcome characterized by emotional exhaustion and resource depletion.³³ Treating these constructs as theoretically distinct allows us to examine whether perceived work – life balance constitutes a mechanism linking recovery experiences to burnout, rather than assuming that both lie on a single continuum. Our model therefore adopts a strain-focused perspective: it examines how recovery experiences and perceived work – life balance helps prevent the accumulation of exhaustion, without assuming that burnout and well-being lie on a single continuum. We focus on satisfaction with work – life balance, meaning one's overall contentment with how well they are balancing professional and personal roles.³⁶ Achieving a healthy work – life balance is especially challenging in farming. Entrepreneurs may pursue self-employment for flexibility, but farm owners often work much longer and more irregular hours than the average worker.³⁸ With work literally on their doorstep, separating work from personal life is difficult,³ and some farm owners even prioritize work at the expense of family.³⁹ However, a study on farmers suggest that while they face high psychological demands, their strong decision-making autonomy may help mitigate some of the negative effects of stress.⁴⁰ Such imbalance contributes to chronic stress and burnout.⁴¹ Conversely, attaining balance is associated with lower stress and greater satisfaction in both work and family domains.⁴² Nonetheless, work – life balance among agricultural entrepreneurs remains relatively understudied.⁴³ Recovery experiences and work – life balance may also be interrelated. Using non-work time for effective

recovery can prevent work stress from intruding into home life, thus improving balance. Indeed, practices like mindfulness or exercise can reduce work – family conflict and improve perceived work – life balance.^{44,45} In other words, recovery activities might indirectly protect mental health not only by reducing stress, but also by enhancing how well entrepreneurs can balance their work with the rest of their lives.

This study aims to examine how recovery experiences and satisfaction with work – life balance are associated with burnout among agricultural entrepreneurs.

This research model synthesizes theoretical and empirical developments across recovery and work – life literature. The Effort – Recovery Model²¹ and Conservation of Resources Theory³⁴ both posit that recovery experiences help replenish resources and reduce strain. Empirical studies consistently show that psychological detachment, relaxation, mastery, and control are associated with reduced stress and better functioning among entrepreneurs.^{18,26} At the same time, satisfaction with work – life balance reflects how individuals evaluate the alignment between their work and non-work roles, and is a key predictor of exhaustion in occupations marked by blurred boundaries such as farming.^{3,30} Based on this evidence, the model assumes that recovery

experiences influence burnout both directly and indirectly through work – life balance. Figure 1 summarizes these theoretically derived relationships.

- Accordingly, our hypotheses are as follows:
H1. The more agricultural entrepreneurs engage in (a) psychological detachment, (b) relaxation, (c) mastery, and (d) control, the more they perceive a satisfying balance between their professional and personal lives.
- H2. A high level of work-life balance is associated with reduced burnout among agricultural entrepreneurs.
- H3. Agricultural entrepreneurs who engage more frequently in (a) psychological detachment, (b) relaxation, (c) mastery, and (d) control experience lower levels of burnout.
- H4. Work-life balance mediates the relationship between recovery experiences [(a) psychological detachment, (b) relaxation, (c) mastery, and (d) control] and burnout.

To improve clarity, the hypothesized relationships are now presented in a single unified figure. This figure displays the direct effects of the four recovery experiences on satisfaction with work – life balance (H1a – d), the direct effect of satisfaction with work – life balance on burnout (H2), as well

