
Strike a match on my burnout perceptions: Evidence on the validity of measuring burnout through a visual scale in Italy

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✎ **ABSTRACT.** Questa ricerca esplora la validità e l'affidabilità di Matches, una scala visiva per misurare il burnout lavorativo nel contesto italiano. Matches è una scala a singolo item, che utilizza l'immagine di una serie di fiammiferi consumati a livelli crescenti, da un fiammifero intatto a un mucchio di cenere. Il primo studio ($N = 1241$) conferma la validità convergente con la versione italiana del *Copenhagen Burnout Inventory (CBI)* e mostra la similitudine delle due misure nel mappare profili psicologici basati sul continuum work engagement-burnout. La validità di criterio è parzialmente confermata da correlazioni significative con workaholism e prestazioni lavorative e contestuali. La misura Matches mostra validità incrementale rispetto al CBI nel prevedere l'engagement lavorativo e le prestazioni. Tuttavia, emergono differenze nei risultati sociodemografici tra Matches e CBI. Il secondo studio ($N = 564$) dimostra una forte affidabilità test–retest della misura Matches e attesta la sua validità predittiva nei confronti della salute auto–valutata.

✎ **SUMMARY.** This research investigates the validity of the Matches visual burnout scale in Italy, examining convergent, criterion, incremental, and predictive validity, test–retest reliability, and sociodemographic differences. Study 1, involving 1241 Italian employees, supports convergent validity with the Italian version of the *Copenhagen Burnout Inventory (CBI)*. Person–centered analyses reveal similarities in employees' profiles using both measures. Criterion validity is partially confirmed by significant correlations with workaholism, task, and contextual performance. However, person–centered analyses highlight differences in the nomological network of burnout across profiles estimated with different burnout assessments. The Matches measure shows incremental validity over the CBI in predicting work engagement and task performance. Yet, sociodemographic differences are inconsistent between the Matches measure and the CBI. Study 2, with 564 employees, indicates strong test–retest reliability of the Matches measure. Additionally, the Matches measure significantly predicts subsequent self–rated health.

Keywords: Burnout, Job performance, Validity, Workaholism, Work engagement

INTRODUCTION

Burnout is a syndrome resulting from “chronic workplace stress that has not been successfully managed” (World Health Organization, 2019). Recent data indicate that, in Italy, approximately 70% of employees perceived experiencing burnout in 2023 (Rossi, 2023). The high prevalence of burnout has significantly increased in recent years, further exacerbated by the pandemic. These findings underscore the necessity for implementing approaches to design policies and programs to prevent burnout. Additionally, there is a need to assist company leaders in identifying burnout signals and adopting strategies to minimize the risk of its development.

Several burnout definitions exist in the literature, overall agreeing that burnout is “a state of physical, emotional and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding” (Schaufeli & Greenglass, 2001, p. 501) or from chronic exposure to stressors (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). Importantly, while the literature acknowledges burnout as multifaceted (Maslach & Jackson, 1981), disagreement persists regarding the precise nature of its factor structure (Heinemann & Heinemann, 2017). Despite these inconsistencies, exhaustion (i.e., depletion or fatigue) is recognized as the core and first-emerging component of burnout (Lee & Ashforth, 1996), its fundamental strain dimension (Bakker, Demerouti & Sanz-Vergel, 2014), and the one that appears across all conceptualizations and is the most frequently measured dimension (Maslach & Leiter, 2008; Zapata, Calderwood & Boncoeur, 2022).

Notably, burnout is associated with a range of negative outcomes, including decreased work performance, reduced work engagement and motivation, increased turnover, and more sick days, all of which entail associated economic costs (Zapata et al., 2022).

Numerous psychometric scales have been developed to assess burnout, including the 22-item *Maslach Burnout Inventory* (MBI; Maslach & Jackson, 1981) and the *Copenhagen Burnout Inventory* (CBI; Kristensen, Borritz, Villadsen & Christensen, 2005). However, the inclusion of a substantial number of items in these scales raises concerns about participant fatigue, which is particularly problematic considering that burnout-related risk factors increase inattention, potentially leading to measurement errors. To address this issue, a single-item burnout visual scale was

recently validated in the U.S., aiming to use an image of a series of increasingly burnt matches, from an intact match to a pile of ashes, to measure job burnout (Zapata et al., 2022).

