# Romanian Short Version of the Burnout Assessment Tool: Psychometric Properties

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## Abstract

The Burnout Assessment Tool (BAT) represents a new measure of burnout that addresses the shortcomings of previous instruments. This study investigates the psychometric properties of the Romanian short version of the BAT. The sample consisted of 648 employees that completed the short version of the BAT. Of this sample, 117 employees also completed measures for other well-being indicators, job demands, job resources, personality, and organizational outcomes. According to our findings, there are strong correlations between the four core (exhaustion, emotional impairment, cognitive impairment, and mental distance) and two secondary (psychological distress and psychosomatic complaints) burnout symptoms. The scales presented appropriate reliability indicators. Results also support the convergent, discriminant, and construct validities. The Item Response Theory analysis showed a good coverage of the latent trait and the confirmatory factor analyses revealed appropriate fit indices. Theoretical and practical implications are discussed.

## Introduction

Burnout represents a work-related strain resulting from the exposure to job stressors for a long period of time (Maslach et al., 2001). It is a central concept in occupational health psychology (Alarcon, 2011) due to its associations with a series of important constructs. Burnout is negatively related to job satisfaction, organizational commitment (Alarcon, 2011), task performance, and contextual performance (Swider & Zimmerman, 2010) and positively related to turnover intentions (Alarcon, 2011), absenteeism (Swider & Zimmerman, 2010), decreased quality of care, and decreased safety of patients in healthcare (Salyers et al., 2016). Moreover, burnout crossover from one employee to another (Bakker et al., 2007), from leaders to followers (Huang et al., 2016), and from employees to their intimate partners (Bakker, 2009), exacerbates its negative consequences for organizations and individuals. Given these findings, the World Health Organization (2019) added burnout in the International Classification of Diseases as a work-related phenomenon that influences health. Therefore, it is essential that researchers and practitioners in the field have accurate measures of this construct, in order to correctly diagnose burnout and to properly evaluate the effectiveness of interventions to reduce it.

Schaufeli, De Witte, and Desart (2020) have highlighted certain limitations of the currently used instruments for burnout measurement (i.e., conceptual, technical, and practical problems). From a conceptual perspective, the Maslach Burnout Inventory (MBI), the most popular burnout measure, includes a personal accomplishment or professional efficacy component,

although later data indicate that this is rather an antecedent or a consequence of burnout (Schaufeli & Taris, 2005). Furthermore, the MBI does not include elements of reduced cognitive performance, despite the fact that research supports the inclusion of these as a component of burnout (Deligkaris et al., 2014). The various technical and psychometric problems of the MBI (e.g., very skewed answers, ambiguous response anchors, differently worded items) raise questions about its reliability (Bresó et al., 2007; Schaufeli, De Witte, & Desart, 2020; Wheeler et al., 2011) and the practical utility of the MBI is limited due to the lack of clinically validated cut-off scores and because a total score for burnout cannot be calculated based on the instrument (Schaufeli, De Witte, & Desart, 2020). Considering these limitations, Schaufeli, De Witte, and Desart (2020) have developed the Burnout Assessment Tool (BAT) as an alternative measure of burnout that addresses the shortcomings of previous instruments. This study investigates the psychometric properties of the Romanian short version of the BAT.

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## The Burnout Assessment Tool

The BAT conceptualizes burnout as a syndrome consisting of four interrelated core symptoms, all four referring to a single underlying psychological construct (Schaufeli, De Witte, Desart, 2020; Schaufeli, Desart, & De Witte, 2020): exhaustion (a severe loss of physical and mental energy), emotional impairment (overwhelming and intense emotions, such as anger, frustration, sadness, and irritability), cognitive impairment (cognitive deficits of memory, attention, and concentration), and mental distance (detachment from work due to strong reluctance or aversion). In addition, the instrument contains a secondary-symptoms scale with two factors: psychological distress (e.g., sleep problems, anxiety, worrying, and tension) and psychosomatic complaints (e.g., headaches, palpitations, chest and muscle pain). The core symptoms can be measured with a long form (23 items) or a short form (12 items) of the instrument. Regarding the short form, the proposed factorial structure of the core symptoms of burnout was supported on samples from the Netherlands and Belgium (Flanders) (Schaufeli, De Witte, & Desart, 2020). The two-factor model of the secondary symptoms was also supported by the data from Netherlands and Belgium (Schaufeli, De Witte, & Desart, 2020). The reliability of the instrument was supported by good internal consistency indicators (i.e., *Cronbach's* α) and by the test-retest reliability of the four subscales in samples from the two above-mentioned countries (Schaufeli, De Witte, & Desart, 2020).