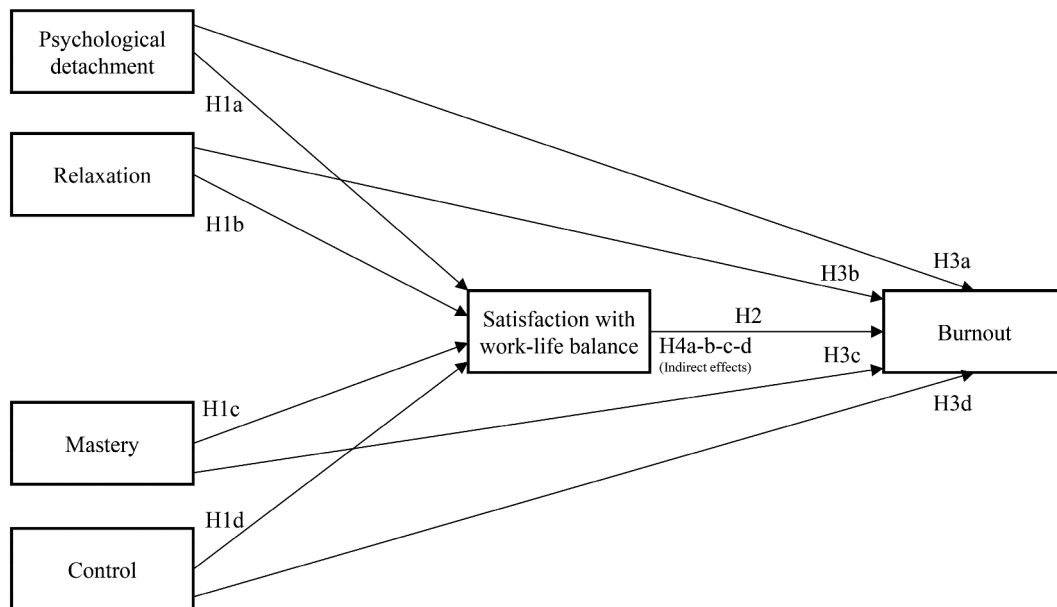


Figure 1. Hypothesized research model linking recovery experiences, satisfaction with work–life balance, and burnout (H1–H4).

as the direct effects of each recovery experience on burnout (H3a – d). The model also visually represents the indirect pathways tested in H4a – d, corresponding to the mediating role of satisfaction with work – life balance.

Methodology

Ethics statement

This study was approved by the IRB at Montpellier Business School (n°2025–04). 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.

Sample

This study was conducted with the support of three regional branches of the Mutualité Sociale Agricole (MSA): Midi-Pyrénées Sud (MPS), Ardèche-Drôme-Loire (ADL), and Provence Azur (PA). The MSA is the French social protection system dedicated to agricultural entrepreneurs and employees.⁴⁶ It manages health insurance, retirement pensions, family benefits, and workplace accident coverage. For non-salaried farm managers, it also oversees affiliation, collects contributions, and provides medical and social support, including preventive actions targeting psychosocial risks and burnout. Through its regional branches, the MSA delivers services tailored to the realities of rural work, while operating under central administrative supervision.

All participants in this study were formally registered as non-salaried agricultural entrepreneurs with the MSA: a legal status denoting full financial, legal, and operational responsibility for an agricultural enterprise. In line with institutional definitions and academic literature, we consider these individuals as occupationally embedded entrepreneurs who manage both production and business functions under conditions of uncertainty. Their entrepreneurial activity is defined not solely by innovation or growth, but also by

autonomy, adaptation, and opportunity management.

The survey was addressed exclusively to individuals registered as non-salaried agricultural entrepreneurs with the MSA. Respondents completed the questionnaire in their own name and reported on their personal work experiences, health, and work – life balance. They were not responding on behalf of employees or farm operations more broadly, but as the primary operators and legal managers of their own farms.

The survey was distributed in April 2024 via email to 34,148 agricultural entrepreneurs affiliated with the three supporting MSA branches: 11,570 in MPS, 12,421 in ADL, and 10,157 in PA. Data collection remained open until June 2024. A total of 1,411 responses were received. To ensure data quality, we excluded (1) incomplete questionnaires, (2) straightlining responses (i.e., identical answers across large item blocks), and (3) duplicate entries. Duplicate entries resulted from multiple submissions by the same respondent. To identify these cases while preserving anonymity, we used a self-generated identification code composed of the first letter of the father's surname, the first letter of the mother's surname, the first two letters of the respondent's first name, and the year of birth. When identical codes appeared more than once, responses were compared, and only the most complete questionnaire was retained for analysis. The final cleaned sample included 916 valid responses, with regional response rates of 2.89% for MPS ($N = 334$), 2.98% for ADL ($N = 370$), and 2.09% for PA ($N = 212$). This corresponds to an overall post-cleaning response rate of 2.68%. Although minor differences in burnout and certain recovery dimensions were observed across regions, multigroup SEM analyses confirmed structural invariance of the measurement and structural models. This supports the decision to analyze the sample as a whole. Most respondents operated small agricultural enterprises. Nearly half worked alone (47.1%), 48.8% employed between two and five workers, and only 3.2% employed more than five workers. This distribution reflects the typical structure of French family farms, which are predominantly small-scale operations. The dataset also included descriptive information on farm typology. The sample reflected the diversity

of agricultural production systems. Participants were primarily engaged in crop farming (43.0%) or livestock farming (32.1%), with a smaller proportion operating mixed farming systems combining both plant and animal production (12.9%). The remaining respondents reported other types of agricultural activities (12.0%).

