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Burnout Profiles: Dimensionality, Replicability, and Associations with Predictors and Outcomes

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Abstract

The present study examined the distinct configurations, or profiles, taken by global and specific (cognitive weariness, physical fatigue, and emotional exhaustion) burnout dimensions, and their similarity across two independent samples of employees. In addition, this research also documented the associations between the identified burnout profiles, two predictor variables (perceived organizational support and ethical leadership), and a series of work-related outcomes (affective commitment, normative commitment, continuance commitment–perceived sacrifice, continuance commitment–lack of alternatives, job satisfaction, and perceived stress). Five distinct profiles of employees were identified using latent profile analyses: *Thriving*, *Healthy*, *Weary*, *High Burnout*, and *Normative*. Employees' perceptions of organizational support were significantly related to their likelihood of belonging to all profiles. In turn, employees' affective commitment, normative commitment, continuance commitment (perceived sacrifice and lack of alternatives), job satisfaction, and perceived stress were also found to differ as a function of profile membership.

Key words: Burnout; latent profiles; perceived organizational support; ethical leadership; satisfaction; organizational commitment

Burnout can be conceptualized as employees' affective responses to the depletion of their energetic resources following exposure to chronic job stress (Halbesleben & Buckley, 2004) and is associated with a variety of undesirable organizational and individual outcomes (e.g., lower levels of organizational commitment and job satisfaction; Akirmak & Ayla, 2019; Morin et al., 2013). Burnout is damaging emotionally, cognitively, and physically, leading to less efficient work recovery, negative work attitudes, and health-related difficulties (Hobfoll, 1989; Shirom & Melamed, 2006). Despite abundant research (Goering et al., 2017; Shirom & Melamed, 2006) supporting the negative consequences associated with the various components of burnout (cognitive weariness, physical fatigue, and emotional exhaustion; Sassi & Neveu, 2010), the combined impact of these components remains understudied. To better understand this combined impact, two complementary approaches can be used. Variable-centered analyses, designed to assess how variables (such as burnout components) relate to other variables, while relying on the assumption that the observed associations generalize equally to all members of the population. In contrast, person-centered analyses are designed to identify subpopulations of employees presenting differentiated configurations on multiple indicators (such as burnout dimensions) to assess how these configurations relate to various predictors and outcomes.

Person-centered research has started to look at how burnout components combine within employees (e.g., Berjot et al., 2017; Guidetti et al., 2018; Leiter & Maslach, 2016; Pyhältö et al., 2020; Sorkkila et al., 2020). However, no research has done so while considering all theoretical facets of burnout proposed by Shirom and Melamed (2006: Cognitive weariness, physical fatigue, and emotional exhaustion), or by simultaneously considering employees' global and specific levels of burnout (Isoard-Gautheur et al., 2018). The present study addresses these issues by documenting the burnout configurations (or profiles) that best characterize two samples of employees who completed the Shirom-Melamed Burnout Measure (SMBM; Shirom & Melamed, 2006). Importantly, these profiles are estimated while considering the multidimensionality of burnout through the joint consideration of global and specific (cognitive weariness, physical fatigue, and emotional exhaustion) levels of burnout (e.g., Isoard-Gautheur et al., 2018; Sánchez-Rodríguez et al., 2020). To ascertain the construct validity of these profiles (Meyer & Morin, 2016), this study also investigates the role of perceived organizational support and ethical leadership as predictors of profile membership, and the outcome implications of membership into these profiles in relation to affective, normative, and continuance (perceived sacrifice and lack of alternatives) commitment, job satisfaction, and perceived stress.

Person-centered results tend to be more naturally aligned with managers and practitioners' tendency to think about employees as members of different categories than results from complex variables-centered variable interactions (Morin et al., 2011b). For this reason, our findings are thus likely to have important implications for practice. Indeed, documenting the outcome implications of these profiles should help to decide which should be prioritized from an intervention perspective. Likewise, documenting the role of organizational support and ethical leadership as drivers of profile membership should help to identify actionable levers of interventions.

Indeed, whereas variable-centered results would allow us to identify predictors of burnout severity which could be used to guide intervention, these results would assume that the effects of those predictors are consistent as a function of employees' burnout levels, but that they could differ across dimensions (for instance, one predictor could be related to employees' levels of cognitive wariness, and another one to their levels of physical fatigue). Assuming the latter, intervention decision becomes difficult and would have to decide whether to prioritize one specific burnout dimension or another. In contrast, the person-centered approach focuses on the identification of specific types of employees encompassing all burnout dimensions, and allows for the identification of mechanisms which can be used to increase, or decrease, the risk of occurrence of these specific profiles. For example, we might identify a *High Burnout* profile that is also associated with detrimental outcomes, confirming the idea that it represents high-risk group of employees. In turn, we might realize that both predictors could reduce the risk of occurrence of this profile. However, we might also identify another group of employees, characterized mainly by high levels of cognitive weariness, that is also associated with a similarly problematic outcome configuration. However, the results might then reveal that one predictor (e.g., organizational support) might reduce the risk of occurrence of this profile, whereas the other one (e.g., ethical leadership) might increase it. Such observations would then suggest that one mechanism could be used with uniformity to benefit all employees, whereas another one would be more useful as part of interventions targeted at a specific profile of employees.

Finally, evidence of generalizability across samples regarding the profiles themselves, but also their determinants and outcomes, will support the idea that the profiles tap into some core psychological phenomenon for which generic interventions could be devised in order to differentially manage or support employees based on their profiles irrespective of employment type.

Multidimensionality: Global versus Specific Levels of Burnout

The Maslach Burnout Inventory (MBI; Maslach et al., 2001) is arguably the most commonly used measure of burnout. This instrument is anchored in Maslach and Jackson's (1986) conceptualization of burnout as a psychological syndrome of emotional exhaustion, cynicism, and reduced personal accomplishment. These three dimensions are seen as independent from one another (Maslach et al., 2001), and prior meta-analytic studies have supported that each of these three components shared unique associations with various determinants and outcomes (e.g., Lee & Ashforth, 1996). However, researchers have theoretically and empirically challenged the relevance of the last component, typically assessed as positive feelings of competence, and suggested that a two-factor model including only emotional exhaustion and cynicism might be more appropriate (e.g., Kalliath et al., 2000). Others have argued that feelings of personal accomplishment were better conceptualized as a personality factor rather than as a burnout component (e.g., Cordes & Dougherty, 1993). An alternative conceptualization of burnout has thus been proposed by Shirom and Melamed (2006: The SMBM), who argued that a comprehensive representation of burnout should encompass cognitive weariness, physical fatigue, and emotional exhaustion facets. In the present study, we adopt this representation.

The SMBM is rooted in Hobfoll's (1989) conservation of resources theory and thus has a clear theoretical background. This is not the case for the MBI which "was not constructed based on an underlying theory explaining why the three factors should belong to the phenomenon of burnout rather than, say, to its immediate consequences (such as depersonalization or reduced personal accomplishments, two components of the MBI)" (Shirom, 2010, p. 61). More specifically, emotional, cognitive, and physical resources represent a set of assets internal to the self that are expected to be closely interrelated and to facilitate the development and use of other resources (Hobfoll, 1989). Furthermore, Shirom (2010) argued that the conceptualization of the SMBM clearly differentiates burnout from stress appraisals, coping behaviors (e.g., distancing themselves from client recipients similar to depersonalization in the MBI), and potential outcomes (e.g., performance decreases similar to reduced personal accomplishments in the MBI). The SMBM has thus the potential to reveal more information about the core content of burnout (i.e., emotional, cognitive, and physical) than the MBI[1] (Shirom & Melamed, 2006) or other tools frequently used to assess burnout (e.g., Burnout Measure: Pines et al., 1981; Oldenburg Burnout Inventory: Halbesleben & Demerouti, 2005).