Studies using a multitrait–multimethod framework indicated a good convergent validity of the BAT with the MBI and Oldenburg Burnout Inventory (Demerouti et al., 2003) in samples of employees from Flanders and Netherlands (Schaufeli, De Witte, & Desart, 2020) and with the MBI in a sample of Japanese employees (Sakakibara et al., 2020). Correlational analyses indicated that burnout, as measured by the Dutch, Flemish, and Japanese versions of the BAT, can be discriminated from other well-being constructs such as work engagement, boredom, and workaholism (Sakakibara et al., 2020; Schaufeli, De Witte, & Desart, 2020). These results indicate a good discriminant validity for the scale. As the Job Demands-Resources model (JD-R; Bakker & Demerouti, 2014) predicts, the BAT burnout scores are positively related with job demands and negative outcomes (e.g., turnover intentions) in the Netherlands, Flanders, and Japan (Sakakibara et al., 2020; Schaufeli, De Witte, & Desart, 2020). The BAT burnout scores are also negatively related with job resources (e.g., role clarity, engaging leadership), personal resources (e.g., self-efficacy, optimism), and positive outcomes (e.g., organizational commitment, in-role performance) for employees from Netherlands and Flanders (Schaufeli, De Witte, & Desart, 2020). These associations support the construct validity of the instrument and are in line with previous meta-analytical results in which burnout was negatively related with personal resources (e.g., emotional stability, conscientiousness, self-efficacy, optimism), job resources (e.g., control, autonomy), and job performance and positively related with job demands (e.g., role ambiguity, workload) (Alarcon, 2011, Alarcon et al., 2009; Swider & Zimmerman, 2010).

## The Present Study

The present study continues the scientific effort of introducing a valid measurement of burnout in as many countries as possible by evaluating the psychometric properties of the Romanian short version of the BAT. Measuring and reducing burnout are important issues for the Romanian workforce. For example, the healthcare sector of Romania is characterized by heavy workloads, underfunding, and staff shortage (Ungureanu et al., 2020), which created a context that led to high levels of burnout in physicians, nurses, and medical residents during and before the COVID-19 pandemic (Cotel et al, 2021; Dimitriu et al., 2020; Popa et al., 2010). Unfortunately, prevalence and predictors of burnout in other professions have not been sufficiently studied in Romania, most studies being performed on healthcare stuff or heterogeneous samples. By using the BAT, practitioners and researchers can assess the prevalence of burnout in various professional fields from Romania and can evaluate the effectiveness of psychological interventions or organizational policies aimed at reducing it.

In addition, short psychological scales are especially useful in research and practice because they save time and reduce respondents' boredom and attrition. We report on the following analyses: the confirmatory factor analysis of the core and secondary dimensions of the BAT; descriptive statistics; reliabilities; correlations between the core and secondary burnout symptoms; and an Item Response Theory analysis. We also compared employees who reported being treated for burnout with those who were not being treated in terms of their BAT scores. Finally, the convergent, discriminant, and construct validity of the BAT were evaluated by exploring the relationships between burnout and other well-being indicators, job demands, job resources, personal resources, and organizational outcomes.

## Method

### Participants and Procedure

A sample of 648 employees completed only the short version of the BAT and a sub-sample of 117 employees out of these 648 completed all the measurement instruments. Given the large size of the questionnaire which included all the variables, only 117 participants were asked to complete all questionnaires; the rest received only the Romanian version of the BAT. The characteristics of the two samples are presented in Table 1. Participants were recruited through social networks and announcements in various Romanian organizations, therefore forming a convenience sample. All participation was voluntary and informed consent was collected from all participants. All the data was collected online, at a single point in time. The study was approved (approval no. 37) by the Ethics Committee at University of Bucharest.

**Table 1.** Overview of the Romanian Validation Samples.

| Variables | Sample 1 (Only the BAT) (N = 648) | Sample 2 (All Questionnaires) (N = 117) |
|---|---|---|
| Gender | | |
| Male | 22% | 21% |
| Female | 78% | 79% |
| Age - Mean (SD) | 33.56 (9.96) | 34.22 (9.77) |
| Education | | |
| Primary | 1% | 0% |
| Secondary | 10% | 7% |
| Higher | 89% | 93% |
| Industry sector | | |
| Agriculture, forestry, fishery | 1% | 0% |
| Manufacturing | 8% | 13% |
| Construction | 1% | 0% |
| Retail, wholesale, repair | 3% | 4% |
| Hospitality | 1% | 0% |
| Banking, real estate, financial services | 9% | 7% |
| Transportation, storage, distribution | 3% | 2% |
| Commercial services (e.g., ICT, consultancy) | 40% | 43% |
| Public administration and governance | 5% | 4% |
| Education | 17% | 19% |
| Health care, social services, law enforcement | 10% | 8% |
| Arts, entertainment, recreation, sport | 2% | 0% |
| Occupation | | |
| Elementary occupations (e.g., assembler) | 2% | 0% |
| Craft or trades worker (e.g., electrician) | 2% | 2% |
| Clerk, services, sales worker (e.g., secretary) | 26% | 27% |
| Technician (e.g., ICT specialist) | 21% | 24% |
| Professional (e.g., physician) | 38% | 40% |
| Manager (e.g., managing director) | 11% | 7% |
| Type of job | | |
| Fulltime | 94% | 96% |
| Part-time | 6% | 4% |
| Work hours/week in contract - Mean (SD) | 38.44 (10.66) | 38.69 (6.74) |
| Work hours/week (actual state) - Mean (SD) | 42.20 (13.01) | 42.42 (11.25) |
| Job tenure – Mean (SD) | 11.23 (9.81) | 11.65 (9.88) |
| Treated for burnout in the past 5 years | 7% | 4% |