The adoption of a visual scale composed of a single item for measuring burnout presents several distinct advantages over traditional psychometric scales with multiple sentences. First, the simplicity of a single-item visual scale streamlines the assessment process, making it more time-efficient and user-friendly. Employees and organizational leaders can quickly and easily provide feedback without the cognitive burden associated with longer, more complex instruments. Additionally, the visual nature of the scale may enhance accessibility for individuals with varying levels of literacy or language proficiency, promoting inclusivity in assessments. Second, the brevity of a single-item visual scale reduces respondent fatigue and increases the likelihood of consistent and reliable data collection, especially in busy work environments. This is particularly advantageous when collecting data from participants experiencing extenuating circumstances, such as high overload (Barr, Spitzmüller & Stuebing, 2008), who may otherwise be nonrespondents in burnout surveys but represent targeted populations in burnout research. Additionally, it proves advantageous in longitudinal studies or when repeated assessments are necessary to monitor changes in burnout over time. The visual scale’s simplicity also facilitates real-time monitoring, enabling timely interventions to address emerging burnout issues within organizations. Third, in terms of administration and interpretation, a single-item visual scale may yield clearer and more immediate results, making it easier for organizational leaders to identify trends and prioritize interventions effectively. Finally, the visual nature of the scale allows for a quick and intuitive grasp of respondents’ perceptions, potentially capturing nuanced emotional states that might be overlooked in more extensive, text-based assessments. Overall, the use of a single-item visual scale for burnout assessment offers practical advantages in terms of efficiency, accessibility, and real-time monitoring, making it a valuable tool for both researchers and practitioners in the field.

Aims

Given the potential advantages for both research and practice, this research aims to investigate the validity of the Matches visual burnout scale developed by Zapata and

colleagues (2022) within the Italian context. To achieve this goal, we examine (i) convergent validity of the Matches scale by comparing it to the Italian version of the CBI, (ii) criterion/discriminant validity by investigating its relationships with work engagement, workaholism, and performance, and (iii) incremental validity by assessing the Matches measure's contribution to explaining the variance in relevant work outcomes. Furthermore, to comprehensively explore how the Matches measure aligns with existing validated scales in mapping burnout, we additionally investigate (iv) differences across sociodemographic characteristics when assessing burnout using the Italian version of the CBI and the Matches measure. Finally, we explore (v) test–retest reliability and (vi) predictive validity of the Matches measure over self–rated health across two time points.

Hypotheses

Drawing on earlier evidence showing that, in the U.S., the Matches measure captures burnout equivalent to other existing validated measures and that it relates negatively to work engagement – a psychological motivational state of vigor, dedication, and absorption (Schaufeli, Salanova, González–Romá & Bakker, 2002) – at a magnitude consistent with previous evidence obtained using different burnout scales, we expect similar results in the Italian context and propose:

– Hypothesis 1: The Matches measure is (a) positively highly correlated with the Italian version of the CBI and (b) negatively correlated with work engagement at a magnitude consistent with that of the Italian version of the CBI.

Adopting a person–centered approach and building upon prior research demonstrating that patterns of the employee experience can be discerned by utilizing the two standard endpoints of the burnout–engagement continuum (Leiter & Maslach, 2016), we further investigate whether and how the burnout visual scale can effectively map employees' profiles across the burnout–engagement continuum (Mäkikangas, Hyvönen & Feldt, 2017) in a manner consistent with another established scale, namely the CBI. We anticipate that the Matches measure will demonstrate comparable performance to the CBI in delineating such configurations of employees' profiles:

– Hypothesis 2: Estimating employees' profiles of the

burnout–engagement continuum using the CBI and the Matches measure results in qualitatively and quantitatively similar employee profiles.

According to the literature, workaholism is related to burnout symptoms because it leads to impaired recovery (Balducci et al., 2021). Moreover, evidence shows that burnout constitutes a mediator in the energy–draining process, which leads to health impairment (Demerouti et al., 2001), consequently affecting performance negatively. Indeed, empirical findings indicate that burnout correlates with various somatic symptoms and mental health aspects, such as depression or the utilization of antidepressant medication (Jensen & Knudsen, 2017). Therefore, we investigate the nomological network of burnout and explore how the Matches scale relates to workaholism, performance, and self–rated health. Building on evidence from the U.S. indicating significant relations between the Matches measure and theoretically relevant burnout criteria, we propose:

– Hypothesis 3: The Matches measure is significantly (a) positively correlated with workaholism and (b) negatively correlated with task and contextual performance.

– Hypothesis 4: Employees' profiles of the burnout–engagement continuum, estimated using the CBI and the Matches measure, display similar levels of (a) workaholism and (b) task and contextual performance.

– Hypothesis 5: The Matches measure significantly predicts lower self–rated health.

Moreover, we explore the incremental and relative importance of the burnout visual scale in explaining the variance of relevant work outcomes. Evidence from the U.S. showed that the Matches measure yielded incremental validity over existing burnout measures in predicting organizationally relevant criteria (Zapata et al., 2022), likely attributable to the advantages conferred by a concise, visual measure. These advantages include mitigated participant fatigue (Hinkin, 2005), diminished necessity for translating emotions into words (Kunin, 1998), and enhanced participant comprehension (Gabriel et al., 2019). Accordingly, the attributes of the visual scale may facilitate a broader depiction of the construct, accessing facets not readily accessible through conventional text items, thereby furnishing additional explanatory value while still capturing the burnout domain. Consistent with such arguments, we expect that the Matches measure will contribute significantly to the variance of theoretically relevant criteria:

- Hypothesis 6: The Matches measure yields incremental validity over the Italian version of the CBI in predicting (a) work engagement, (b) task, and (c) contextual performance.