However, some research has suggested that employees could experience burnout holistically as a single global dimension, irrespective of whether it is assessed using the SMBM (e.g., Gerber et al., 2020) or the MBI (Schaufeli & Enzmann, 1998). Such a global representation of burnout is supported by the generally high correlations reported among ratings of each of the three burnout components (Sassi & Neveu, 2010; Maslach et al., 2001), and by the demonstration of stronger associations with covariates (i.e., predictors and outcomes) when burnout is defined as a single global dimension (Shirom & Melamed, 2006). In contrast, research has also supported the conceptually-distinct nature of the three burnout components via the demonstration of differentiated covariate associations (Mansour & Tremblay, 2019). When considering the SMBM, combining these two possibilities suggests that global levels of burnout could also possibly co-exist with specific levels of cognitive weariness, physical fatigue, and emotional exhaustion left unexplained by this global level. Higher-order results reported by Shirom and Melamed (2006) on the SBMB and MBI lend support to this possibility by demonstrating that separate burnout dimensions are conceptually-related facets of an overarching factor, and yet retain specificity unexplained by this global factor. However, additional studies are needed to confirm that enough specificity exists at the subscale level in the SMBM once global levels of burnout are considered (Armon et al., 2012).

This question can be addressed using two alternative approaches sharing similar theoretical, but not statistical, underpinnings: Higher-order and bifactor models. In higher-order models (e.g., Shirom & Melamed, 2006), first-order factors are defined by ratings obtained on indicators reflecting the a priori dimensions (cognitive weariness, physical fatigue, and emotional exhaustion), and a higher-order factor

[1] The SMBM also has the advantage of being public (i.e., free of charge), whereas the MBI is commercial.

(global burnout) is then defined from these first-order factors. Higher-order models rely on a restrictive proportionality assumption according to which, for all items associated with the same first-order factor, the ratio of variance explained by the higher-order factor by that explained by the first-order factor is exactly the same (Morin et al., 2016a). Untainted by this restriction, bifactor models directly estimate a global (G-) factor (global burnout) from participants' ratings of all indicators, as well as a series of orthogonal specific (S-) factors, also estimated directly from participants' ratings of the indicators of the a priori dimensions (cognitive weariness, physical fatigue, and emotional exhaustion) (Chen et al., 2006). These S-factors thus directly reflect the extent to which specific levels of cognitive weariness, physical fatigue, and emotional exhaustion deviate from global levels of burnout. Although only applied (and supported) once in relation to the SMBM (Armon et al., 2012), this approach has often been found to match the structure of other burnout measures (i.e., Barcza-Renner et al., 2016; Isoard-Gautheur et al., 2018).

In a bifactor model, the G-factor appears much easier to interpret in terms of a "breadth" factor (Perreira et al., 2018), as commonly used in intelligence research (Gignac, 2016). Such a factor simply reflects global levels of burnout across all dimensions. Importantly, assessing employees' specific levels of cognitive weariness, physical fatigue, and emotional exhaustion after extracting the variance explained by the global factor should lead to a more precise estimate of what is unique to each dimension. For instance, a first employee might be characterized by high global levels of burnout. Yet, his/her levels of emotional exhaustion might be higher than his/her levels of cognitive weariness and physical fatigue. Controlling for his/her global level of burnout using a bifactor approach would directly result in the estimation of a specific cognitive weariness factor indicative of these higher levels, and of specific cognitive weariness and physical fatigue factors indicative of their lower levels. In contrast, relying on a typical confirmatory factor analytic (CFA) model would minimize these differences as each specific dimension would reflect, to a substantial extent, this employee's high global level of burnout. Interestingly, in a higher-order model, both the first- and second-order factor would incorporate this global variance, forcing the specific nature of each first-order factor to be hidden within the disturbance (i.e., residual) term associated with each first-order factor. Theoretically, a variety of factors (e.g., human resources policies, work schedule) may contribute to drastically increase emotional exhaustion, without affecting any of the other facets of burnout, or even the global levels of burnout, just like some factors might also directly impact employees' global levels of burnout in a way that does not differ across dimensions. However, this differential impact can only be identified by the reliance on a bifactor approach to measurement.

Burnout Profiles

Most of the research conducted thus far on burnout has relied on variable-centered analyses. These analyses assume that all employees come from the same population for which results can be summarized by a unique set of "average" parameters. Contrasting with variable-centered analyses, person-centered analyses are specifically designed to identify qualitatively distinct subpopulations of workers presenting distinct configurations of burnout components (Meyer & Morin, 2016). Past person-centered studies have examined the combined effects of burnout components (Leiter & Maslach, 2016; Pyhältö et al., 2020; Sorkkila et al., 2020). Unfortunately, some of these previous studies have relied on a combination of burnout components and other variables as profile indicators (work engagement: Mäkikangas et al., 2017; work engagement, job satisfaction, and workaholism: Mäkikangas et al., 2015; psychological distress and satisfaction with life: Laverdière et al., 2018), making it impossible to isolate the effects of burnout in the definition of the profiles. In addition, many of these investigations have solely focused on global levels of burnout, making it impossible to consider to unique role played by burnout components.

Among exceptions, Berjot et al. (2017) identified four burnout profiles, differing both quantitatively and qualitatively, based on the emotional exhaustion, depersonalization, and personal accomplishment components of the MBI (Maslach et al., 2001): (1) High risk of burnout (22.9%) across dimensions; (2) Risk of burnout through low personal accomplishment (27.1%); (3) Risk of burnout through emotional exhaustion (28.0%); and (4) No risk of burnout (22.0%) across dimensions. However, this study is limited by relying on a sample of psychologists, so that additional studies are needed to generalize these findings to other occupations.

Another study by Leiter and Maslach (2016) identified five burnout profiles, also differing both quantitatively and qualitatively, among two samples of health-care workers who completed the MBI

(Maslach et al., 2001): (1) Burnout: Moderate to high emotional exhaustion, cynicism, and professional inefficacy; (2) Disengaged: High cynicism, moderate to high emotional exhaustion, and moderate professional inefficacy; (3) Overextended: High emotional exhaustion, and moderate cynicism and professional inefficacy; (4) Ineffective: High professional inefficacy, and low to moderate cynicism and emotional exhaustion; and (5) Engagement: Low levels of emotional exhaustion, cynicism, and professional inefficacy.

More generally, the nature, number, and range of indicators of burnout considered across all previous studies to define burnout profiles are quite large (professional inefficacy, cynicism, physical and emotional exhaustion, indolence, guilt, etc.). Furthermore, these studies have also relied on a variety of samples (psychologists, teachers, mixed employees samples, etc.), methods (cross-sectional and longitudinal), and covariates. This variety makes it particularly hard to achieve a clear integration of results. Yet, despite these important differences, the results seem to converge on at least two profiles differing mainly quantitatively and characterized by high and low levels of burnout across dimensions. In contrast, although some studies have revealed additional profiles differing qualitatively (i.e., Berjot et al., 2017; Leiter & Maslach, 2016), the bulk of results obtained across studies rather suggests profiles differing mainly in a quantitative manner.

However, these previous studies have relied on indicators ignoring the dual global/specific nature of burnout. This limitation is important. Indeed, when applying person-centered analyses to constructs known to present a global/specific structure, relying on indicators unable to properly disaggregate these global and specific components has been shown to result in the erroneous estimation of profiles in which qualitative differences are minimized whereas quantitative differences are maximized, thereby reflecting mainly global levels of burnout and ignoring meaningful specificities located at the subscale level (Morin et al., 2016b, 2017). In this context, the superiority of a bifactor approach to measurement, relative to that of a higher-order approach, is even more obvious given the fact that the first- and second-order factors from a higher-order model are technically redundant with one another (as both include variables related to global burnout levels), which is not the case in bifactor models (Morin et al., 2016b, 2017). In addition, past person-centered research has predominantly relied on the MBI (e.g., Berjot et al., 2017; Leiter & Maslach, 2016). Yet, evidence of generalizability across questionnaires and operationalizations of burnout regarding the profiles themselves will support the idea that the profiles tap into some core psychological phenomenon rather than reflecting the measurement specificities of a single instrument. In the present research, we thus examine, for the first time, how global and specific (cognitive weariness, physical fatigue, and emotional exhaustion) levels of burnout measured using the SMBM combine together among distinct subpopulations of workers.