## Measurement Instruments

*Burnout* was measured with the short version of the BAT (Schaufeli et al., 2020), which contains six dimensions: four core symptoms and two secondary symptoms. The core symptoms are exhaustion (three items; e.g. *"At work, I feel mentally exhausted."*), mental distance (three items, e.g. *"I feel a strong aversion towards my job."*), cognitive impairment (three items, e.g. *"When I'm working, I have trouble concentrating."*), and emotional impairment (three items, e.g. *"At work, I feel unable to control my emotions."*). The secondary symptoms are psychological distress (five items, e.g. *"I feel tense and stressed."*) and psychosomatic complaints (five items, e.g. *"I suffer from headaches."*). All items are rated on a 5-point scale, from 1 (never) to 5 (always). The instrument was translated using the committee approach by two Romanian psychologists specialized in occupational health psychology. The Romanian short version of the BAT is presented in Appendix A. All other measuring instruments were translated using the same approach.

*Burnout* was also measured with Maslach Burnout Inventory (16 items; e.g. *"I feel emotionally drained from my work."*; Cronbach's Alpha = .87; Schaufeli et al., 1996).

*Work engagement* was measured with the Utrecht Work Engagement Scale - Short Version (9 items; e.g. *"My job inspires me."*; Cronbach's Alpha = .93; Schaufeli et al., 2006).

*Workaholism* was measured with the Dutch Work Addiction Scale (10 items; e.g. *"I feel guilty when I take time off work."*; Cronbach's Alpha = .89; Schaufeli et al., 2009).

*Boredom at work* was measured with the Dutch Boredom Scale (10 items; e.g. *"I feel bored at my job."*; Cronbach's Alpha = .75; Reijseger et al., 2013).

*Job demands* were measured with the Job Demands-Resources Questionnaire (Schaufeli, 2015). The questionnaire included four items for work overload (e.g., *"Do you have too much work to do?"*; Cronbach's Alpha = .76), three items for role conflict (e.g., *"Do you get incompatible requests?"*; Cronbach's Alpha = .69), and four items for interpersonal conflict (e.g., *"Are there personal conflicts within your team?"*; Cronbach's Alpha = .80).

*Job resources* were measured with the Job Demands-Resources Questionnaire (Schaufeli, 2015). The questionnaire included three items for role clarity (e.g., *"Is it sufficiently clear what you need to do in your job?"*; Cronbach's Alpha = .88), three items for co-workers support (e.g., *"Can you count on your colleagues for help and support, when needed?"*; Cronbach's Alpha = .80), three items for supervisor support (e.g., *"My supervisor is open for discussing both private and business issues."*; Cronbach's Alpha = .91), seven items for job control (e.g., *"Can you decide about the content of your work?"*; Cronbach's Alpha = .88), three items for performance feedback (e.g., *"Do you get enough information about the result of your work?"*; Cronbach's Alpha = .84), and three items for opportunities for learning (e.g., *"In my work I always learn new things."*; Cronbach's Alpha = .89).

*Personal resources.* Emotional stability (eight items; e.g. "I see myself as somebody who worries a lot."; Cronbach's Alpha = .85) and conscientiousness (nine items; e.g. "I see myself as somebody who does a thorough job."; Cronbach's Alpha = .88) were measured with the Big Five Inventory (John & Srivastava, 1999). Self-efficacy (three items; e.g. "When difficulties arise at work, I know how to solve them."; Cronbach's Alpha = .87), optimism (three items; e.g. "At work,

**Table 2.** Reliabilities and Correlations Between the Core and Secondary Burnout Symptoms for the Short Version of the BAT.

