Development and Validation of the Work Break Experience Scale for Japanese Workers

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Abstract

In Japan, mental health issues among workers have become a serious concern, with long working hours and insufficient breaks identified as contributing factors. While previous recovery research has focused primarily on post-work leisure time and weekend vacations, the psychological effects of work breaks, particularly lunch breaks, remain underexplored. This study aimed to develop and validate a new measure, the Work Break Experience Scale (WBES), to assess psychological and physical states experienced during work breaks. A preliminary survey with 100 full-time workers was conducted to generate items using a bottom-up approach. The main survey collected data from 316 full-time workers in Japan (mean age = 43.5, SD = 12.4). Exploratory factor analysis revealed a three-factor structure: “Mind-Body Activation,” “Mind-Body Comfort,” and “Psychological Liberation.” Cronbach's alpha coefficients for all factors exceeded 0.95, demonstrating high internal consistency. Construct validity was supported by positive correlations with work engagement (r = .46 to .61) and negative correlations with presenteeism (r = -.36 to -.42). The WBES demonstrated strong reliability and validity as a multidimensional measure of psychological experiences during work breaks. This scale is expected to serve as a useful tool for investigating effective break practices in workplace settings.

Keywords: work break, scale development, occupational health

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Introduction

Mental Health and Recovery in the Workplace

Worker mental health has become an increasingly urgent concern in Japan. Long working hours, high job demands, and insufficient rest are widely recognized as contributing factors to stress, burnout, and reduced productivity (Shimomitsu et al., 2004). In response, there has been growing interest in recovery—the process by which workers restore the psychological and physical resources depleted during work.

The Stressor-Detachment Model (Sonnentag & Fritz, 2015) emphasize the importance of psychological detachment, relaxation, mastery, and control as key mechanisms through which recovery occurs. These frameworks have guided the development of validated measures, most notably the Recovery Experience Questionnaire (REQ; Sonnentag & Fritz, 2007), which assesses recovery experiences during off-job time.

The Gap: In-Work Recovery

A critical limitation of existing recovery research, however, is its near-exclusive focus on recovery after work—during evenings, weekends, and vacations. Recovery that occurs during the workday, in the form of short breaks between tasks or lunch breaks, has received considerably less empirical attention (Hunter & Wu, 2016).

This is a significant oversight. Workers spend the majority of their waking hours at work, and the quality of in-work breaks may have immediate consequences for concentration, mood, and performance throughout the day. Moreover, for workers with long working hours—a common reality in Japan—the workday itself may be the primary opportunity for rest.

Despite this potential importance, the field currently lacks a validated instrument to measure how workers subjectively experience their work breaks. Existing measures either focus on post work recovery or treat breaks as a matter of duration rather than quality. The subjective dimension—whether a break feels restful, liberating, or energizing—remains largely unmeasured.

The Present Study

The present study aimed to address this gap by developing and validating the Work Break Experience Scale (WBES)—a psychometric tool to measure subjective satisfaction during work breaks among Japanese workers. Specifically, we sought to: (1) generate a pool of items grounded in workers' actual break experiences, (2) examine the factor structure of the scale, and (3) evaluate its reliability and construct validity.

Method

Phase 1: Item Generation (Preliminary Survey)

The item development process was guided by a bottom-up, qualitative approach. Rather than deriving items from existing theory, we sought to capture the range of experiences workers themselves associate with satisfying breaks.

A preliminary survey was conducted among 100 full-time workers. Participants were asked open-ended questions about what they experienced during work breaks and what made a break feel good or restorative. Responses were coded and categorized using a qualitative content analysis approach. Three major experiential categories emerged from this process: (1) recovery from fatigue, (2) rest, and (3) a change of pace. From these categories, 34 candidate items were generated, with 3 to 6 items per subcategory, each rated on a 4-point Likert scale (1 = not at all to 4 = very much so). A 4-point format was chosen to avoid a neutral midpoint and to encourage respondents to indicate a clear directional response.