Lacking prior guidance from research in which the multidimensional global/specific nature of burnout ratings were properly disaggregated, we leave as an open research question the structure and number of profiles that will best reflect employees' burnout configurations. Nevertheless, in alignment with the consistency of the aforementioned findings, it seems reasonable to assume that some of these profiles will display a *High Burnout* (globally high levels of burnout across indicators), *Normative* (or Moderate Burnout: Presenting average levels across indicators), and *Healthy* (presenting globally low levels across indicators) configuration. Conversely, in accordance with a subset of *shape*-differentiated profiles obtained in burnout research (Berjot et al., 2017; Leiter & Maslach, 2016) and with the added value of the approach adopted in the present study to achieve a better disaggregation of global and specific levels of burnout (Morin et al., 2016b, 2017), it also seems reasonable to expect the identification of additional profiles characterized by more differentiated configurations across dimensions. For example, a *Weary* profile (low global levels global burnout coupled with high specific levels of cognitive weariness), similar to Berjot et al.'s (2017) Risk of burnout through low personal accomplishment profile, might be identified. Likewise, an *Emotionally Exhausted* profile (low global levels global burnout coupled with high specific levels of emotional exhaustion), corresponding to Berjot et al.'s (2017) Risk of burnout through emotional exhaustion profile also seems plausible.

Predictors of Profile Membership

A critical step in the assessment of the construct validity of profiles, especially when relying on a predominantly indicative approach such as the one used in the present study to identify the profiles (Morin et al., 2018) is to document their theoretical and practical implications via the examination of associations between profile membership and theoretically-relevant predictors and outcomes (Meyer & Morin, 2016). Indeed, without information related to the key determinants of burnout profiles, simple

knowledge regarding the nature of these profiles is likely to be of very limited utility for managers and organizations. In this study, we focus on the role of perceived organizational support and ethical leadership in the prediction of profile membership. Despite the well-documented importance of perceived organizational support (Kurtessis et al., 2017) and ethical leadership (Ng et al., 2021) in the work context, no person-centered research has yet examined the effects of these variables on burnout profiles. However, perceived organizational support and ethical leadership were considered given their documented associations with critical organizational and individual work behaviors such as work performance, absenteeism, presenteeism, turnover, citizenship organizational behaviors, and counterproductive work behaviors (e.g., Hoch et al., 2018; Kurtessis et al., 2017).

Perceived organizational support is defined as employees' perceptions that their organization values their contribution and cares about their well-being (Eisenberger et al., 1986). Perceived organizational support is an organizational resource that can help workers handle the stressfulness of their work (Nielsen et al., 2017), and represents one environmental characteristic on which managers and practitioners can easily act to decrease workers' risks of burnout (Caesens et al., 2020). Meta-analyses support the role of perceived organizational support as a positive driver of individual and organizational outcomes (e.g., Kurtessis et al., 2017; Riggle et al., 2009). In direct relevance to the present study, Gillet et al. (2020b) have shown that perceived organizational support was negatively related to employees' cognitive weariness, physical fatigue, and emotional exhaustion levels.

Ethical leadership refers to the demonstration of normatively appropriate behaviors (e.g., honoring fairness, showing care and concern for employees, acting as a moral role model) by the supervisor, and the promotion of similar behaviors among subordinates (Brown et al., 2005). Past studies have documented the benefits of ethical leadership in terms of job satisfaction, organizational commitment, as well as lower levels of burnout (e.g., Mo & Shi, 2017; Okpozo et al., 2017). For instance, Vullinghs et al. (2020) demonstrated that the negative effects of ethical leadership on burnout could be explained, at least in part, by an increase in employees' perceptions of role clarity and a decrease in their feelings of role overload. Thus, ethical leaders appear to help decrease employees' risks of burnout by maximizing role clarity (by modeling appropriate behavior and providing ethical guidance; Brown et al., 2005) and ensuring that work is distributed fairly and in ways employees can handle.

Taken together, these previous results suggest that higher levels of perceived organizational support and ethical leadership should be associated with a higher probability of membership into profiles presenting lower global levels of burnout (e.g., *Healthy*, *Weary*, or *Emotionally Exhausted*). Nevertheless, we also expect to find results that showcase more qualitative differences. For instance, because social support is more strongly related to emotional exhaustion than to cognitive weariness and physical fatigue (Tucker et al., 2018), perceived organizational support might be associated with a lower probability of membership into an *Emotionally Exhausted* profile (characterized by low global levels global burnout coupled with high specific levels of emotional exhaustion) than into profiles characterized by similarly low global levels of burnout but lower specific levels of emotional exhaustion (e.g., a *Healthy* profile).

Outcome Implications of Profile Membership

We also examine the associations between the burnout profiles and a series of outcomes previously shown to be affected by burnout (Goering et al., 2017; Jung & Kim, 2012; Morin et al., 2013; Wolpin et al., 1991): Affective, normative, and continuance (perceived sacrifice and lack of alternatives) commitment, job satisfaction, and perceived stress across all life domains. These outcomes were also considered given their documented associations with work performance (e.g., Bowling et al., 2015). For instance, job satisfaction and perceived stress have both been found to respectively share positive and negative associations with work performance and persistence (e.g., Hackney et al., 2018; Whitman et al., 2010). More generally, job satisfaction and perceived stress are two indicators of subjective well-being specific (job satisfaction) or not (perceived stress) to work, and known to share significant relationships with a variety of work behaviors (e.g., workers high in well-being display lower levels of counterproductive work behaviors: Mount et al., 2006). These outcomes are thus logical outcomes of burnout, which is known to directly impact employees' levels of well-being at work (e.g., job satisfaction) and to contaminate their functioning across all life domains (including increased stress perceptions) (e.g., Jurado et al., 2019; Nagar, 2012; Pierce & Molloy, 1990; Salvagioni et al., 2017; Vlăduţ & Kàllay, 2010).

Likewise, employees' levels of affective, normative, and continuance commitment to their

organization are known to represent key predictors of organizational retention (Meyer et al., 2019; Morin et al., 2015), an association that is particularly important in the nursing context (Perreira et al., 2018). Alternatively, when employee well-being and extra-role behaviors are considered, affective commitment seems to play a far more positive role than normative and continuance commitment, with this latter form of commitment sometimes leading to less desirable outcomes (Meyer & Maltin, 2010). These commitment mindsets have long been conceptualized as a motivational force that drives human work behaviors (Meyer et al., 2004) and as a core component of their social identities (Meyer et al., 2006), whereas burnout is known to reduce employee work motivation and to negatively impact their social identities at work (Knoll et al., 2019). This interpretation is consistent with the results from many previous studies supporting the idea that levels of burnout were predictive of commitment levels among employees (e.g., Gemlik et al., 2010; Jurado et al., 2019; Kalliath et al., 1998; Nagar, 2012; Sarisik et al., 2019; Yener et al., 2014). As such, employees' levels of affective and normative commitment should be negatively impacted by burnout, whereas their levels of continuance commitment (perceived sacrifice and lack of alternatives), representing feelings of entrapment, should be negatively related to it.