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Exhaustion | 2.72 | .97 | (.83) | | | | | | | |
| 2. Mental distance | 2.19 | .90 | .59*** | (.73) | | | | | | |
| 3. Cognitive impairment | 1.91 | .77 | .39*** | .42*** | (.77) | | | | | |
| 4. Emotional impairment | 1.90 | .70 | .41*** | .42*** | .52*** | (.72) | | | | |
| 5. Total core symptoms | 2.18 | .64 | .81*** | .81*** | .73*** | .73*** | (.86) | | | |
| 6. Psychological distress | 2.55 | .93 | .64*** | .47*** | .42*** | .51*** | .67*** | (.83) | | |
| 7. Psychosomatic complaints | 2.16 | .84 | .61*** | .46*** | .33*** | .41*** | .60*** | .74*** | (.81) | |
| 8. Total secondary symptoms | 2.36 | .82 | .67*** | .50*** | .40*** | .50*** | .68*** | .94*** | .93*** | (.89) |

*Note.* $N = 631$. Cronbach's alpha reliabilities are in parentheses on the diagonal.
***$p < .001$.

I always look at the bright side."; Cronbach's Alpha = .74), and resilience (three items; e.g. "Usually I can handle problems at work adequately."; Cronbach's Alpha = .70) were measured with the Job Demands-Resources Questionnaire (Schaufeli, 2015).

*Organizational outcomes* were measured with the Job Demands-Resources Questionnaire (Schaufeli, 2015). The questionnaire included three items for in-role performance (e.g., *"You meet all requirements for your job"*; *Cronbach's Alpha* = .83) and three items for extra-role performance (e.g., *"You assist colleagues with their work when they return from being absent"*; *Cronbach's Alpha* = .82).

## Results

Given the online data collection process that enforced responses to all items, we did not have cases with missing values. We computed the Mahalanobis distance (Yuan et al., 2004) between cases to find multivariate outliers (i.e., unusual item response patterns); based on the results, we removed 17 cases and retained 631 cases for the analysis.

### Factorial Validity

As in Schaufeli, De Witte, and Desart (2020), three confirmatory factor analyses have been conducted using Mplus software (Muthén & Muthén, 1998–2012) for the short version of the BAT: a 1-factor model in which all 12 items loaded a single underlying factor ($\chi^2 = 922.40$, df = 54, CFI = .70, TLI = .64, RMSEA = .16), a 4-factor model in which exhaustion, mental distance, cognitive impairment, and emotional impairment are four distinguished factors ($\chi^2 = 236.39$, df = 48, CFI = .94, TLI = .91, RMSEA = .08), and a second-order model in which the four distinct factors further loaded one underlying general construct ($\chi^2 = 270.34$, df = 50, CFI = .93, TLI = .90, RMSEA = .08). Two confirmatory factor analyses have been conducted for the secondary symptoms: a 1-factor model with all 10 items loading a single factor ($\chi^2 = 304.70$, df = 35, CFI = .91, TLI = .88, RMSEA = .11) and a 2-factor model in which psychological distress and psychosomatic complaints are distinguished factors ($\chi^2 = 165.04$, df = 33, CFI = .95, TLI = .94, RMSEA = .08). Based on modification index, a

correlated error was declared between item 2 and item 3 from psychological distress. The two items measure similar negative states such as worry, tension, and stress. Finally, a model with all six distinct factors was tested, with few correlated errors declared based on modification index ($\chi^2 = 720.37$, df = 189, CFI = .92, TLI = .90, RMSEA = .07). Goodness-of-fit was evaluated using several indicators: values at least higher than .90 for the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) and values of .08 or less for the Root Mean Square Error of Approximation (RMSEA) (Hu & Bentler, 1995).

We used CFA instead of EFA because the factorial structure of the scale (i.e., the number of factors and which items load on each factor) was already determined by previous statistical analyses and previous theoretical models. For example, the second-order model of the BAT was supported on different samples such as Ecuadorian part-time employees (Vinueza-Solórzano et al., 2021), Italian teachers (Angelini et al, 2021), and employees from The Netherlands, Belgium, Austria, and Finland (de Beer et al., 2020). The measurements presented appropriate fit indices for the second-order model of the core symptoms and for the two-factor model for the secondary symptoms. Our results are in line with those of Schaufeli, Desart, and De Witte (2020). Based on these results, we can conclude that the second-order model of the core symptoms fits well with the data. This finding is in line with the results of Hadžibajramović and colleagues (2020), which indicate that the four subscales of the BAT can be combined into a single burnout score.

### Descriptive Statistics, Reliabilities, and Correlations Between the Core and Secondary Burnout Symptoms

Following Schaufeli, De Witte, and Desart (2020), we computed the correlations between the scales that measure the core and secondary burnout symptoms. In addition, we examined the internal consistency (*Cronbach's α*) for all the scales. Results are presented in Table 2. In accordance with Schaufeli, De Witte, and Desart (2020), the four core symptoms of burnout are strongly related with the total score on the BAT and less strongly related with the secondary symptoms. Also, the scales presented appropriate reliability indicators.