Measures

Table 1 presents the descriptive statistics, while Table 2 displays the correlations among the studied variables along with reliability indices (McDonald's omega), which indicate good internal consistency for the scales used. McDonald's omega was preferred over Cronbach's alpha as it provides a more accurate estimate of internal consistency without assuming tau-equivalence among items.^{47–49}

Contemporary psychometric literature

recommends omega as a more robust reliability coefficient, particularly in applied research settings. For completeness, Cronbach's alpha coefficients were also computed and yielded comparable values (α ranging from .82 to .89). To verify that the predictors did not suffer from multicollinearity, Variance Inflation Factors (VIF) were computed. VIF values ranged from 1.31 to 2.01, below commonly accepted thresholds, indicating that multicollinearity was not a concern.

Recovery experiences were assessed via an instrument developed by Sonnentag and Fritz (2007) and adapted into French.^{18,50} This instrument distinguishes four recovery dimensions: detachment, relaxation, mastery, and control. Each dimension was measured via four items preceded by the following instructions: "Please indicate to what extent you agree or disagree with the following statements after your workday."

Table 1. Descriptive statistics of agricultural entrepreneurs ($n = 916$).

Variables	Min	Max	Mean	SD
Detachment	1	5	1.95	0.79
Relaxation	1	5	2.80	1.01
Mastery	1	5	3.10	0.96
Control	1	5	3.25	1.02
Satisfaction with work-life balance	1	5	2.69	0.86
Burnout	1.2	6.8	3.82 ¹	1.01
Age	21	76	49.10	10.1
Sex	0	1	0.41	0.49
Life partner	0	1	0.78	0.42
Number of dependent children	0	4	1.04	1.08
Weekly working hours	0	120	59.81	20.42

Note: Sex: male = 0, female = 1; Life partner: no = 0, yes = 1; Number of dependent children: 0 = 0, 1 = 1, 2 = 2, 3 = 3, 4 = 4 or more.

Table 2. Correlations between dependent and independent variables with McDonald's omega reliability coefficients for the scales.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Detachment	(0.85)									
(2) Relaxation	0.53***	(0.88)								
(3) Mastery	0.28***	0.48***	(0.87)							
(4) Control	0.36***	0.51***	0.30***	(0.88)						
(5) Satisfaction with work-life balance	0.42***	0.53***	0.30***	0.50***	(0.90)					
(6) Burnout	-0.34***	-0.43***	-0.23***	-0.42***	-0.52***	(0.89)				
(7) Age	0.13***	0.11**	0.07*	0.03	0.09**	-0.01	—			
(8) Sex	-0.11***	-0.13***	-0.11***	-0.04	-0.04	0.14***	-0.05	—		
(9) Life partner	-0.02	-0.04	-0.10**	-0.01	0.06	-0.11***	0.07*	0.01	—	
(10) Number of dependent children	-0.09**	-0.09**	-0.03	-0.05	-0.06	-0.01	-0.20***	0.00	0.23***	—
(11) Weekly working hours	-0.14***	-0.20***	-0.09**	-0.11***	-0.24***	0.07*	-0.11***	-0.07*	-0.05	0.01

Note: $n = 916$, * $p < .05$. ** $p < .01$. *** $p < .001$.

¹In their study on the risk of burnout among entrepreneurs, Torrès and Kinowski-Moysan (2019) reported a Pines scale score of 3.51 in a cohort of 407 self-employed farmers from the Chamber of Agriculture of Saône-et-Loire.⁷⁵ The score in this study (3.82) is even higher, confirming that the agricultural sector is among the most at-risk populations for burnout within the entrepreneurial community. Furthermore, salaried farmers from the same cohort as the present study showed a mean Pines burnout score of 3.67, indicating a lower burnout risk compared to agricultural entrepreneurs.¹⁹

Example items include “I forget about work” for detachment, “I unwind and relax” for relaxation, “I learn new things” for mastery, and “I feel that I can decide for myself what I do” for control. Responses were recorded on a five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). The score for each dimension was obtained by averaging the responses across the four corresponding items, resulting in a score between 1 and 5.