METHOD

Participants and procedure

Study 1. Participants were asked to complete an anonymous, web-based survey. Participation was voluntary and employees received information about the study aims and that responses were anonymous. To complete the survey, participants had to meet the following criteria, assessed in the opening questions: having a work experience of at least six months, working at least 20 hours/week, and being employed (as opposed to self-employed). Data collection took place in February and March 2023 in Italy. The final sample consisted of 1241 participants (58.5% women; $M_{\text{age}} = 41.30$ years; $SD_{\text{age}} = 13.69$) working in different organizations ($M_{\text{seniority}} = 11.04$ years; $SD_{\text{seniority}} = 11.12$) in Italy.

Study 2. Participants were asked to complete two anonymous, web-based surveys, one at the beginning of the workweek (Monday) and another at its conclusion (Friday). They were asked to create a personal code by providing the initial letters of their relatives so that responses were associated across time while maintaining anonymity. The inclusion criteria mirrored those of Study 1. Data were collected in Italy in May 2024 as part of a larger data collection, with only data pertaining to the Matches measure and self-rated health utilized in the present research. The final matched sample consisted of 564 employees (76% response rate; 50.4% women; $M_{\text{age}} = 42.52$ years; $SD_{\text{age}} = 13.85$) working in different organizations in Italy.

Measures

All scales were administered in Italian. Scales not available in Italian were translated using back-translation.

- *Burnout* was assessed using the Italian version (Avanzi, Balducci & Fraccaroli, 2013) of the work-related burnout scale of the *Copenhagen Burnout Inventory* (CBI; Kristensen et al., 2005) and the 8-point Matches visual scale developed by Zapata and colleagues (2022).

A sample item of the CBI is: “Are you exhausted in the morning at the thought of another day at work?”. Participants responded on a 5-point scale from 1 = never to 5 = always. The Matches measure is a single-item showing a set of 8 match images that have been consumed at increasing levels, ranging from a fresh match to a pile of ash. Respondents were asked to select the match that best represents how burned out they currently felt by clicking on it. Specifically, the instructions read as follows: “Job burnout refers to feeling physically, mentally, and emotionally exhausted. Please select the match that best represents how burned out you currently feel by clicking on it”. In Study 2, participants completed the Matches measure at both time points.

- *Work engagement* was measured with the Italian version (Balducci, Fraccaroli & Schaufeli, 2010) of the *Utrecht Work Engagement Scale* (Schaufeli et al., 2002). This scale measures three dimensions of work engagement: vigor (3 items, e.g., “At my work, I feel bursting with energy”), dedication (3 items, e.g., “I am enthusiastic about my job”), and absorption (3 items, e.g., “I feel happy when I am working intensely”). Responses were given on a 7-point scale, ranging from 0 = never, to 6 = always.
- *Workaholism* was assessed with the scale developed by Clark and colleagues (Clark, Smith & Haynes, 2020), recently validated in Italian by Buono and colleagues (2024), which comprehends four subscales with four items each: motivational (e.g., “I always have an inner pressure inside of me that drives me to work”), cognitive (e.g., “I feel like I cannot stop myself from thinking about working”), emotional (e.g., “I am almost always frustrated when I am not able to work”), and behavioral (e.g., “I tend to work beyond my job’s requirements”). Items were rated on a 5-point scale ranging from 1 = never, to 5 = always.
- *Performance* was assessed with two scales from the *Individual Work Performance Questionnaire* (Koopmans, Bernaards, Hildebrandt, de Vet & van der Beek, 2014), i.e., task performance (5 items, e.g., “In the past 3 months, I managed to plan my work so that it was done on time”) and contextual performance (8 items, e.g., “In the past 3 months, I took on extra responsibilities”). Responses were given on a 6-point scale, from 1 = seldom to 6 = always.
- *Self-rated health* was assessed in Study 2 at Time 2 using the WHO measure (World Health Organization, 1996), which asks participants to rate their health on a 5-point scale, from very good to very bad.

Data analysis

Descriptive statistics, reliabilities, and correlations were computed using IBM SPSS (Version 26.0). Study 1 focused on assessing convergence, criterion, and incremental validity, as well as sociodemographic differences. Study 2 assessed consistency via test–retest reliability, inspecting the correlation between the Matches measure assessed across two time points, and predictive validity by using a regression analysis, with the Matches measure at Time 1 entered as a predictor of self-rated health at Time 2.