**Table 3.** Correlations Between Work Engagement (UWES), Work Addiction (DUWAS), Boredom (DUBS), and Burnout (BAT) for the Short Version of the BAT.

| Variables | Burnout (MBI) | Work Engagement (UWES) | Work Addiction (DUWAS) | Boredom at Work (DUBS) |
|---|---|---|---|---|
| Exhaustion | .71*** | −.46*** | .38*** | .34*** |
| Mental distance | .71*** | −.69*** | .10 | .52*** |
| Cognitive impairment | .55*** | −.47*** | −.02 | .52*** |
| Emotional impairment | .49*** | −.34*** | .01 | .36*** |
| Total core symptoms | .80*** | −.64*** | .17 | .55*** |
| Psychological distress | .65*** | −.45*** | .37*** | .22* |
| Psychosomatic complaints | .52*** | −.40*** | .28** | .22* |
| Total secondary symptoms | .63*** | −.46*** | .35*** | .23* |

*Note.* $N = 117$.
*$p < .05$. **$p < .01$. ***$p < .001$.
Bolded values indicate correlations higher than .50.

## Item Response Theory Analysis

The Item Response Theory (IRT) analysis was conducted using the *mirt* package (Chalmers, 2012) for R software (R Core Team, 2017) in order to obtain the trait level estimates for polytomous items of the short version of the BAT (Samejima, 1969). The trait level estimates were identified by using the graded response model, which indicates (1) the discrimination (slope) parameters (i.e., the strength of the association between items and the latent construct) and (2) the location (boundary) parameters (i.e., the position of the items on the latent trait continuum). Given that the BAT uses a five-point Likert scale, we computed four boundary parameters. Information functions of the scales are presented in Appendix B. The exhaustion scale offered most information for trait levels ($\theta$) between −2 and 3.5; the mental distance scale displayed most information between −2 and 4, the cognitive impairment scale provided most information from −2 to 4; the emotional impairment scale displayed the most information for trait levels between −2 and 4. Similarly, psychological distress scale provided most information for trait levels between −2 and 4 and psychosomatic complaints scale provided most information for trait levels between −2 and 4. Therefore, the scale covers the burnout levels properly.

## Differences Between Employees Treated for Burnout and the Untreated Employees

We compared employees who reported being treated for burnout in the past 5 years ($n = 42$) with employees who were not treated for burnout ($n = 589$). Given the unequal sample sizes, the Welch's Test for Unequal Variances was used. Employees treated for burnout had higher scores on exhaustion ($t = 4.21$, $p < .001$, $d = .76$), on mental distance ($t = 2.47$, $p < .05$, $d = .45$), on emotional impairment ($t = 2.79$, $p < .01$, $d = .46$), on total core symptoms ($t = 3.47$, $p < .001$, $d = .63$), and on total secondary symptoms ($t = 2.01$, $p < .05$, $d = .35$). We did not find differences in terms of cognitive impairment ($t = 1.58$, $p > .05$). These results suggest that the instrument could discriminate between chronically exhausted employees and the rest of the employees. However, these results should be interpreted with caution. Burnout has no clear diagnostic criteria and our two samples are based on a single question to which the participants answered whether or not they were treated for burnout in the past 5 years. Respondents may also confuse burnout with depression, since previous research suggests a possible overlap between the symptoms of the two constructs (Bianchi et al., 2021; Meier & Kim, 2021). Finally, national representative clinical cut-offs of the BAT should be established for Romania before drawing such conclusions.

## Convergent and Discriminant Validity

We tested the convergent validity of the BAT in relationship with the Maslach Burnout Inventory (Schaufeli et al., 1996). We tested the discriminant validity of the BAT in relationship with questionnaires that measure other aspects of work-related well-being (i.e., work engagement, workaholism, and boredom at work). Results are presented in Table 3. The correlations between the BAT scores and the other constructs indicate an appropriate convergent and discriminant validity.

## Relationships With Job Demands, Job Resources, Personal Resources, and Organizational Outcomes

We expected, based on the JD-R (Bakker & Demerouti, 2014), that burnout would be positively associated with job demands and negatively associated with job resources and personal resources. As the theory predicts, the BAT scores were positively related to a series of job demands (i.e., work overload, role conflict, and interpersonal conflict). The BAT scores were also negatively related to job resources (i.e., role clarity, co-worker support, supervisor support, job control, performance feedback, and opportunities for learning) and personal resources (i.e., emotional stability, conscientiousness, self-efficacy, optimism, resilience). Burnout was negatively associated with in-role and extra-role performance. Our results are in line with the predictions, as presented in Appendix C. All these findings support the construct validity of the instrument.