Phase 2: Main Survey

Participants

The main survey was administered online to full-time workers in Japan. After excluding participants who failed the attention check (manipulation check item; IMC), the final sample consisted of 316 workers (mean age = 43.5 years, SD = 12.4).

Measures

In addition to the 34 WBES candidate items, participants completed the following established measures:

- Brief Job Stress Questionnaire (BJSQ; Shimomitsu et al., 2004): A 23-item scale assessing job demands, job control, and workplace social support.
- Utrecht Work Engagement Scale (UWES; Shimazu et al., 2008): A 9-item scale measuring vigor, dedication, and absorption, rated on a 7-point scale (0–6). Work engagement was used as a convergent validity criterion, as workers who recover well during breaks were expected to show higher engagement.
- Single-Item Presenteeism Question (SPQ; Muramatsu et al., 2021): A single item assessing the degree to which health problems have reduced work performance. Presenteeism was used as a discriminator validity criterion, as higher break quality was expected to be associated with lower presenteeism.

Analytic Strategy

Exploratory factor analysis (EFA) was conducted using the maximum likelihood method with promax rotation, which allows for correlated factors. Items with primary factor loadings below.40, or with cross-loadings of .40 or above on two or more factors, were excluded. Internal consistency was assessed using Cronbach's alpha. Construct validity was evaluated by examining Pearson correlations between WBES subscale scores and scores on the UWES and SPQ. To investigate the higher-order structure of the scale, a second-order factor analysis was subsequently conducted.

Results

Factor Structure

Exploratory factor analysis of the 34 candidate items yielded a three-factor, 30-item solution. Four items were excluded due to cross-loadings of .40 or above on two or more factors: “My physical fatigue was relieved,” “My mind became calm,” “I felt refreshed,” and “My bodily

fatigue was relieved." The three-factor solution accounted for a substantial proportion of the total variance, and the factor pattern was clear and interpretable.

Table 1 presents the factor loadings for a representative selection of items.

Table 1

Factor Analysis Results (Maximum Likelihood Method, Promax Rotation)

Item	Factor loadings			*M*	*SD*
	F1	F2	F3		
Factor 1: Mind-Body Activation (α =.96)					
I felt motivated to work.	**1.05**	-0.09	-0.12	2.41	0.93
I felt a sense of drive.	**0.89**	0.01	-0.01	2.41	0.93
I felt I could work hard again in the afternoon.	**0.77**	0.12	-0.02	2.66	0.92
I felt positive about tackling the next task.	**0.77**	0.03	0.13	2.60	0.89
I felt I could make one more effort.	**0.77**	0.20	-0.10	2.65	0.88
My stress was relieved.	**0.58**	0.06	0.27	2.49	0.93
I felt lighter in spirit.	**0.52**	0.12	0.31	2.61	0.91
My mind felt clear.	**0.47**	0.19	0.30	2.66	0.89
Fatigue in my shoulders and eyes was relieved.	**0.45**	0.12	0.25	2.46	0.92
My body felt lighter.	**0.43**	0.26	0.19	2.50	0.90
Factor 2: Mind-Body Comfort (α =.95)					
I was able to take a breather.	-0.10	**0.90**	0.04	2.90	0.87
I was able to relax.	-0.01	**0.89**	-0.01	2.82	0.87
I was able to switch my mindset.	0.11	**0.78**	-0.03	2.87	0.84
I was able to organize my thoughts.	0.28	**0.69**	-0.11	2.79	0.83
I was able to refresh my mood.	0.11	**0.67**	0.09	2.95	0.84
I spent time with a calm mind.	0.13	**0.67**	0.12	2.81	0.89
My tension was relieved.	0.03	**0.58**	0.22	2.83	0.87
I was able to relieve my drowsiness.	0.22	**0.55**	-0.07	2.49	0.97
Changing posture made my body more comfortable.	0.26	**0.49**	0.02	2.82	0.84
I was able to switch between work mode and off mode.	0.04	**0.48**	0.33	2.80	0.88
Factor 3: Psychological Liberation (α =.95)					
I was able to spend time without recalling work.	0.22	-0.28	**0.87**	2.49	0.98
I was able to spend time without thinking about work.	-0.05	-0.02	**0.87**	2.53	0.95
I was able to forget the busyness.	0.06	0.07	**0.74**	2.68	0.88
I was temporarily able to step away from work.	-0.37	0.37	**0.69**	2.96	0.87
My mood lifted.	0.26	0.11	**0.58**	2.69	0.90
I was able to relax at my own pace.	0.18	0.20	**0.53**	2.76	0.93
I was able to spend time freely without worrying about otl	0.10	0.19	**0.48**	2.73	0.95
I was able to spend time without feeling rushed.	0.27	0.14	**0.47**	2.65	0.90
I felt a sense of mental leeway.	0.29	0.22	**0.46**	2.63	0.92
I was able to feel relaxed and at ease.	0.25	0.27	**0.44**	2.73	0.92
Factor Intercorrelations F2	0.77				
F3	0.79	0.79			
Excluded items (cross-loading ≥ .40)					
My physical fatigue was relieved.				2.44	0.90
My mind became calm.				2.74	0.89
I felt refreshed.				2.82	0.87
My bodily fatigue was relieved.				2.40	0.93