To investigate convergent validity, we compared the Matches measure with an existing measure of the same construct, i.e., the CBI. In doing so, we adopted both a variable- and a person-centered approach. Following a variable-centered approach, we inspected the correlation coefficients between the Italian version of the CBI and the Matches measure. Adopting a person-centered approach, after dividing the sample into two halves, we used latent profile analysis (LPA) and investigated whether similar employees' profiles emerged when assessing burnout using the two different scales.

LPA estimates the probability of individual assignment to specific profiles, exploring how different variables contribute to employees' profiles (Spurk, Hirschi, Wang, Valero & Kauffeld, 2020). To determine the best-fitting profile solution, we used Mplus v.8.4 (Muthén & Muthén, 1998–2017) and compared models with two to six profiles based on the scores of burnout and work engagement dimensions. Parameters of the solutions were estimated using maximum likelihood with robust standard errors (MLR), and full information maximum likelihood was used to process missing data in this phase. We utilized indices such as Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), sample-adjusted Bayesian Information Criterion (SABIC), Lo–Mendell–Rubin Test (LMR), Bootstrap Likelihood Ratio Test (BLRT), and entropy value to assess model fit (Ferguson et al., 2020; Howard & Hoffman, 2018; Nylund et al., 2007). Lower AIC and BIC values indicate better model superiority, while significant LMR and BLRT p -values reject a model with k profiles compared to $k + 1$ profiles. Higher entropy values, acceptable between .60 and .80 (Muthén, 2004; Jung & Wickrama, 2008; Spurk et al., 2020), indicate greater classification accuracy.

Criterion validity was examined by adopting both a variable- and a person-centered approach. In the variable-

centered approach, we explored the correlations between the Matches measure and work engagement, task and contextual performance, and workaholism. Following a person-centered approach, we used the BCH method (Asparouhov & Muthén, 2021) to analyze the distribution of performance and workaholism across profiles estimated using the CBI and the Matches measure and work engagement dimensions.

Incremental validity was assessed by investigating the relative contributions of the Matches measure beyond the variance of burnout outcomes and antecedents explained by the CBI. We used hierarchical regression analyses, in which we entered the CBI in the first step and the Matches measure in the second step.

Finally, differences across sociodemographic characteristics were inspected using t -tests and one-way independent sample ANOVAs, the latter with Bonferroni post-hoc.

RESULTS

Table 1 presents descriptive statistics, internal consistency, and correlation estimates for Study 1.

Convergent validity

Results from correlation analysis (see Table 1) attested to a significant, strong, and positive relation between the CBI and the Matches measure ($r = .59$; $p < .001$) and a significant and negative relation between the Matches measure and work engagement ($r = -.34$; $p < .001$), providing support for Hypothesis 1.

Table 2 presents the results from LPA conducted on the two halves of the sample, featuring fit indices and tests for alternative profile solutions. The 3-profile model emerged as the best fit for both measures, as indicated by several indicators: AIC and BIC elbow plots showed no substantial improvement beyond this model, a significant LMR p -value indicated superiority over the 2-profile model, and there was no advantage over the 4-profile model. Additionally, each profile contained at least 3% of the sample size, indicating the absence of small-size profiles (Spurk et al., 2020).

The 3-profile solutions resulting from the two halves of the sample are visually represented in Figure 1. Across both samples, Profile 1 exhibited low levels of all engagement

Table 1 – Study 1: descriptive statistics, reliabilities, and correlations among participants' demographics and study variables

	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	.59 (.49)	–													
2. Age	41.30 (13.69)	.06*	–												
3. Seniority in the current organization	11.04 (11.13)	-.02	.64**	–											
4. Supervisor duties	.49 (.50)	-.18**	.10**	.12**	–										
5. Work engagement	3.56 (1.21)	.03	.02	-.09**	.18**	(.93)									
6. Workaholism	2.44 (.74)	-.02	.03	-.01	.14*	.25**	(.89)								
7. Motivational	2.86 (.92)	.01	.03	-.01	.02	.16**	.76**	(.77)							
8. Cognitive	2.30 (1.05)	.01	.05	.02	.12**	.15**	.80**	.51**	(.93)						
9. Emotional	1.88 (.92)	-.05	-.02	-.06*	.08**	.21**	.76**	.44**	.48**	(.89)					
10. Behavioral	2.73 (.99)	-.05	.04	.02	.19**	.25**	.75**	.40**	.44**	.44**	(.83)				
11. Task performance	4.32 (.92)	.04	.07**	.02	.06*	.27**	-.03	-.02	-.12**	-.04	.10**	(.84)			
12. Contextual performance	4.10 (1.03)	-.03	.02	-.01	.29**	.50**	.32**	.24**	.21**	.16**	.37**	.35**	(.87)		
13. CBI	2.58 (.87)	.08**	-.12**	-.03	-.05	-.42**	.30**	.25**	.34**	.14**	.18**	-.20**	-.10**	(.87)	
14. Matches	3.20 (1.68)	.03	-.03	.03	.01	-.34**	.25**	.19**	.26**	.15**	.16**	-.19**	-.08**	.59**	–

Note. *n* = 1241. Gender: 1 = Female, 0 = Male. Supervisor duties: 0 = No, 1 = Yes. Motivational, cognitive, emotional, and behavioral refer to the workaholism subscales. Reliability estimates – McDonald's omegas – are reported in parenthesis on the diagonal.