## Discussion

This study investigated the psychometric properties of the Romanian short version of the BAT. According to our findings, there are strong correlations between the four core and two secondary burnout symptoms. The Cronbach's alpha values indicate good reliability for all the six scales that measure burnout symptoms. Results also support the convergent, discriminant, and construct validities of the BAT for the Romanian sample. The strong correlation between the core symptoms of the BAT and the overall MBI score support the convergent validity of the investigated scale. As expected, the biggest overlaps are between exhaustion and mental distance from the BAT and the overall score from MBI. These findings are explained by the fact that exhaustion and mental distance from the BAT are similar constructs to emotional exhaustion and depersonalization from MBI. We also found strong negative correlations between the BAT scores and work engagement. In line with this result, work engagement is seen by some researchers as the positive counterpart of burnout; emotional exhaustion and cynicism from MBI and vigor and dedication from UWES are considered opposite poles of two general constructs that describe work-related states: energy and identification (González-Romá et al., 2006).

In accordance with meta-analytical data that indicate higher levels of burnout and lower levels of physical and mental health for workaholic employees (Clark et al., 2016), we also found that work addiction is positively related with exhaustion and secondary symptoms of the BAT (psychological distress and psychosomatic complaints). In line with previous findings (Reijseger et al., 2013), our data indicate positive links between boredom and both exhaustion and mental distance. Our results support the lack of activation as a common feature of boredom and burnout. In the case of boredom, the lack of activation is believed to be determined by under-stimulation and, in the case of burnout, by over-stimulation (Schaufeli, De Witte, & Desart, 2020). Moreover, we have highlighted positive relationships between boredom and both cognitive and emotional impairment, which have not been described in previous studies. All these findings are in line with those of Schaufeli, De Witte, and Desart (2020). The confirmatory factor analyses support the factorial structure of the instrument for the short version of the BAT. Finally, the IRT analysis indicates that the BAT covers the burnout levels properly, meaning that it had a good coverage of the measured construct (i.e., it can discriminate between employees with low or high levels of burnout). This final observation is reinforced by the fact that the instrument can discriminate between chronically exhausted employees and the rest of the employees.

### Theoretical and Practical Implications

From a theoretical point of view, this study emphasizes a new conceptualization of burnout, by excluding the personal accomplishment or professional efficacy factor and by including both cognitive and emotional impairment as new components. This factorial structure of burnout proposed by Schaufeli, De Witte, and Desart (2020) is in line with recent literature (de Beer, 2021; Deligkaris et al., 2014; Schaufeli & Taris, 2005). The results support a factorial structure of burnout consisting of four components: exhaustion, emotional impairment, cognitive impairment, and mental distance. Moreover, our findings highlight the association between burnout and a series of secondary symptoms (e.g., sleep problems, anxiety, headaches, palpitations), reinforcing the need to address this negative work-related psychological state. This paper also replicated the findings of Schaufeli, De Witte, and Desart (2020) by showing that burnout measured with the BAT is a distinct construct from work addiction and boredom. Moreover, the introduction of this new conceptualization of burnout in Romania will allow testing of the assumptions and predictions of different models in the occupational health literature, based on this deeper understanding of the construct, advancing the field of occupational health psychology. As already mentioned, research in Romania has focused mainly on the burnout of medical staff (Cotel et al, 2021; Dimitriu et al., 2020; Popa et al., 2010). The introduction of this new instrument could facilitate the measurement of exhaustion in other professional fields in Romania. Conducting more research on this topic could increase awareness of burnout at work and its negative consequences in Romania. This could also popularize interventions to reduce burnout. Our results suggest that the BAT overall score is positively linked with job demands and negatively related with job resources, personal resources, and performance, as the JD-R model predicts. This study also has practical implications. Firstly, it provides Romanian practitioners with relevant information about a new tool for assessing employee burnout and for organizational assessments. Secondly, this new instrument can be used to monitor the effectiveness of individual or organizational interventions to reduce burnout. Our results support the need to further test burnout interventions; participants who reported receiving such interventions in the past five years still had higher scores on symptoms of burnout compared to the rest of the sample.