Burnout was measured via the short version of the Burnout Measure (BMS-10), developed by Ayala Malach-Pines⁵¹ and translated into French.⁵² This instrument consists of ten standardized items introduced by the instructions: “When you think about your work right now, how often do you ...”. An example item is “Do you feel tired?”. Responses were recorded on a seven-point Likert scale ranging from 1 (never) to 7 (always). The burnout score was obtained by averaging the responses across all ten items, yielding a value between 1 and 7. Higher scores indicate greater burnout symptoms, and scores of 5.5 or higher indicate a high level of burnout symptoms.⁵¹

While several multidimensional instruments are available to assess burnout – such as the Maslach Burnout Inventory (MBI),⁵³ the Copenhagen Burnout Inventory (CBI),⁵⁴ the Oldenburg Burnout Inventory (OLBI),⁵⁵ or the Shirom – Melamed Burnout Measure (SMBM)⁵⁶—these tools are designed to capture multiple facets of burnout, often for diagnostic or clinical purposes. In the present study, our objective was not to assess burnout across all its potential dimensions, but to focus on its earliest and most robust manifestation: exhaustion, which is consistently identified as the first stage of the burnout process and a key target for preventive interventions.

From this preventive and field-oriented perspective, the BMS-10 offers several advantages: it is a short and easy-to-administer instrument, well suited to large-scale surveys among time-constrained populations such as agricultural entrepreneurs; it facilitates comparative and repeated assessments, which are essential in prevention-oriented and population-based research; and it has demonstrated strong correlations with other established burnout measures, supporting its validity as an early-warning screening tool.

Satisfaction with work-life balance was assessed via the Work-Life Balance Satisfaction Scale³⁶ translated into French.⁵⁷ This scale consists of five items measuring perceived satisfaction with balancing different life domains. The respondents rated their satisfaction with statements such as “I am satisfied with how I divide my time between work and personal life.” Responses were recorded on a five-point Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied). The overall score was calculated by averaging the responses across all the items, resulting in a value between 1 and 5, with higher scores indicating greater satisfaction with work-life balance.

Several control variables were included in the analysis. Age was measured in years, whereas sex was coded as 0 = male and 1 = female. Life partner status was coded as 0 = no and 1 = yes. The number of dependent children was recorded, along with the number of hours worked per week.

As the questionnaire relied exclusively on previously validated French-language instruments, no separate pretest was conducted. All items and instructions were reviewed internally by the research team to ensure clarity.

Results

We used covariance-based structural equation modeling (CB-SEM) to analyze the data. This method is particularly well suited for research questions that specify a set of systemic relationships among multiple latent variables that can be empirically tested.⁵⁸ To account for potential non-normality and missing data, we employed the robust maximum likelihood estimator (MLR), which provides robust standard errors and a Satorra – Bentler chi-square test correction. This approach ensures the validity of model estimates when applied to complex real-world data.⁵⁹

The model included several latent variables, namely, the four dimensions of recovery (psychological detachment, relaxation, mastery, and control), work-life balance, and burnout. Additionally, we incorporated eight observed control variables: age, sex, life partner status, number of dependent children, weekly working hours, and farm type (animal, vegetal, mixed, and other). The total number of estimated parameters in the model

was 93. With a sample size of 916, this corresponds to a parameter-to-sample ratio close to 10:1, which meets the minimum acceptable threshold for covariance-based structural equation modeling.⁶⁰

Before testing the structural model, we first assess the measurement model without the control variables. This step was necessary to establish the validity and reliability of the constructs independently, ensuring that the latent variables adequately represented their theoretical dimensions before incorporating additional complexity. The six-factor measurement model demonstrated an adequate fit to the data ($\chi^2 = 1323.209$, $df = 419$, $N = 916$, $p < .001$, CFI = 0.936, RMSEA = 0.052, 90% CI: [0.049, 0.055], SRMR = 0.057).

An alternative model was tested by grouping the four recovery dimensions into a single first-order factor instead of modeling them separately. However, this four-factor model provided poor fit indices ($\chi^2 = 4269.325$, $df = 431$, $N = 916$, $p < .001$, CFI = 0.723, RMSEA = 0.107, 90% CI: [0.104, 0.110], SRMR = 0.083). Since no significant advantage was found in using this alternative model and the independent modeling of the

recovery dimensions aligns with existing conceptualizations,^{18,61} we proceeded with the original measurement model. These findings support the theoretical distinction between the four recovery dimensions and highlight the necessity of modeling them separately rather than as a single factor; practically, this implies that different recovery strategies should be considered independently when designing interventions to support agricultural entrepreneurs. For instance, relaxation and control appear to be particularly effective in mitigating work-life imbalance and burnout, whereas mastery may require specific conditions to exert its benefits. The means, standard deviations, and bivariate correlations for all the variables are presented in Tables 1 and 2. With the inclusion of control variables, the structural model provided a satisfactory fit to the data ($\chi^2 = 1871.015$, $df = 651$, $N = 916$, $p < .001$, CFI = 0.919, RMSEA = 0.048, 90% CI: [0.045, 0.050], SRMR = 0.060). For more details, see Figure 2. The results support H1, which predicted that the dimensions of recovery are positively associated with work-life balance among agricultural entrepreneurs. Psychological detachment ($\beta = 0.192$, $p < .001$), relaxation