* *p*<.05; ** *p*<.01

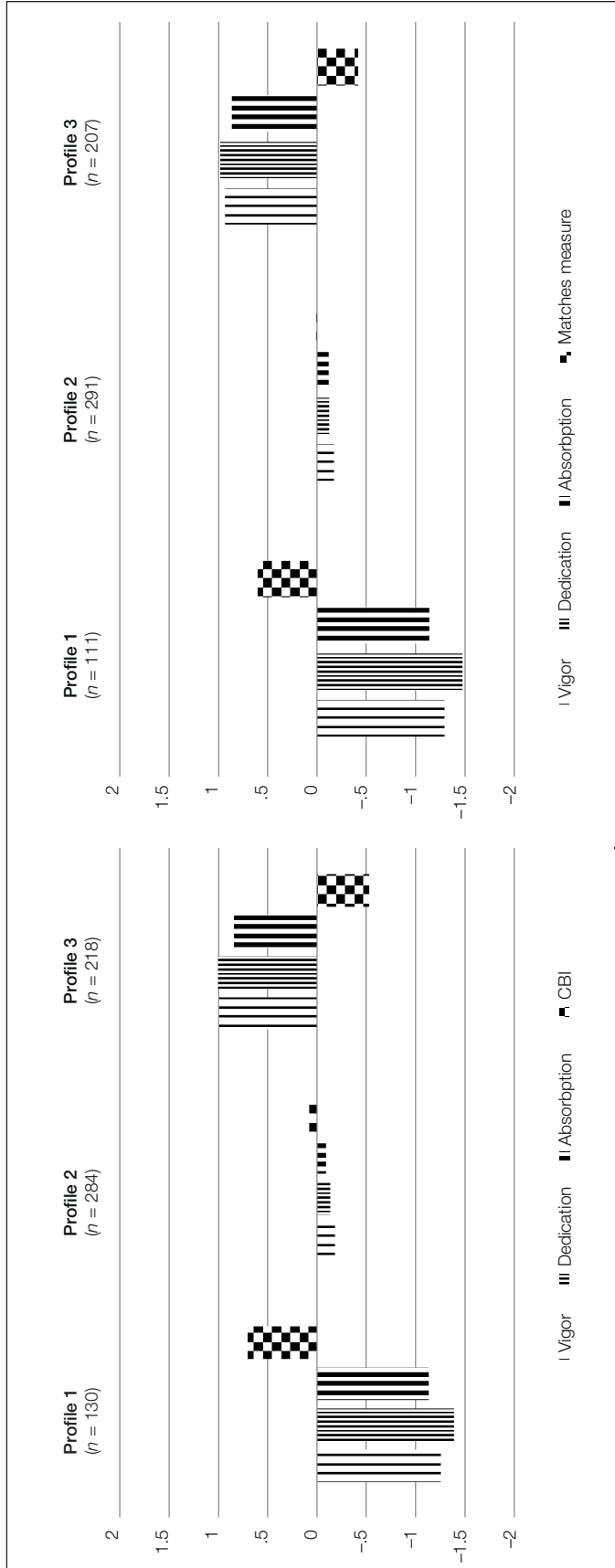
Table 2 – Study 1: statistics for alternative profile solutions

Number of profiles	LL	FP	AIC	BIC	SABIC	Entropy	Smallest class %	LMR (<i>p</i>)	BLRT (<i>p</i>)
<i>CBI: first half of the sample (n = 632)</i>									
2	-3188.55	13	6403.10	6460.94	6419.67	.82	43%	<.001	<.001
3	-3057.25	18	6150.49	6230.57	6173.43	.81	21%	.020	<.001
4	-2983.10	23	6012.19	6114.52	6041.50	.82	7%	.093	<.001
5	-2959.18	28	5974.35	6098.92	6010.03	.80	6%	.318	<.001
6	-2952.01	33	5970.02	6116.83	6012.06	.84	<1%	.755	<.001
<i>Matches: second half of the sample (n = 609)</i>									
2	-3170.57	13	6367.14	6424.49	6383.22	.79	33%	<.001	<.001
3	-3046.36	18	6128.72	6208.13	6150.99	.81	18%	<.001	<.001
4	-2996.33	23	6038.67	6140.14	6067.12	.85	1%	.081	<.001
5	-2952.79	28	5961.57	6085.10	5996.21	.85	1%	.219	<.001
6	-2927.66	33	5921.32	6066.91	5962.14	.84	1%	.718	<.001

Legenda. LL = log-likelihood; FP = free parameters; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; SABIC = Sample-size Adjusted Bayesian Information Criterion; LMR = *Lo-Mendell-Rubin Test*; BLRT = *Boostrapped Likelihood Ratio Test*.