Note. Bold values indicate primary factor loadings. Items with cross-loadings ≥ .40 on two or more factors were excluded (4 items total).

Factor 1: Mind-Body Activation

The first factor comprised 10 items reflecting a sense of renewed energy and motivation following a break. Items loading on this factor included feeling motivated to work again, feeling a sense of drive, and feeling ready to make another effort. Cronbach's alpha for this subscale was 0.96.

Factor 2: Mind-Body Comfort

The second factor comprised 10 items capturing a sense of physical and psychological ease during the break—being able to relax, take a breather, organize one's thoughts, and shift between work and non-work modes. Alpha was 0.95.

Factor 3: Psychological Liberation

The third factor comprised 10 items reflecting the experience of mentally stepping away from work during the break—spending time without thinking about work, forgetting the busyness, and feeling free from pressure on time. Alpha was 0.95.

Factor intercorrelations were high, ranging from 0.77 to 0.79, suggesting that the three factors are related dimensions of a broader construct.

Second-Order Factor Analysis

Given the high intercorrelations among the three factors, a second-order factor analysis was conducted to examine whether a single higher-order factor could account for their shared variance（$\chi 2(402) = 1186.98$, CFI = .921, RMSEA = .079）. The results indicated an adequate model fit, confirming that the three factors can be understood as distinct but related facets of a single overarching construct — overall work break experience. This hierarchical structure supports the interpretation of both the individual subscales and a total WBES score.

Construct Validity

Table 2 presents the correlations between WBES subscales and the criterion measures.

Table 2

Correlations Between Subscales

	1	2	3	4
1 Mind-Body Activation				
2 Mind-Body Comfort	0.85 ***			
3 Psychological Liberation	0.88 ***	0.86 ***		
4 UWES	0.61 ***	0.48 ***	0.46 ***	
5 SPQ	-0.42 ***	-0.36 ***	-0.36 ***	-0.41 ***

Note. ***p < .001. Scores calculated as addition-average points.

All three WBES subscales were significantly and positively correlated with work engagement (r = 0.46 to 0.61) and significantly and negatively correlated with presenteeism (r = -0.36 to -0.42). These patterns are consistent with theoretical expectations: workers who experience

higher-quality breaks are more engaged in their work and less likely to experience impaired performance due to health-related issues.