Although we expect well-differentiated associations between the burnout profiles and the outcome variables measured in the present research, the lack of previous person-centered studies of burnout profiles relying on a proper disaggregation of the global and specific burnout components, or even simply considering the outcome implications of burnout, precludes the formulation of precise hypotheses. However, Bauernhofer et al. (2018) showed that both their burned-out (high exhaustion and cynicism, and low professional efficacy) and exhausted/cynical (high exhaustion and cynicism, but simultaneously high professional efficacy) profiles tended to experience the highest levels of work-related stress. Likewise, Guidetti et al. (2018) also showed that employee commitment was significantly higher, and stress was significantly lower, in their Enthusiastic profile (characterized by the lowest levels of burnout). Moreover, variable-centered studies have often reported negative correlations between burnout components and job satisfaction (Huyghebaert et al., 2017, 2018) and affective commitment (Gillet et al., 2015; Morin et al., 2013), non-significant or negative correlations between burnout facets and normative or continuance (perceived sacrifice) commitment (Landry et al., 2010; Vandenberghe et al., 2015), and positive correlations between burnout dimensions and continuance (lack of alternatives) commitment (Lapointe et al., 2011).

These previous findings allow us to hypothesize that profiles presenting higher global levels of burnout (e.g., *High Burnout*) should be characterized by higher levels of perceived stress and continuance (lack of alternatives) commitment, and lower levels of job satisfaction and affective commitment relative to profiles presenting lower global levels of burnout (e.g., *Healthy*, *Weary*, or *Emotionally Exhausted*). Nevertheless, as for predictors, we also expect to find results that showcase more qualitative differences (e.g., between an *Emotionally Exhausted* profile and an *Healthy* profile). Finally, we leave open the question of whether the profiles would be associated with different levels of normative commitment as well as continuance (perceived sacrifice) commitment.

Profile Similarity across Samples

Many have noted that a core aspect of the construct validation process of person-centered solutions involves the verification of the extent to which a profile solution can be replicated across samples (e.g., Meyer & Morin, 2016; Morin et al., 2016c). In this study, we address this issue by examining whether the identified burnout profiles, as well as their associations with the predictors and outcomes, generalize across samples of nurses and mixed employees. Previous research has shown variations in burnout as a function of job settings (Rupert & Kent, 2007), making it important to verify whether profiles generalize to different contexts. For instance, McCormack et al. (2018) showed that workers from the private sector experienced less burnout than public employees. More generally, research has shown that workplace characteristics, such as job design or emotional demands, are significantly associated with employees' likelihood of experiencing burnout (Gillet et al., 2020a).

Nurses continuously face a range of stressful conditions that may increase their risks of experiencing burnout (Bennett & Lowe, 2008). In fact, burnout is a systemic issue in nursing contexts (Woo et al., 2020) and is related to a range of undesirable outcomes (Boamah et al., 2017). Although burnout is an increasingly preoccupying phenomenon for healthcare organizations (Woo et al., 2020), it has also been identified as a pervasive phenomenon in other contexts (e.g., education; Pyhältö et al., 2020), making it equally important to focus on burnout among other types of employees. Because nurses generally tend to be exposed to higher levels of job demands than many other workers (Hu et al., 2016), nurses can be

expected to present higher levels of global and specific (cognitive weariness, physical fatigue, and emotional exhaustion) burnout and/or be overrepresented into profiles characterized by the highest levels of burnout across dimensions (e.g., a High Burnout profile), when compared to mixed employees. For instance, McLinton et al. (2018) showed that Australian health care workers (including registered nurses) displayed significantly higher levels of burnout (M = 4.27 on a seven-point scale ranging from 1 to 7) than a general community sample of employed Australians (M = 3.17). Similarly, Malaysian health care workers were characterized by higher levels of burnout (M = 4.07) than a general community sample of private sector Malaysian workers (M = 2.64). However, lacking prior studies on work burnout profiles relying on a proper disaggregation of these global and specific components, we leave open the question of whether and how burnout profiles will differ across samples of nurses and mixed employees.

Method

Participants

Sample 1. The first sample used in the present study includes a total of 698 employees (276 men and 422 women). These participants (including assistant directors, financial auditors, commercial managers, teachers, engineers, secretaries, and technicians) were recruited in various organizations located in France. Most participants worked full time (88.5%) and occupied a permanent position (89.3%). Respondents were aged between 20 and 65 years (M = 40.77, SD = 10.16), and had an average tenure in their current position of 6.68 years (SD = 6.41).

Sample 2. The second sample used in this study includes 150 nurses and 139 nursing assistants (29 men; 260 women) working in various French hospitals. Most participants worked full time (72.0%) and occupied a permanent position (86.5%). Respondents were aged between 21 and 64 years (M = 40.85, SD = 11.18), and had an average tenure in their current position of 6.37 years (SD = 7.13).

Procedure

For the two samples involved in the present study, all potential participants received, when at work, a survey packet including the questionnaire, a cover letter explaining the study's purposes, and a consent form in which the anonymous and voluntary nature of their participation was emphasized. All participants who agreed to participate completed a paper-and-pencil questionnaire administered by members of our research team. All measures were administered in French.

Measures

Burnout (Profile Indicators). Participants completed the SMBM (Shirom & Melamed, 2006; French adaptation by Sassi & Neveu, 2010). This instrument assesses cognitive weariness (six items; e.g., "*I have difficulty concentrating*"; α = .94 in Sample 1 and α = .93 in Sample 2), physical fatigue (five items; e.g., "*I feel physically drained*"; α = .97 in Sample 1 and α = .96 in Sample 2), and emotional exhaustion (three items; e.g., "*I feel I am unable to be sensitive to the needs of coworkers*"; α = .87 in Sample 1 and α = .89 in Sample 2). All items were rated on a seven-point scale ranging from 1 (never) to 7 (always).

Perceived Organizational Support (Predictor). Perceived organizational support was assessed using the eight-item version (Gillet et al., 2013; e.g., "*My organization really cares about my well-being"*; α = .88 in Sample 1 and α = .86 in Sample 2) of Eisenberger et al.'s (1986) Survey of Perceived Organizational Support. All items were rated on a seven-point response scale ranging from "*Strongly Disagree*" to "*Strongly Agree*".

Ethical leadership (Predictor). Brown et al.'s (2005) ten-item Ethical Leadership Scale (French adaptation by Gillet et al., 2018) was used to measure participants' perceptions of ethical leadership (e.g., "*My manager makes fair and balanced decisions*"; α = .95 in Sample 1 and α = .96 in Sample 2). Items were rated on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Organizational commitment (Outcome). Bentein et al.'s (2005) French adaptation of Meyer et al.'s (1993) questionnaire was used to measure participants' commitment to their organization. This measure assesses affective (six items; e.g., "I feel like part of the family at my organization"; α = .89 in Sample 1 and α = .83 in Sample 2), normative (six items; e.g., "It would not be morally right for me to leave this organization now"; α = .90 in Sample 1 and α = .87 in Sample 2), continuance-perceived sacrifices (three items; e.g., "For me personally, the costs of leaving this organization would be far greater than the benefits"; α = .73 in Samples 1 and 2), and continuance-lack of alternatives (three items; e.g., "I have no choice but to stay with this organization"; α = .78 in Sample 1 and α = .79 in Sample 2) commitment. Responses were provided on a five-point response scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Job satisfaction (Outcome). Job satisfaction was assessed using the Satisfaction with Life Scale (Diener et al., 1985) adapted in French to the work context (Gillet et al., 2013a; five items; e.g., "I am satisfied with my job"; α = .89 in Sample 1 and α = .87 in Sample 2). Items were rated using a scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Perceived stress (Outcome). Ten items (e.g., "How often have you felt that you were unable to control the important things in your life?"; α = .85 in Samples 1 and 2) developed by Cohen et al. (1983; French adaptation by Bellinghausen et al., 2009) were used to assess perceived stress. Responses are made on a scale ranging from 1 (never) to 5 (often) with reference to the frequency of events over the previous month.

Analyses

Preliminary Analyses

Preliminary factor analyses were conducted to verify the psychometric properties of all measures. Factor scores (estimated in standardized units with $M = 0$ and $SD = 1$) from these preliminary models were used in the main analyses. To ensure the comparability of the measures across samples, these factor scores were saved from a model of latent means invariance (see Table S1 of the online supplements), given that all types of invariance were supported by the data (Millsap, 2011); for a more extensive discussion of the advantages of factor scores in the estimation of latent profile analyses (LPA), see Morin et al. (2016b, c).