Note. Boldface indicates selected models.

Figure 1 – Study 1: visual representation of burnout-work engagement profiles using different burnout measures



Note. For a clear interpretation of which indicator values are above or below the sample means, we used the z-standardized mean scale scores. The figure on the left depicts the profiles emerged using the CBI, the figure on the right depicts the profiles emerged using the Matches scale.

dimensions and high burnout. Profile 2 was characterized by average levels across all variables, representing employees maintaining a neutral stance towards work (Leiter & Maslach, 2016). Profile 3 displayed high levels of all work engagement dimensions and low levels of burnout. Notably, although not identical, the solutions obtained using the two scales are very similar, supporting Hypothesis 2.

Table 3 shows within-profile standardized scores and univariate entropy values, highlighting vigor and dedication as key class indicators, with burnout providing approximately the same amount of information about latent profiles across the two measures. Overall, using a variable- and a person-centered approach, these results provide evidence for the convergent and discriminant validity of the Matches measure.

Criterion validity

As reported in Table 1, the correlations of the Matches measure with workaholism and performance outcomes were similar in magnitude to estimates obtained using the CBI. Specifically, the Matches measure correlated significantly and positively with workaholism ($r = .25; p < .001$) and all its subdimensions and significantly and negatively with task ($r = -.20; p < .001$) and contextual performance ($r = -.10; p = .001$), supporting Hypothesis 3.

However, results from the person-centered approach showed some differences in how workaholism (including its subdimensions) and performance outcomes were distributed across the profiles estimated using the two different burnout scales, as shown in Table 4.

Specifically, significant differences emerged across profiles 2 vs 3 in the overall score of workaholism when using the Matches measure, while these were not evident with the CBI. Other differences in the subdimensions of workaholism emerged when using the two burnout measures (see Table 4). Also, significant differences emerged between profiles 1 vs 2 for task performance when using the Matches measure, whereas these were not detected using the CBI. Overall, these results provide partial support for Hypothesis 4.

Incremental validity

Results from hierarchical regression analyses (see Table 5) showed that the Matches measure displayed incremental

validity over the CBI in predicting work engagement and task performance but not contextual performance. For all the outcomes considered, it should be noted that incremental validity estimates were rather small in magnitude. Together, these results support Hypothesis 6a and 6b, while Hypothesis 6c is rejected.

Differences across sociodemographic characteristics

Tables 5 to 8 display the results of burnout mean comparisons across demographic characteristics. Regarding gender and age, our results showed that the CBI detected gender differences that were not detected by the Matches measure (see Table 6), while for participants in different age groups, the two scales mapped differences that were not consistent. Similarly, inconsistencies in burnout scores using two different scales emerged when considering participants with a different number of kids (see Table 7) and in the context of remote working (see Table 8).

Test-retest reliability

Results from a correlation analysis with data from Study 2 yielded strong test-retest reliability of the Matches measure across time ($M_{T1} = 3.34; SD_{T1} = 1.43; M_{T2} = 3.24; SD_{T2} = 1.64, r = .68; p < .001$).

Predictive validity

Results from a hierarchical regression analysis showed that burnout, as assessed at the beginning of the workweek using the Matches measure, significantly negatively predicted self-reported health ($M_{T2} = 3.62; SD_{T2} = .80$) at the end of the workweek, $\beta = -.35; p < .001$, supporting Hypothesis 5.

DISCUSSION

This study aimed to investigate the validity of the Matches burnout scale (Zapata et al., 2022) within the Italian context. We assessed convergent, criterion, and incremental validity employing both variable- and person-oriented

Table 3 – Study 1: parameter estimates for the three–profile models

Variable	CBI			Matches				
	Univariate entropy	Profile 1	Profile 2	Profile 3	Univariate entropy	Profile 1	Profile 2	Profile 3
Latent profile membership proportions		21% (<i>n</i> = 130)	45% (<i>n</i> = 284)	34% (<i>n</i> = 218)		18% (<i>n</i> = 111)	48% (<i>n</i> = 291)	34% (<i>n</i> = 207)
		Within–profile <i>z</i> –standardized means				Within–profile <i>z</i> –standardized means		
Burnout	.15	.70	.08	–.53	.13	.70	.03	–.43
Vigor	.53	–1.25	–.18	.99	.50	–1.34	–.14	.89
Dedication	.64	–1.39	–.13	1.00	.65	–1.54	–.11	.96
Absorption	.35	–1.13	–.09	.84	.29	–1.14	–.12	.88

Note. For a clear interpretation of which indicator values are above or below the sample means, we used the *z*–standardized mean scale scores.