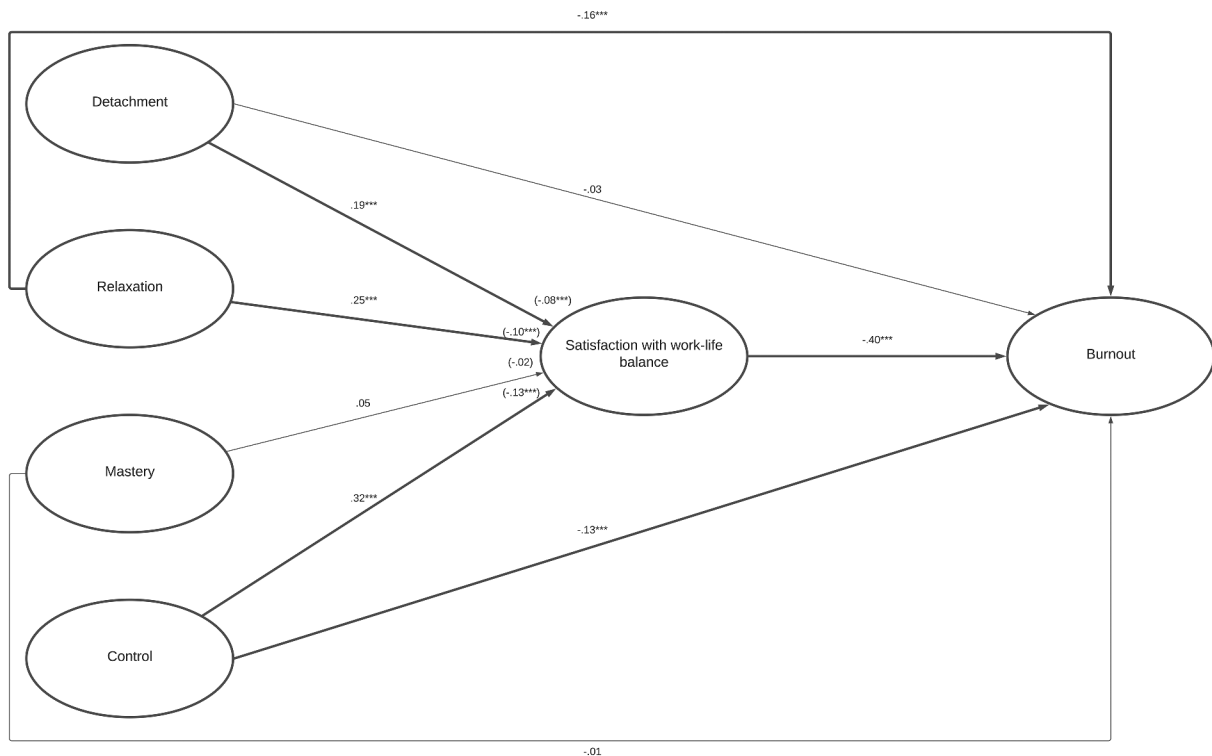


Figure 2. Structural equation model (MLR method) to test the hypotheses. The mediation hypotheses are shown in brackets (H4a-b-c-d). * $p < .05$, ** $p < .01$, *** $p < .001$.