In line with prior research (Barcza-Renner et al., 2016; Isoard-Gautheur et al., 2018), the burnout measurement models were estimated using bifactor-CFA (Morin et al., 2016a). Due to the complexity of the models underlying all constructs assessed in the present study, preliminary analyses were conducted separately for the burnout measure and for the multi-items predictor (perceived organizational support and ethical leadership) and outcome (affective, normative, continuance-perceived sacrifices, and continuance-lack of alternatives organizational commitment, job satisfaction, and perceived stress) measures. Details on these measurement models, their invariance, and correlations are reported in the online supplements.

Model Estimation

All analyses conducted as part of this study were realized using the Maximum Likelihood Robust (MLR) estimator available in the Mplus 8 statistical package (Muthén & Muthén, 2018). Full Information Maximum Likelihood (FIML; Enders, 2010) procedures were used to handle the limited amount of missing responses (0% to 2.4% across items and samples). All LPA were estimated with 5000 random sets of start values, 1000 iterations, and 200 final optimizations (Hipp & Bauer, 2006). These values were increased to 10000, 1000, and 500 for the multi-sample analyses.

Latent Profile Analyses and Tests of Profile Similarity

LPA were first estimated separately in each sample using the four burnout factors (i.e., the global factor, and the specific factors reflecting cognitive weariness, physical fatigue, and emotional exhaustion) as indicators to verify if the same number of profiles would be identified across samples. We examined sample-specific solutions including one to eight latent profiles in which the means and variances of the burnout factors were freely estimated in all profiles (Diallo et al., 2016; Morin et al., 2011a). Once the optimal number of profiles has been selected in each sample, we integrated the two LPA solutions (one per sample) into a multigroup LPA to conduct systematic tests of profile similarity (Morin et al. (2016c). The procedures used to select the optimal number of profiles, and to test their similarity across samples, are reported in the online supplements[1].

Predictors of Profile Membership

Relations between the theoretical predictors (perceived organizational support and ethical leadership) and profile membership were assessed using multinomial logistic regressions. In these analyses, the predictors were directly integrated into the most similar multigroup LPA solution identified previously, and used to predict the likelihood of profile membership. Three alternative models were contrasted

[1] The analyses used in this study are complex, and might not be easy to understand and replicate for readers unfamiliar with them. We thus refer readers interested in learning how to estimate most models (LPA with predictors and outcomes) to consult Morin and Litalien's (2019) user friendly introduction to mixture modeling. Those specifically interested in the combination of bifactor-CFA and LPA should also consult Morin et al. (2017). In contrast, readers seeking a more technical (or mathematical) introduction to these models should consult McLachlan and Peel (2000) or Skrondal and Rabe-Hesketh (2004).

(Morin et al., 2016c) to test whether relations existed between predictors and profile membership, and whether could be assumed to generalize across samples. In the first model, the effects of the theoretical predictors on profile membership were fixed to be zero (null effects models). In the second model, these effects were freely estimated across samples. In the third model, these effects were fixed to equality across samples (*predictive* similarity). However, prior to the integration of predictors to the model, preliminary models were estimated, following the same sequence, to assess the need to incorporate demographic predictors as controlled variables in these analyses. The demographic predictors considered in these analyses were participants' sex (coded 0 for males and 1 for female), age (in years), tenure (in years), size of the work unit (coded 1 = 10 employees and less; 2 = between 11 and 19 employees; 3 = between 20 and 29 employees; 4 = between 30 and 39 employees; and 5 = 40 employees and more), education level (coded 1 = no diploma; 2 = vocational training; 3 = high school; and 4 = university), employment status (coded 0 for permanent and 1 for temporary), and employment type (coded 0 for full time and 1 for part time).

Outcomes of Profile Membership

Outcomes (affective, normative, continuance-perceived sacrifices, and continuance-lack of alternatives organizational commitment, job satisfaction, and perceived stress) were directly incorporated to the most similar multigroup LPA solution, and used to contrast models in which the relations between profile membership and outcome levels were either constrained to be equal (*explanatory* similarity) or not across samples (Morin et al., 2016c). The Mplus' MODEL CONSTRAINT function was used to test mean-level differences across profiles using the multivariate delta method (Raykov & Marcoulides, 2004).

Results

Profile Description

As detailed in the online supplements, a five-profile solution was retained across samples, and proved to present a similar structure, and level of within-profile variability, across samples. However, the relative size of the profiles was found to differ across samples (see Figure 1). Profile 1 characterized employees with very low levels of global burnout coupled with moderately low specific levels of cognitive weariness, physical fatigue, and emotional exhaustion. This *Thriving* profile corresponded to 1.72% of the employees in Sample 1 and to 3.81% in Sample 2. Profile 2 characterized employees with low levels of global burnout coupled with moderately low specific levels of cognitive weariness, and average specific levels of physical fatigue and emotional exhaustion. This *Healthy* profile corresponded to 3.44% of the employees in Sample 1 and to 1.73% in Sample 2. Profile 3 characterized employees presenting moderately low global levels of burnout, coupled with high levels of cognitive weariness, and low levels of physical fatigue and emotional exhaustion. This *Weary* profile corresponded to 9.17% of the employees in Sample 1 and to 19.38% in Sample 2. Profile 4 characterized employees presenting high global levels of burnout coupled with moderately high levels of cognitive weariness, physical fatigue, and emotional exhaustion. This *High Burnout* profile corresponded to 27.51% of the employees in Sample 1 and to 12.46% in Sample 2. Finally, Profile 5 characterized employees presenting average global levels of burnout, cognitive weariness, physical fatigue, and emotional exhaustion. This *Normative* profile corresponded to 58.17% of the employees in Sample 1 and to 62.63% in Sample 2.

Predictors of Profile Membership

Results related to model comparisons are reported in the online supplements and indicated that the demographic variables did not need to be retained in further analyses (i.e., supporting the null effects model). These results also indicated that the associations between the theoretical predictors and participants' likelihood of profile membership generalized across samples (i.e., supporting the model of predictive similarity). The results from these predictions are reported in Table 1 and reveal that more positive perceptions of organizational support tend to predict an increased likelihood of membership into the *Thriving* (Profile 1), *Healthy* (2), *Weary* (3), and *Normative* (5) profiles relative to the *High Burnout* (4) profile, as well as into the *Weary* (3) profile relative to the *Normative* (5) profile. In contrast, perceptions of ethical leadership predicted an increased likelihood of membership into the *Normative* (5) and *Healthy* (2) profiles relative to the *Weary* (3) profile.

Outcomes of Profile Membership

As for the predictors, results indicated that the associations between the profiles and their theoretical outcomes generalized across samples (i.e., supporting the model of explanatory similarity), reinforcing the idea that all five profiles tap into similar psychological processes across samples. These results from

these comparisons are reported in Table 2 and reveal associations that differ across outcomes. First, levels of affective commitment were the highest in the *Thriving* (1) profile, followed equally by the *Healthy* (2) and *Weary* (3) profiles, with the lowest levels associated with the *High Burnout* (4) profile. Levels of affective commitment were also higher in the *Normative* (5) profile than in the *High Burnout* profile (4), although the levels of affective commitment observed in this *Normative* profile did not differ from those observed in the remaining (*Thriving*, *Healthy*, and *Weary*) profiles. In contrast, normative commitment was the highest in the *Normative* (5) profile although this profile did not differ from the *Thriving* (1) and *Healthy* (2) profiles, which also did not differ from one another. In turn, these three profiles displayed higher levels of normative commitment than those observed in the *High Burnout* (4) profile, which did not differ significantly from those observed in the *Weary* (3) profile. Finally, the levels of normative commitment observed in this *Weary* (3) profile provided lower than those observed in the *Normative* (5) profile, but did not differ from those observed in the remaining profiles (*Thriving*, *Healthy*, and *High Burnout*).