### Limitations of the Study and Future Research

This study has a number of limitations. Firstly, the analyses were performed on a convenience sample, therefore sampling bias might exist. Secondly, the sample was composed mainly of highly skilled respondents, therefore it is not representative for the population. Future studies may use national representative samples, including people with severe levels of burnout, in order to establish appropriate clinical cut-offs for the Romanian version of the BAT. This is a central feature of the BAT, representing an improvement over previous tests, therefore validated norms and cut-off values for Romania will increase the practical utility of the instrument. Thirdly, we estimated reliability only through the internal consistency (*Cronbach's α*). Future studies may follow the approach of Schaufeli, De Witte, and Desart (2020) and also investigate the test–retest reliability by testing the same employees across multiple moments in time. Fourth, the study did not explore the measurement invariance of the

Romanian adaptation of the scale with data collected in other countries. Future research should investigate the measurement invariance of the Romanian version of the BAT with versions from other countries (e.g., Dutch speaking countries). Finally, as we already mentioned, there are indications of a possible overlap between burnout and depression (Bianchi et al., 2021; Meier & Kim, 2021). Future studies could explore the extent to which the symptoms measured with the BAT overlap with those of depression.

## Conclusion

The short version of the BAT shows sound psychometric properties, therefore it can be used by practitioners in the field of occupational health psychology in Romania to estimate burnout risk, but clinically valid cut-off points still need to be established for considering a diagnosis for burnout. It is important to note that the instrument provides clues about the risk of burnout, but it is not a measure of clinical burnout per se. The results of the current study provide primary evidence for the factorial validity, reliability, and construct validity of the Romanian short version of the BAT, indicating that this measuring instrument is a psychometrically valid alternative to existing scales that measure burnout. The BAT can evaluate two components of burnout that are not considered by previously developed instruments: emotional impairment and cognitive impairment. Therefore, the BAT can be used to assess employee burnout and to evaluate the effectiveness of interventions to reduce it.

## Appendix A

*Romanian Short Version of Burnout Assessment Tool*

**Table A1.** Următoarele afirmaţii se referă la modul în care vă simţiţi în legătură cu munca dumneavoastră şi cum vă raportaţi la aceasta. Vă rugăm indicaţi în ce măsură fiecare din afirmaţiile de mai jos vă caracterizează.

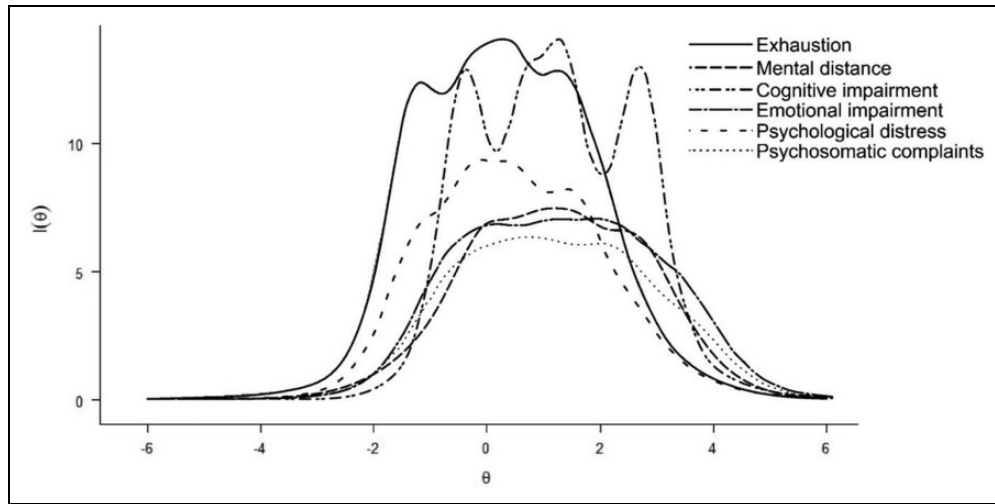| | Niciodată | Rar | Uneori | Des | Întotdeauna |
|---|---|---|---|---|---|
| *Simptome de bază* | | | | | |
| *Epuizare* | | | | | |
| 1. La muncă, mă simt epuizat(ă) psihic. | 1 | 2 | 3 | 4 | 5 |
| 2. După o zi de muncă, mi se pare greu să-mi recapăt energia. | 1 | 2 | 3 | 4 | 5 |
| 3. La muncă mă simt epuizat(ă) fizic. | 1 | 2 | 3 | 4 | 5 |
| *Distanţă mentală* | | | | | |
| 4. Mă străduiesc să găsesc motivaţia necesară pentru munca mea. | 1 | 2 | 3 | 4 | 5 |
| 5. Am o aversiune puternică faţă de serviciul meu. | 1 | 2 | 3 | 4 | 5 |
| 6. Sunt cinic(ă) cu privire la ce înseamnă munca mea pentru ceilalţi. | 1 | 2 | 3 | 4 | 5 |
| *Afectarea controlului cognitiv* | | | | | |
| 7. La serviciu, am probleme să stau concentrat(ă) pe sarcini. | 1 | 2 | 3 | 4 | 5 |
| 8. Când muncesc, mă concentrez greu. | 1 | 2 | 3 | 4 | 5 |
| 9. Fac greşeli în munca mea pentru că mă gândesc la alte lucruri. | 1 | 2 | 3 | 4 | 5 |
| *Afectarea controlului emoţional* | | | | | |
| 10. La serviciu, mă simt incapabil(ă) să-mi controlez emoţiile. | 1 | 2 | 3 | 4 | 5 |
| 11. Nu mă recunosc în felul în care reacţionez emoţional la serviciu. | 1 | 2 | 3 | 4 | 5 |
| 12. La serviciu, se mai întâmplă să reacţionez exagerat fără să vreau. | 1 | 2 | 3 | 4 | 5 |
| *Simptome secundare* | | | | | |
| *Distres psihic* | | | | | |
| 1. Am dificultăţi în a adormi sau a rămâne adormit(ă) | 1 | 2 | 3 | 4 | 5 |
| 2. Tind să-mi fac griji | 1 | 2 | 3 | 4 | 5 |
| 3. Mă simt tensionat(ă) şi stresat(ă) | 1 | 2 | 3 | 4 | 5 |
| 4. Sunt anxios/anxioasă sau am atacuri de panică | 1 | 2 | 3 | 4 | 5 |
| 5. Mă deranjează zgomotele şi mulţimile | 1 | 2 | 3 | 4 | 5 |
| *Simptome psihosomatice* | | | | | |
| 6. Am palpitaţii sau dureri în piept | 1 | 2 | 3 | 4 | 5 |
| 7. Am probleme cu stomacul şi/sau digestive | 1 | 2 | 3 | 4 | 5 |
| 8. Am dureri de cap | 1 | 2 | 3 | 4 | 5 |
| 9. Am dureri musculare, de exemplu în ceafă, umeri sau spate | 1 | 2 | 3 | 4 | 5 |
| 10. Mă îmbolnăvesc deseori | 1 | 2 | 3 | 4 | 5 |