($\beta = 0.253$, $p < .001$), and control ($\beta = 0.318$, $p < .001$) are significantly associated with satisfaction with work-life balance, confirming H1a, H1b, and H1d, respectively. However, mastery ($\beta = 0.049$, $p = .194$) does not show a significant association, failing to support H1c. H2, which posited that higher work-life balance is associated with lower burnout, is also supported. Work-life balance is significantly and negatively associated with burnout ($\beta = -0.399$, $p < .001$). The control variables provide additional context for these relationships. Weekly working hours are negatively associated with work-life balance ($\beta = -0.137$, $p < .001$), indicating that longer working hours reduce perceptions of balance. Having a life partner is positively associated with work-life balance ($\beta = 0.089$, $p = .002$), suggesting that family support enhances balance. However, age ($\beta = -0.006$, $p = .843$), sex ($\beta = 0.019$, $p = .518$), and farm type (all $|\beta| \leq 0.03$, all $p \geq .387$) were not significantly associated with satisfaction with work – life balance. In terms of burnout, weekly working hours emerged as a significant predictor ($\beta = -0.078$, $p = .013$), highlighting the critical role of workload in burnout risk. Having a life partner is negatively associated with burnout ($\beta = -0.097$, $p = .001$), suggesting that family support mitigates burnout effects. Age was not significantly related to burnout ($\beta = 0.033$, $p = .269$), whereas sex was significantly associated with burnout, with higher levels observed among women compared to men ($\beta = 0.090$, $p = .002$). Farm type was not significantly associated with burnout. Compared with the reference category (crop farming), neither animal farming ($\beta = -0.001$, $p = .977$), mixed farming ($\beta = -0.025$, $p = .387$), nor other farming types ($\beta = 0.022$, $p = .465$) showed significant differences. The results provide partial support for H3, which proposed that recovery dimensions are directly associated with reduced burnout. While relaxation ($\beta = -0.157$, $p = .001$) and control ($\beta = -0.132$, $p = .001$) are significantly associated with lower burnout, psychological detachment ($\beta = -0.034$, $p = .379$) and mastery ($\beta = -0.010$, $p = .794$) do not have significant direct effects. Finally, H4, which predicts that work-life balance mediates the relationship between recovery dimensions and burnout, is partially supported. Work-life balance significantly mediates the effects of psychological

detachment ($\beta = -0.077$, $p < .001$), relaxation ($\beta = -0.101$, $p < .001$), and control ($\beta = -0.127$, $p < .001$) on burnout, but no significant mediation is found for mastery ($\beta = -0.018$, $p = .179$).

To confirm the mediating role of work-life balance, we conducted a variance-based model comparison (ANOVA) via adjusted chi-square tests. The comparison between the full model (including all mediated and direct relationships) and the restricted model (where direct paths from recovery dimensions to burnout were constrained to zero) revealed a significant difference ($\Delta\chi^2 = 40.671$, $df = 4$, $p < .001$), indicating that direct paths contribute significantly to model fit. The fit indices further confirmed this: the full model had lower AIC and BIC values (AIC = 74,949, BIC = 75,368) than did the restricted model (AIC = 74,985, BIC = 75,385), reinforcing the importance of both direct and mediated effects in explaining burnout among agricultural entrepreneurs.

Discussion

The findings of this study confirm the critical role of recovery experiences in the mental health of agricultural entrepreneurs while also highlighting differentiated mechanisms among recovery dimensions. Relaxation and control emerge as central factors, as they are significantly associated with greater work-life balance.¹⁸ These strategies facilitate more effective management of work-home boundaries, which are particularly blurred in the agricultural sector³ and help harmonize professional and personal responsibilities. However, mastery did not show a significant link with satisfaction with work-life balance. This absence of association may be explained by the high time constraints of agricultural entrepreneurship, which limit opportunities for mastery-related activities that require significant time investment, such as learning or engaging in new activities.³⁴

With respect to burnout, relaxation and control also demonstrated significant direct effects, underscoring their central role in recovery experiences.⁶² In contrast, psychological detachment does not have a significant direct effect on burnout; rather, its impact is primarily indirect, operating through work-life balance, which serves as a partial mediator in this relationship.⁶³ Similarly, mastery does