Employees' levels on the perceived sacrifice dimension of continuance commitment were also the highest in the *Normative* (5) profile, followed equally by the *Healthy* (2) and *Weary* (3) profiles, with the lowest levels observed in the *High Burnout* (4) profile, although levels observed in this last profile did not differ in a statistically significant manner from those observed in the *Weary* (3) profile. In addition, levels of continuance commitment–perceived sacrifice were also higher in the *Thriving* (1) profile than in the *High Burnout* (4) profile, although the levels observed in this first profile did not differ significantly from those observed in the remaining profiles (*Healthy*, *Weary*, and *Normative*). In contrast, employees' levels on the lack of alternatives dimension of continuance commitment were the highest in the *High Burnout* (4) profile, followed by the *Normative* (5) profile, and then by the remaining three profiles (*Thriving*, *Healthy*, and *Weary*). Among these three remaining profiles, the only statistically significant difference was related to the observation of higher levels of continuance commitment–lack of alternatives in the *Healthy* (2) profile relative to the *Thriving* (1) profile.

Similar to the results found for affective commitment, levels of job satisfaction were the highest among the *Thriving* (1) profile, followed equally by the *Healthy* (2) and *Weary* (3) profiles, and then by the *Normative* (5) profile (which did not, however, differ from the *Weary* profile), with the lowest levels observed in the *High Burnout* (4) profile. Finally, levels of perceived stress were the highest in the *High Burnout* (4) profile, followed by the *Normative* (5) profile, and then equally by the *Healthy* (2) and *Weary* (3) profiles, with the lowest levels observed in the *Thriving* (1) profile.

Discussion

The multidimensional nature of burnout, which is known to encompass physical fatigue, cognitive weariness, and emotional exhaustion components, is widely acknowledged (e.g., Shirom & Melamed, 2006). However, the configurations taken by these distinct components among various profiles of workers had yet to be investigated, especially when considering the differential role of global levels of burnout relative to the specific role of each component (e.g., Isoard-Gautheur et al., 2018). This limitation makes it difficult to clearly understand the various forms taken by burnout among employees, and the effect of these configurations in terms of employee's functioning. This study was designed to address this limitation, via identification of burnout profiles among two distinct samples of employees. Importantly, this study also documented the construct validity and meaningfulness of these profiles by verifying the extent to which they would be replicated across samples, by investigating the effects of perceived organizational support and ethical leadership on profile membership, and by examining the links between these profiles and various work-related outcomes (affective commitment, normative commitment, continuance commitment–perceived sacrifice, continuance commitment–lack of alternatives, job satisfaction, and perceived stress).

Employees' Burnout Profiles

Five profiles best summarized the burnout configurations observed across samples of nurses and mixed employees: (1) *Thriving*, (2) *Healthy*, (3) *Weary*, (4) *High Burnout*, and (5) *Normative*. These profiles support our expectations, and generally match results from person-centered studies of burnout conducted using the MBI, but failing to disaggregate global and specific burnout levels (e.g., Berjot et al., 2017; Leiter & Maslach, 2016). This similarity highlights the robustness of our results and the likely utility of interventions focused on specific profiles of employees, and also reinforces the value of jointly considering global and specific (physical fatigue, cognitive weariness, and emotional exhaustion) facets of burnout. These specific facets reflect the extent to which employees' levels on each burnout

dimension deviate from their global levels of burnout. More precisely, our findings revealed that employees with very low to moderately low (*Thriving, Healthy,* and *Weary*) or high (*High Burnout*) global levels of burnout displayed a more imbalanced configuration where levels obtained on specific burnout dimensions tended to show some deviations from that global level and from the sample average. Conversely, employees characterized by a *Normative* profile displayed a more equilibrated configuration (i.e., close to average and well-aligned levels of global and specific burnout). In particular, the identification of such a large (58.17% in the sample of mixed employees and 62.63% in the sample of nurses) *Normative* profile suggests that global levels of burnout remain minimal and aligned across dimensions for more than half of the participants. This finding is aligned with results from past studies of work engagement (Gillet et al., 2019a, 2020c), well-being and psychological health (Morin et al., 2016b, 2017), interactional justice (Fouquereau et al., 2020), emotional labor (Fouquereau et al., 2019) or need satisfaction (Gillet et al., 2019b), in which a similarly normative profile was also found to characterize a large proportion of employees.

When considering the other profiles, the *Thriving* and *Healthy* profiles share similarities with Berjot et al.'s (2017) *No risk of burnout* profile and with Leiter and Maslach's (2016) *Engagement* profile. The relatively smaller size of these profiles is also aligned with the size of the *Well-Integrated* and *Thriving* (Morin et al., 2017) profiles identified in previous research on psychological health and well-being at work. In contrast to these most desirable profiles, the *High Burnout* profile rather shares similarities with the Berjot et al.'s (2017) *High risk of burnout* profile and with Leiter and Maslach's (2016) *Burnout* profile. It is noteworthy that the proportion of workers characterized by the *High Burnout* profile was found to be higher in the nurse sample than in the mixed employee sample. In other words, the key difference between these two samples lies in the observation of a higher number of nurses characterized by high global levels of burnout relative to mixed workers. These findings are aligned with prior research suggesting that nurses tend to present higher levels of burnout due to their constant exposition to a range of stressful conditions (e.g., Bennett & Lowe, 2008). Finally, the *Weary* profile shares similarities with Berjot et al.'s (2017) *Risk of burnout through low personal accomplishment* profile and to some extent with Leiter and Maslach's (2016) *Ineffective* profile. Taken together, this similarity across studies relying on different methodological approaches, measures, and operationalization (i.e., traditional versus global/specific) supports the idea that these profiles tap into some meaningful psychological processes, just as the observed differences and specificities in results support the unicity of the burnout construct.

Determinants of Burnout Profiles

Our findings showed meaningful associations between perceived organizational support, ethical leadership, and profile membership. More precisely, our results generally supported the role of perceived organizational support and ethical leadership as key job resources involved in the prediction of a variety of desirable outcomes for employees (e.g., Brown et al., 2005; Kurtessis et al, 2017). Thus, perceived organizational support first predicted a decreased likelihood of membership into of the least desirable profile (i.e., *High Burnout*: Presenting the highest global level of burnout), relative to all other profiles, thus supporting previous reports of negative associations between perceived organizational support and burnout (Kurtessis et al., 2017; Riggle et al., 2009).

It is also noteworthy that perceived organizational support predicted a decreased likelihood of membership into the *Normative* profile relative to the *Weary* profile. In contrast, perceptions of ethical leadership predicted an increased likelihood of membership into the *Normative* and *Healthy* profiles relative to the *Weary* profile. These findings suggest that perceived organizational support might be associated with low levels of physical fatigue and emotional exhaustion but with higher levels of cognitive weariness, whereas ethical leadership might decrease cognitive weariness. Such results thus support the differential effects of perceived organizational support and ethical leadership on burnout components (Eva et al., 2020). In fact, these results go even further in suggesting the benefits of combining both to ensure that global levels of burnout and cognitive weariness both remain low.