Discussion

A Multidimensional Structure of Work Break Experience

The primary contribution of this study is the development of a reliable and valid measure of subjective work break quality. The three-factor structure of the WBES reveals that break experience is inherently multidimensional, encompassing at least three distinct dimensions: activation and renewed motivation (Mind-Body Activation), physical and mental comfort (Mind-Body Comfort), and psychological detachment from work (Psychological Liberation). This multidimensionality is theoretically meaningful. The third factor, Psychological Liberation, aligns closely with the concept of psychological detachment as described by Sonnentag and Fritz (2007)—the experience of mentally switching off from work. However, the WBES extends beyond detachment by capturing the positive experiential dimensions of breaks, including renewed energy and physical ease, which are not addressed by the REQ. Together, the three factors suggest that a truly restorative break involves not only stepping away from work cognitively, but also feeling physically comfortable and emerging with a renewed sense of readiness.

A Higher-Order Structure

An important and somewhat unexpected finding was the high intercorrelation among the three factors (0.77–0.79). This initially raised the question of whether the factors were truly distinct. However, the second-order factor analysis supported a hierarchical model in which the three dimensions jointly reflect a single overarching construct—overall work break experience. This has practical implications: researchers may choose to use the three subscales separately when investigating specific dimensions of break quality or use a total WBES score when a global measure of break satisfaction is sufficient.

Divergence From Initial Hypotheses

The three-factor structure that emerged from EFA did not map directly onto the three qualitative categories identified in Phase 1 (recovery from fatigue, rest, and a change of pace). Rather, items from across the original categories coalesced into broader, more integrated factors. This suggests that workers' break experiences are organized at a higher level of abstraction than our initial taxonomy assumed. For example, items about relieving physical fatigue and items about feeling motivated appeared in the same factor (Mind-Body Activation), pointing to the interconnectedness of physical recovery and motivational renewal.

Relevance to Occupational Health

The significant associations between WBES scores and both work engagement and presenteeism provide preliminary evidence for the practical relevance of break quality in the workplace. These findings suggest that the experience of breaks—not merely their presence or duration—matters for worker functioning. If future longitudinal studies confirm a causal relationship, organizations may benefit from investing in break environments and policies that facilitate genuine psychological and physical restoration during the workday.

Conclusion

Summary

This study developed and validated the Work Break Experience Scale (WBES), a 30-item, 3-factor instrument measuring the subjective quality of work break experiences among Japanese workers. The scale demonstrates excellent internal consistency and construct validity, and a second-order factor analysis supports a hierarchical model in which three subscales—Mind-Body Activation, Mind-Body Comfort, and Psychological Liberation—reflect a single overarching construct of work break experience.

Implications

The WBES offers a new measurement tool for researchers studying in-work recovery, a domain that has been relatively neglected compared to post-work recovery. It also has applied potential. By measuring the quality—not merely the quantity—of breaks, the WBES may help organizations design more restorative work environments.

Limitations and Future Directions

Several limitations should be noted. First, the cross-sectional design of the main survey prevents any causal conclusions about the relationship between break quality and worker outcomes. Future diary studies, in which break experiences and outcomes are measured repeatedly within and across workdays, would provide stronger evidence of the temporal dynamics of in-work recovery.

Second, this initial validation was conducted exclusively with Japanese workers, and the factor structure has not yet been tested in other cultural contexts. Given potential cultural differences in how breaks are practiced and experienced, cross-cultural validation is an important next step.

Third, although the three-factor structure was clearly supported, the relatively high item intercorrelations between and between subscale warrant further item analysis. Future revisions of the WBES will examine item-total correlations, differential item functioning, and the potential for developing a more concise short form of scale.

Finally, the criterion variables used to assess construct validity (work engagement and presenteeism) represent a limited range of outcomes. Future studies should examine associations with a broader set of health and performance indicators, including burnout, subjective vitality, and objective productivity measures.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that Claude, an AI-assisted writing software, was used in proofreading and refining the language used in the manuscript. The usage was limited to correcting grammatical and spelling errors and rephrasing statements for accuracy and clarity. The author further declares that, apart from Claude, no other AI or AI-assisted technologies have been used to generate content in writing the manuscript. The ideas, design, procedures, findings, analyses, and discussion are originally written and derived from careful and systematic conduct of the research.

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