not have a significant direct effect on burnout. This result may stem from the limited time available for mastery-oriented activities, which are often constrained by high workload demands among agricultural entrepreneurs.^{64,65} These findings suggest that while certain recovery dimensions, such as relaxation and control, directly influence mental health, others, such as detachment and mastery, require a perceived balance or favorable conditions to fully exert their effects. This observation aligns with recovery theories, which emphasize the importance of psychological detachment in restoring personal resources.⁶⁶ These findings must be interpreted in light of the structural characteristics of agricultural work. Agricultural entrepreneurs typically experience long working hours, strong seasonality, and limited temporal boundaries between professional and family life.^{3,64} This structural embeddedness also implies that traditional conceptualizations of “after work” may not fully capture the lived reality of agricultural entrepreneurs. Rather than a clearly defined post-work period, recovery in farming often occurs in micro-transitions between tasks or during brief pauses within a continuous workday. This specificity suggests that recovery theories developed in salaried employment contexts require contextual reinterpretation when applied to rural entrepreneurial settings. In this respect, farm type may constitute an important contextual condition shaping recovery opportunities in agricultural work.⁶⁷ Livestock farming, crop production, and mixed systems differ in daily rhythms, predictability, and constraints, particularly regarding temporal flexibility and availability for off-work activities. Supplementary analyses showed that farm type was not directly associated with burnout or satisfaction with work – life balance once recovery experiences were accounted for. However, a small but significant difference emerged for control, with slightly higher levels reported in crop-based farming systems and lower levels in livestock farming, suggesting that production systems may marginally structure perceived control over recovery opportunities. Taken together, these findings suggest that structural characteristics such as farm type are not direct determinants of burnout but may shape mental health indirectly by constraining recovery opportunities. In agricultural work,

where professional and private spheres frequently overlap, opportunities for psychological detachment and leisure time are often reduced – particularly in livestock farming, where daily animal care and continuous monitoring impose non-deferrable demands.⁶⁸ Recovery therefore becomes both more difficult and more essential, reinforcing the central role of relaxation and perceived control as immediate protective resources.

The comparative analyses between the full model and the restricted model (via ANOVA on adjusted χ^2 values) confirm these conclusions. The results indicate that psychological detachment influences burnout primarily through work-life balance, whereas relaxation and control retain significant direct effects even when work-life balance is included in the model. These findings highlight the immediate impact of these strategies on mental health, independent of perceived work-life balance. For example, control enables individuals to choose activities that meet their personal needs, thereby improving their mental health autonomously.^{18,69}

These results contribute to entrepreneurship theory by demonstrating that recovery is not merely a psychological process but a crucial entrepreneurial resource that supports sustained engagement and business continuity.¹⁵ While traditional recovery research has focused on employees, this study highlights how entrepreneurs face additional barriers to recovery, particularly due to high job autonomy, financial pressures, and blurred work-life boundaries.²⁶ Moreover, the finding that relaxation and control significantly reduce burnout suggests that effective recovery strategies must be tailored to the entrepreneurial context, where complete detachment is often unrealistic. Given that agricultural entrepreneurs experience continuous exposure to work demands, their ability to self-regulate and strategically integrate recovery practices becomes essential for long-term mental health and productivity. Furthermore, these findings align with research on self-regulation and entrepreneurial health,⁵ suggesting that recovery should be considered a key psychological resource in entrepreneurship. Unlike salaried employees, whose recovery is often structured through external regulations (e.g., mandated rest breaks, fixed work hours), entrepreneurs must proactively create and maintain their own recovery strategies. The resource-based view of

entrepreneurship¹⁶ highlights the importance of managing intangible resources, such as cognitive and emotional resilience, for business sustainability. Thus, integrating recovery into entrepreneurial resource management frameworks could open new avenues for research and intervention. Future research should further explore how self-regulation strategies, time management, and psychological resilience influence recovery experiences among agricultural entrepreneurs, particularly in high-stress environments. Additionally, examining entrepreneurial identity and its impact on recovery behaviors may provide deeper insights into why certain entrepreneurs struggle to detach from work despite recognizing its importance for mental health. Recent work in entrepreneurship research emphasizes the need to shift from merely documenting sources of strain toward identifying actionable solutions to enhance entrepreneurial well-being. This perspective also highlights the existence of a “recovery paradox,” in which the very psychological resources characteristic of entrepreneurship – such as autonomy, meaning, and strong personal identification with one’s work – both increase the need for recovery and make it more difficult to achieve. In line with this view, scholars have called for the development and testing of recovery interventions specifically tailored to entrepreneurial contexts, including respite-based strategies (e.g., micro-breaks, nature exposure), cognitive reappraisal approaches, and structured routines targeting sleep or physical activity. Integrating these insights, future research could examine how entrepreneurs’ psychological characteristics or work identities shape their engagement in recovery behaviors and how targeted interventions might strengthen both recovery and mental health outcomes.⁷⁰ The control variables further reveal differentiated influences on burnout. Female agricultural entrepreneurs appear to be more exposed to burnout risk, likely due to the double workload of work and family responsibilities.⁶⁴ In contrast, individuals with a life partner report a lower level of burnout, possibly due to the social support provided by their partner. Additionally, longer working hours are significantly associated with increased burnout, reinforcing the necessity of effective recovery strategies for these individuals. These findings underscore the importance of personalized approaches, considering socio-demographic and occupational characteristics, to