However, these results also suggest that perceived organizational may not always be advantageous. This is particularly interesting given that the bulk of prior research has generally positioned perceived organizational support as a positive driver of work-related outcomes in a "the more, the better" perspective (e.g., Caesens et al., 2014). Our findings propose a more nuanced view of perceived organizational support in line with prior variable-centered results revealing curvilinear relations between perceived organizational support and employees' affective organizational commitment, trust, in-role performance, taking charge behaviors, extra-role performance, and deviance (Burnett et al., 2015; Harris

& Kacmar, 2018). More specifically, these studies demonstrated that the most desirable outcomes tended to be associated with moderate to moderately high levels of perceived organizational support. In this regard, Burnett et al. (2015) offered an integrative theoretical framework based on social exchange theory (Blau, 1964) and the threat-to-self-esteem model (Nadler & Fisher, 1986) to explain the curvilinear relation between perceived organizational support and outcomes. Specifically, Burnett et al. (2015) proposed that when employees perceive moderate, rather than low, levels of organizational support, they should be more likely to respond positively to this support, to perceive it as self-supportive, and thus to experience positive outcomes. Indeed, employees perceiving low levels of organizational support should be more likely to feel no obligation to help their organization whereas those perceiving moderate levels of organizational support should experience "*a balanced state in terms of the amount of care received from their organizations and the amount of support and organizationally directed contributions they are comfortable giving*" (Burnett et al., 2015, p. 1810; see also Gillet et al., 2020b). In contrast, Burnett et al. (2015) note that employees perceiving a high level of organizational support were more likely to experience this support as being "too much" and reflecting a lack of confidence on the part of the organization. Such perceptions would in turn be seen as self-threatening, and more likely to result in altered functioning.

It is, however, important to keep in mind that the interpretation of a specific factor taken from a bifactor model differs from that of a first-order factor. In a bifactor model, specific factors reflect levels of imbalance in employees' cognitive weariness relative to their global levels of burnout across all dimensions. Thus, this specific factor reflects a feeling of cognitive weariness that is not backed by a matching feeling of emotional exhaustion and physical fatigue. More precisely, this specific factor might be taken to reflect more a type of cognitive preoccupation or concerns, once disaggregated from employees' global burnout levels. Other investigations should be conducted to replicate the present findings, and to examine the mechanisms at play in the unexpected relation between perceived organizational support and cognitive weariness.

Finally, the limited effects of ethical leadership in the prediction of profile membership could be explained by the multivariate approach adopted in the present study in which perceived organizational support and ethical leadership were simultaneously considered. This approach made it possible for us to identify the most important determinant of profile membership, once the covariance between these two dimensions was considered. Indeed, as shown in Table S5 of the online supplements, these dimensions were highly correlated with one another (r = .741 to .762) and displayed similar univariate relations with the burnout dimensions. These results encourage scholars to further examine the distinct and complementary role of perceived organizational support and ethical leadership.

Outcomes of Profile Membership

Our results revealed well-differentiated associations between the burnout profiles and the outcomes. Indeed, employees who had the lowest global levels of burnout (*Thriving*) displayed the highest levels of affective commitment and job satisfaction, and the lowest levels of continuance commitment–lack of alternatives and perceived stress. In contrast, *High Burnout* employees were characterized by the most undesirable functioning (e.g., higher levels of continuance commitment–lack of alternatives and perceived stress, and lower levels of affective commitment and job satisfaction). More generally, employees with low global levels of burnout (*Thriving* and *Healthy*) were subjected to a more adaptive functioning (e.g., higher levels of job satisfaction and lower levels of perceived stress) than those presenting higher global levels of burnout (*High Burnout*). These findings are consistent with our hypotheses and with prior results revealing that workers presenting high levels of burnout tend to experience tiredness and reduced functional capacity, which in turn increase their likelihood of experiencing undesirable outcomes (e.g., Morin et al., 2013; Shirom & Melamed, 2006).

However, not all profiles were found to systematically differ from one another on all outcomes in a way that matched our expectations (Lee & Ashforth, 1996). Thus, levels of affective commitment, continuance commitment–lack of alternatives, job satisfaction, and perceived stress observed in the *Healthy* profile were impossible to differentiate from those observed in the *Weary* profile. This observation suggests that high specific levels of cognitive weariness (or cognitive preoccupation or concerns) may not necessarily be harmful when coupled with moderately low to low global levels burnout, emotional exhaustion, and physical fatigue. This is aligned with prior findings showing that physical fatigue and emotional exhaustion play a major role in the prediction of undesirable work outcomes (Frone & Tidwell, 2015; Maslach et al., 2001).

Moreover, levels of affective commitment and job satisfaction did not differ between the *Normative* and *Weary* profiles, whereas the *Weary* profile displayed lower levels of normative commitment and continuance commitment–perceived sacrifice than the former. This observation suggests that exposure to high misaligned levels of cognitive weariness, preoccupation or concerns, may be as problematic for affective commitment and job satisfaction, and even more problematic for normative commitment and continuance commitment–perceived sacrifice, relative to exposure to moderate global levels of burnout. There thus seems to be limits to the benefits of displaying a *Weary* profile given the misaligned levels of cognitive weariness characteristic of this profile. However, the *Normative* profile also presented higher levels of continuance commitment–lack of alternatives and perceived stress than the *Weary* profile, suggesting that the harmful effects of misaligned levels of cognitive weariness may not generalize to all outcomes. Generally, the *Weary* profile still displayed lower levels of affective commitment and job satisfaction, and higher levels of perceived stress than the *Thriving* profile, supporting the benefits of displaying low levels of burnout across dimensions.

Finally, the levels of affective commitment, normative commitment, and continuance commitment–perceived sacrifice observed in the *Thriving* and *Healthy* profiles did not differ from those observed in the *Normative* one. However, the levels of continuance commitment–lack of alternatives and perceived stress observed in the *Normative* profile remained higher, and the levels job satisfaction lower, than those observed in these two other profiles. When considered together these results thus reinforce, on the one hand, the idea that presenting more aligned or low levels of burnout tend to yield similar benefits in terms of affective commitment, normative commitment, and continuance commitment–perceived sacrifice. As documented in the self-determination theory literature (e.g., Gillet et al., 2019b), our results showed that workers with a balanced level of burnout displayed similar levels of affective commitment, normative commitment, and continuance commitment–perceived sacrifice than their colleagues displaying lower global levels of burnout as part of an unbalanced profile. Therefore, balance across burnout facets may stem from a more thoughtful allocation of work resources, which may in turn limit work-related stress and conflicts, thus leading to more adaptive functioning. On the other hand, our results also revealed some negative outcomes to be associated with the *Normative* profile (i.e., higher levels of continuance commitment–lack of alternatives and perceived stress, and lower levels of job satisfaction), thus alluding to some limitation to the benefits of having a more balanced burnout configuration when compared to lower, yet more imbalanced, levels. More generally, our results confirm the utility of taking into account both global and specific facets of burnout when studying the outcome implications of burnout profiles, as well as the value of considering a variety of outcomes. Additional studies considering a broader range of positive (e.g., job performance, organizational citizenship behaviors) and negative (e.g., absenteeism, work-family conflict) outcomes are needed to better understand the mechanisms underlying these different relations.

Practical Implications

From an intervention perspective, our findings demonstrate that supervisors should be particularly attentive to employees displaying a *High Burnout* profile. Indeed, these workers experience the highest levels of continuance commitment–lack of alternatives and perceived stress, and the lowest levels of affective commitment and job satisfaction. This profile was characterized by a combination of moderately high to high specific and global levels of burnout. Our findings thus suggest that it is important to consider how the different burnout components combine within specific profiles of employees rather to focus on a burnout facet in isolation. In line with this perspective, the present results revealed that high specific levels of cognitive weariness do not represent an issue for work attitudes and well-being when coupled with low levels of global burnout, specific physical fatigue, and specific emotional exhaustion (*Weary* profile).

Our results also highlighted the role of low levels of perceived organizational support in driving membership into this least desirable profile. This observation highlights the importance of intervening to nurture employees' perceptions of organizational support, especially among those perceiving low levels of organizational support. Among possible ways to achieve this objective, organizations might promote a supportive culture, for instance, by promoting fairness in the application of policies (Eisenberger & Stinglhamber, 2011). Informal mentoring activities and social events might also help to build a stronger workplace support climate among employees (Newman et al., 2012). The endpoint of these strategies is to create a workplace characterized by supportive and positive interactions among colleagues and among subordinates and supervisors in an ongoing manner (Newman et al., 2012).