Table 4 – Study 1: descriptives of covariates and focal variables across profiles

Variable	CBI (<i>n</i> = 632)						Matches (<i>n</i> = 609)					
	Profile 1 vs 2		Profile 1 vs 3		Profile 2 vs 3		Profile 1 vs 2		Profile 1 vs 3		Profile 2 vs 3	
	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>
Age	.12	.73	.74	.39	.37	.55	1.52	.22	.19	.66	.78	.38
Gender	2.51	.11	.65	.42	.74	.39	.37	.54	2.43	.12	1.82	.18
Workaholism	5.27	.02	10.13	≤.001	1.31	.25	4.76	.03	21.71	≤.001	8.91	.01
Motivational workaholism	.92	.34	3.29	.07	1.13	.29	.87	.35	10.87	≤.001	8.20	≤.001
Cognitive workaholism	6.45	.01	3.64	.06	.80	.37	.30	.58	4.27	.04	3.71	.05
Emotional workaholism	5.55	.02	5.43	.02	.01	.94	14.23	≤.001	21.37	≤.001	1.74	.19
Behavioral workaholism	4.34	.04	13.82	≤.001	4.08	.04	1.81	.18	15.95	≤.001	10.18	≤.001
Task performance	2.67	.10	37.90	≤.001	39.46	≤.001	4.55	.03	32.58	≤.001	21.54	≤.001
Contextual performance	36.33	≤.001	140.81	≤.001	49.85	≤.001	26.40	≤.001	111.90	≤.001	45.96	≤.001

Note. For all focal variables we used the *z*-standardized scores. Statistically significant differences are in bold.

Table 5 – Study 1: incremental validity analyses of matches measure relative to CBI

Criterion variable	Work engagement		Task performance		Contextual performance	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
	B	B	B	B	B	B
CBI	-.58***	-.47***	-.21***	-.15***	-.11***	-.09*
Matches		-.10***		-.06**		-.02
R^2	.18	.19	.04	.05	.01	.01
ΔR^2		.01***		.01**		–

Note. Unstandardized regression coefficients are reported.

* $p < .05$; ** $p < .01$; *** $p < .001$

approaches. Additionally, we examined test–retest reliability and predictive validity using two–wave data collected over a workweek. Finally, we explored sociodemographic differences in burnout assessments using the CBI and the Matches measure.

Convergent validity, assessed by comparing the Matches measure with the validated Italian version of the CBI, was upheld across both approaches. However, support for criterion validity varied depending on the approach adopted. Variable–centered analyses indicated comparable relations between the CBI and the Matches measure with variables in the nomological network of burnout, consistent with findings by Zapata and colleagues (2022).

In contrast, person–centered analyses revealed minimal disparities in how employees' profiles were linked with variables in the nomological network considered here. Specifically, our findings indicated that, concerning workaholism, the visual scale identified distinctions between the profile characterized by a neutral stance towards work and the profile representing engaged employees that were not discerned by the sentence–based scale. Additionally, for task

performance exclusively, the visual scale identified significant differences between the profile representing employees with the lowest work engagement scores and those in the neutral stance group, which were not evident with the sentence–based scale. These results suggest that the visual scale may serve as a valuable tool for promptly identifying potential workaholism risks among employees with diverse profiles across the burnout–engagement continuum.

Our results also showed that the Matches measure demonstrated significant, albeit small, incremental validity over the CBI in predicting work engagement and task performance. Hence, it seems that using the burnout visual scale adds information regarding work engagement and task performance that cannot be obtained through the CBI alone. Together with results from the person–centered analysis on convergent validity, these findings show that the burnout visual scale maps relations between burnout and its nomological network differently compared to the CBI. That is, it may capture burnout facets that instill mechanisms at risk of going unnoticed when using the CBI alone.

The Matches measure demonstrated robust test–retest

Table 6 – Study 1: gender and age differences in burnout scales

		Women		Men		19 – 29 years old		30 – 39 years old		40 – 49 years old		50 – 59 years old		60 – 68 years old			
Measure		N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	F_{Visual}	F_{CBI}
		674	518	484	518	395	395	193	174	407	89	381	407	89	89	4,1257	4,1257
		(1156)	(1241)	(1156)	(1241)	(366)	(366)	(177)	(166)	(381)	(166)	(381)	(407)	(381)	(89)	(4,1169)	(4,1169)
		t_{Visual}	t_{CBI}	t_{Visual}	t_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{Visual}	N_{Visual}	N_{Visual}	N_{Visual}	N_{Visual}	N_{Visual}	N_{Visual}		
CBI	2.63	.87	2.50	.84	2.72 ^{ab}	.84	2.59	.87	2.60	.86	2.49 ^a	.88	2.36 ^b	.83	5.08 ^{***}		
Matches	3.23	1.67	3.12	1.65	3.19	1.63	3.31 ^c	1.76	3.30 ^d	1.72	3.24 ^e	1.69	2.64 ^{cd}	1.39	2.67 [*]		

Note. ^{abcde} = The same subscript denotes significant differences between the identified groups using Bonferroni test, at $p < .05$.