promote the mental health of agricultural entrepreneurs. Although not part of the present theoretical model, future research may explore whether individual psychological traits influence recovery and mental health. In particular, components of psychological capital (namely hope, self-efficacy, resilience, and optimism⁷¹) may moderate the effects of recovery experiences on burnout. These traits are known to act as personal resources that can buffer stress and enhance coping capacity.⁷² Although not included in the present study, examining the role of psychological capital could help explain interindividual differences in how agricultural entrepreneurs respond to recovery opportunities and manage work-life boundaries. This represents a promising avenue for future research and intervention design.

The findings of this study strengthen the case for implementing interventions aimed at improving recovery strategies and work-life balance in the agricultural sector. From a policy perspective, these findings suggest the need for targeted interventions at both the individual and institutional levels. Supporting this perspective, researchers found that a 10-week behavioral stress recovery intervention significantly reduced perceived stress and burnout symptoms among employees with high stress levels.⁷³ Their randomized controlled trial demonstrated that structured recovery programs can effectively decrease emotional exhaustion and anxiety, reinforcing the necessity of integrating such interventions into burnout prevention strategies for agricultural entrepreneurs. Public health initiatives could integrate relaxation-based programs, such as mindfulness training or stress management workshops, which are specifically tailored to agricultural entrepreneurs. Additionally, policies promoting more flexible work arrangements, such as seasonal workload redistribution or support for delegation within farms, could help mitigate work-life conflicts. Existing agricultural support programs should also consider integrating mental health resources to ensure that entrepreneurs have access to psychological assistance and tailored recovery strategies. Programs focused on relaxation and control could play a crucial role in reducing burnout.²³ However, such initiatives should also consider the specific characteristics of this population, including time constraints and the blurred boundaries between work and personal life.³ These recommendations

echo broader concerns highlighted at the national level. According to the GEM France 2020–2021 report, entrepreneurs in France (especially those operating outside of high-tech or growth-oriented sectors) often lack adequate psychological and institutional support. The report underscores the importance of developing tailored prevention and support mechanisms, recognizing that self-employed individuals face unique stressors and health vulnerabilities that are still largely overlooked by current public policies.⁷⁴

From a methodological perspective, the use of structural equation modelling (SEM) provided a robust framework for simultaneously testing direct and indirect associations between recovery experiences, work – life balance, and burnout. Reporting McDonald's omega coefficients ensured accurate estimation of internal consistency, in line with current psychometric recommendations. In addition, multicollinearity diagnostics (VIF values between 1.31 and 2.01) confirmed that the relationships observed were not driven by shared variance among predictors, strengthening the validity of our analytical approach.

Limitations

Despite these contributions, several limitations must be acknowledged. The cross-sectional nature of the data prevents us from establishing causal relationships, and longitudinal studies are needed to examine the evolution of these mechanisms over time.³⁷ Furthermore, while the sample size is relatively large, it is limited to French agricultural entrepreneurs, restricting the generalizability of the results to other national or professional contexts. Future research should examine whether these findings hold across different agricultural systems and cultural contexts. For example, agricultural entrepreneurs in countries with stronger social safety nets, such as Sweden or Canada, may experience different stress-recovery dynamics than those operating in more market-driven economies, such as the United States or Australia. Additionally, cross-cultural comparisons could help determine whether variations in agricultural policies, support structures, or climate conditions influence the relationship between recovery experiences and burnout. Although farm type

was included as a control variable, the present study did not examine sector-specific mechanisms in depth. Livestock, crop, and mixed farming systems may differ in daily rhythms, unpredictability, and constraints on recovery (e.g., continuous animal care), which could shape recovery strategies in distinct ways. Investigating such sector-specific processes would require research designs explicitly tailored to production systems, potentially combining objective workload indicators and qualitative approaches. These limitations call for future research that could explore, for instance, interactions between different recovery dimensions or investigate these effects in comparable international populations.

This study highlights the central role of recovery experiences and work-life balance in the mental health of agricultural entrepreneurs. These findings provide a solid foundation for the development of tailored interventions to address the unique challenges of this population while advocating for a holistic approach to occupational mental health.

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Data availability statement

The raw data supporting the conclusions of this article are available at <https://osf.io/ymf7c/>. For further information, please contact the corresponding author.

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