**Figure B1.** Results of item response theory analysis for the short version of Burnout Assessment Tool ($N = 631$).

**Table C1.** Correlations Between Burnout and Job Demands for the Short Version of the BAT.

| | Exhaustion | Mental Distance | Cognitive Impairment | Emotional Impairment | Core Symptoms | Psychological Distress | Psychosomatic Complaints | Secondary Symptoms |
|---|---|---|---|---|---|---|---|---|
| *Job demands* | | | | | | | | |
| Work overload | .42*** | .23* | .10 | .24** | .33*** | .36*** | .31*** | .36*** |
| Role conflict | .44*** | .39*** | .26** | .13 | .41*** | .40*** | .46*** | .46*** |
| Interpersonal conflict | .33*** | .39*** | .27** | .28** | .41*** | .34*** | .29*** | .34*** |
| *Job resources* | | | | | | | | |
| Role clarity | −.36*** | −.25** | −.33*** | −28** | −.39*** | −.28** | −.28** | −.30*** |
| Coworker support | −.40*** | −.44*** | −.16 | −.21* | −.40*** | −.35*** | −.28** | −.34*** |
| Supervisor support | −.40*** | −.36*** | −.14 | −.21* | −.37*** | −.37*** | −.31*** | −.37*** |
| Job control | −.32*** | −.33*** | −.09 | −.22* | −.31*** | −.40*** | −.33*** | −.39*** |
| Performance feedback | −.29** | −.33*** | −.19* | −.21* | −.32*** | −.36*** | −.29** | −.35*** |
| Opportunities for learning | −.31*** | −.50*** | −.18* | −.21* | −.39*** | −.31*** | −.36*** | −.36*** |
| *Personal resources* | | | | | | | | |
| Emotional stability | −.51*** | −.37*** | −.50*** | −.53*** | −.61*** | −.66*** | −.59*** | −.67*** |
| Conscientiousness | −.30** | −.43*** | −.64*** | −.34*** | −.54*** | −.25*** | −.18* | −.23* |
| Self-efficacy | −.29** | −.38*** | −.50*** | −.42*** | −.50*** | −.35*** | −.27** | −.33*** |
| Optimism | −.47*** | −.51*** | −.47*** | −.39*** | −.59*** | −.49*** | −.49*** | −.53*** |
| Resilience | −.20* | −.23* | −.45*** | −.30** | −.37*** | −.26** | −.20* | −.25** |
| *Organizational outcomes* | | | | | | | | |
| In-role performance | −.16 | −.25** | −.50*** | −.29** | −.38*** | −.18* | −.10 | −.15 |
| Extra-role performance | −.09 | −.24* | −.30** | −.29** | −.28** | −.12 | −.01 | −.07 |

*Note.* $N = 117$.
*$p < .05$. **$p < .01$. ***$p < .001$.

## Appendix B

## Appendix C

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