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 7 – Study 1: differences across people with a different number of kids

		No kids		1 kid		2 kids		3 kids		4 kids		5 kids			
Measure		N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	F_{Visual}	F_{CBI}
		617	670	166	174	288	306	82	89	12	14	5	5	5,1257	5,1257
		(617)	(670)	(166)	(174)	(288)	(306)	(82)	(89)	(12)	(14)	(5)	(5)	(5,1169)	(5,1169)
		N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}	N_{Visual}	N_{CBI}		
CBI	2.69 ^{abc}	.84	2.46 ^a	.80	2.48 ^b	.94	2.39 ^c	.83	2.62	.73	2.00	1.01	4.963 ^{***}		
Matches	3.26	1.68	3.20	1.63	3.13	1.64	3.05	1.82	3.33	1.97	2.80	1.92	.456		

Note. ^{abc} = The same subscript denotes significant differences between the identified groups using Bonferroni test, at $p < .05$.

*** $p < .001$

Table 8 – Study 1: differences considering remote working in the last month (yes/no)

Measure	No remote working N _{CBI} = 816 N _{Visual} = 756		Remote working N _{CBI} = 442 N _{Visual} = 414		<i>t</i> _{CBI} (1256) <i>t</i> _{Visual} (1168)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
CBI	2.62	.90	2.51	.79	2.016*
Burnout visual	3.21	1.68	3.19	1.66	.237

Note. Remote working coded as a dummy variable. The presence of remote working indicates at least one day of remote working in the last month.

* $p < .05$

reliability across two time points, affirming its consistency as a measure of burnout. Furthermore, it exhibited significant predictive validity by accurately forecasting self-rated health assessed at a subsequent time point. These findings underscore the Matches measure's efficacy as a valid tool for assessing the risk of health impairment stemming from burnout.

When examining whether the performance of the Matches measure was similar to that of the CBI in detecting sociodemographic differences in burnout, we observed inconsistent mappings between the two scales. These discrepancies could be attributed to varying interpretations of the content of the items, more pronounced with the CBI, or to the different cognitive effort required by each measure, resulting in divergent responses from individuals with different characteristics. To better understand these findings, we conducted additional analyses to check if gender and age moderated the relationships between the different measures of burnout and the outcomes considered for incremental validity. Results showed that all but one effect were not significant. The only significant moderation found was that

of age moderating the link between the CBI and cognitive workaholism ($B = .008$, $p < .001$). A simple slope analysis showed that the interaction was significant for all age levels ($-1SD$, $B = .30$; $p < .001$), with a positive relation becoming steeper for older individuals ($+1SD$, $B = .54$; $p < .001$).

Hence, our findings suggest that the choice of burnout measurement tool may influence the detection of sociodemographic variations. However, it is important to note that research investigating demographic variables in relation to burnout is relatively limited, with inconsistent findings (Maslach & Leiter, 2008; Schaufeli & Enzmann, 1998). Therefore, further studies are warranted to gain a deeper understanding of the nuances associated with burnout based on sociodemographic characteristics.

Limitations and future directions

In this research, leveraging the literature recognizing exhaustion as a central aspect of burnout (Bakker et al., 2014) and a consistent dimension across various conceptualizations

(Zapata et al., 2022), we compared the Matches measure with the CBI, which also emphasizes fatigue and exhaustion. Consequently, our conclusions are confined to the Matches measure's capacity to capture exhaustion, and we cannot extrapolate its performance regarding other facets of burnout (e.g., cynicism, professional efficacy) among Italian employees. However, initial evidence from the U.S. supports measurement equivalence at the facet level also for cynicism and professional efficacy, which, coupled with the fact that our results for exhaustion are similar in magnitude to the ones from the U.S., is promising. Future research conducted in Italy could explore how the Matches measure performs in assessing other constituting dimensions of burnout.

In testing test–retest reliability, we used two–wave data collected across a workweek. While these data are valuable in shedding light on the psychometric properties of the Matches scale, we acknowledge that this time frame is relatively short. Future research could examine the validity of the Matches measure over a longer time span.

CONCLUSION

Overall, our findings suggest that the burnout visual scale can also be used in Italy to obtain a valid and reliable burnout assessment that aligns, concerning work–related variables, with an existing validated measure of burnout, i.e., the CBI. Moreover, adding the visual scale to assess burnout may hold value in mapping psychological mechanisms involved in burnout that are not captured by the Italian version of the CBI. This has implications for both research and applied contexts. The use of the visual burnout scale can mitigate participant fatigue during data collection, enhance participant comprehension, and reduce the need for translating emotions into words (Zapata et al., 2022). These advantages also extend to practitioners willing to assess burnout levels or burnout–related risks and outcomes, who can benefit from a quick and easy–to–use tool that can be adopted for coaching, training sessions, or psychosocial risk assessment.

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