However, our results however suggest that care must be taken in this regard given that high levels of perceived organizational support also seem to increase the risk of membership into the *Weary* profile. These observations are particularly interesting given that the bulk of prior research has positioned perceived organizational support as a positive driver of work-related outcomes in a *the more, the better* perspective (Caesens et al., 2014). Our findings thus suggest a more nuanced view of perceived organizational support consistent with the results from prior variable-centered studies revealing curvilinear relations between perceived organizational support and employees' outcomes (e.g., Harris & Kacmar, 2018). In alignment with Burnett et al.'s (2015) perspective, anchored into social exchange theory (Blau, 1964) and the threat to self-esteem model (Nadler & Fisher, 1986), organizations should thus be careful to avoid increasing too much these perceptions or, rather, to ensure that these perceptions are anchored into feelings of relational care, support for one's autonomy, and respect of each employee's fields of competence, rather than in paternalistic feelings of doubt and mistrust. Likewise, organizations might consider encouraging the provision of moderate levels of perceived organizational support coupled with moderate to high levels of perceived colleagues and supervisor support. These hypotheses are aligned with recent person-centered findings showing profiles of employees characterized by a combination of moderate to high levels of perceived organizational, supervisor, and colleagues support might be associated with the most positive outcomes (Caesens et al., 2020). These results encourage scholars and practitioners to further examine the distinct and complementary role of perceived organizational, supervisor, and colleagues support. More generally, organizations might profit from interventions promoting a balanced level of psychological need satisfaction in the workplace (Gillet et al., 2017, 2019b).

In terms of research implications, the results obtained in this study showcase the importance of adequately taking into account the dual global and specific nature of burnout ratings. Indeed, failure to account for this form of multidimensionality is likely to mistakenly suggest that the cognitive weariness, physical fatigue, and emotional exhaustion facets of burnout are reasonably distinct constructs without a common core and yet displaying comparable associations with outcomes (Morin et al., 2016b, 2017). This erroneous conclusion would in fact stem from the unmodelled role played by workers' global burnout levels, and serve to obscure the equally important role played by specific levels of imbalance associated with each burnout component. Ignoring this duality will thus result in a biased, and far more limited, view of the complex reality of the burnout construct.

In terms of psychological assessment, our results indicate that a bifactor approach is required to avoid obtaining burnout estimates capturing a confusing blend of variance attributed to global and specific components likely to be contaminated by multicollinearity. This conclusion reinforces the value of latent variable methods. However, although latent variable methodologies are straightforward to apply in a research context, these approaches do not naturally lend themselves to the requirements of practitioners who want to obtain manifest scores on burnout measures. For such purposes, scoring procedures will need to be developed using calculations similar to those used to generate factor scores (e.g., Perreira et al, 2018), possibly via the development of online calculators. Scores obtained using this approach will be naturally standardized and easy to interpret in relation to the sample means and variances, at least pending the formal development of more representative interpretative norms.

Limitations and Future Directions

Although the present research offers the first investigation of the characteristics, determinants, and outcomes of employees' burnout profiles defined using global and specific burnout levels obtained on the SMBM, it has some limitations. First, this study capitalized on self-report measures, which may have been influenced by self-reported biases and social desirability. Upcoming studies should incorporate more objective indicators of organizational and individual functioning (e.g., absenteeism), as well as ratings obtained from multiple informants (e.g., supervisors' ratings of performance). Second, this study involved two samples of nurses and mixed employees. Other person-centered studies are still needed to confirm the generalizability of the profiles identified here and their relations with a broader range of determinants and outcomes across a variety of countries, cultures, and occupations (e.g., teachers, sales employees, managers) (Morin et al., 2016c). In addition, although demographic predictors were only found to share negligible associations with the likelihood of profile membership, future research should rely on more homogeneous samples of workers. In particular, Purvanova and Muros' (2010) meta-analysis revealed gender differences in burnout that might have been harder to detect here given our reliance on female-dominated samples.

Third, we examined predictors (perceived organizational support and ethical leadership) or outcomes (affective commitment, normative commitment, continuance commitment–perceived sacrifice, continuance commitment–lack of alternatives, job satisfaction, and perceived stress) based on theoretical and empirical considerations (e.g., Eisenberger & Stinglhamber, 2011; Morin et al., 2013). Although our approach made it possible to rule out possible effects of predictors on profile membership, our study design and the limitations inherent to our analytical method did not allow us to assess possible spurious associations, reversed causality, or reciprocal influence, nor the eventuality of profile membership impacting variations in outcome levels. Consequently, additional longitudinal research would gain from studying the direction of the relations between determinants, consequences, and profiles. In addition, longitudinal research would make it possible to confirm that the burnout profiles identified here are similar in terms of number, size, characteristics, variability, and consequences over time, and to test whether membership into these various profiles remains stable over time. Finally, we only considered two predictors of profile membership (perceived organizational support and ethical leadership). It would be worthwhile for future studies to consider a greater variety of work-related (e.g., other forms of leadership behaviors) or individual (e.g., perfectionism, job crafting) predictors.

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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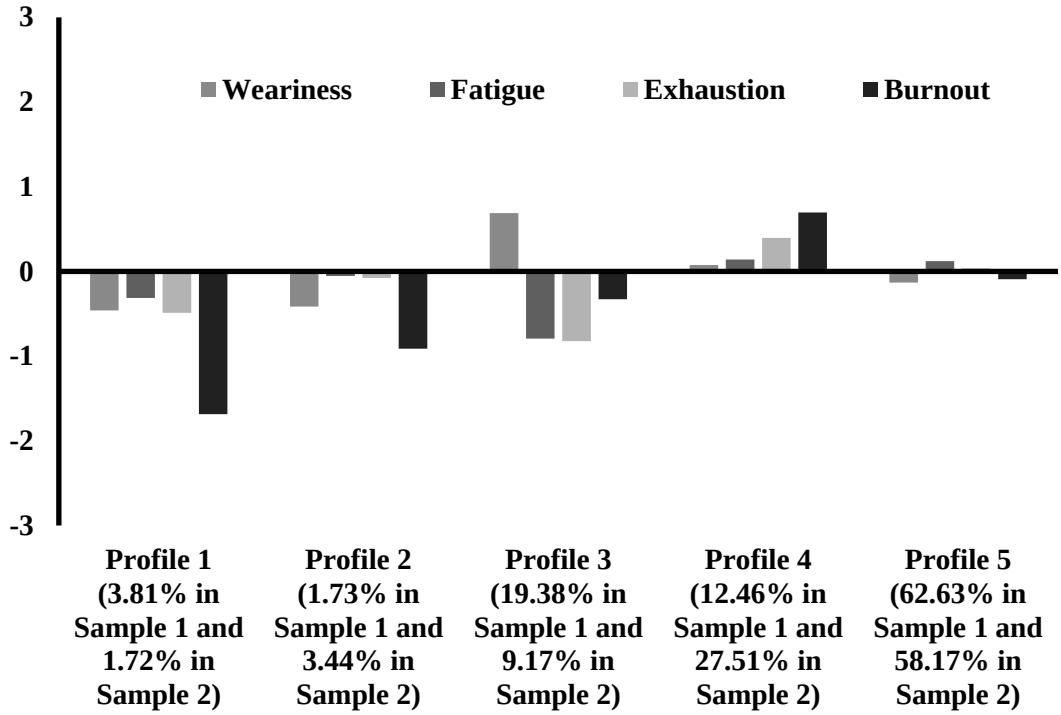

Figure 1. Final 5-Profile Solution Estimated across Samples

Note. Profile indicators are estimated from factor scores with a mean of 0 and a standard deviation of 1; Profile 1: *Thriving*; Profile 2: *Healthy*; Profile 3: *Weary*; Profile 4: *High Burnout*; Profile 5: *Normative*.

Table 1

Results from the Predictive Analyses

Predictors	Profile 1 vs 5 Coef. (SE)	OR	Profile 2 vs 5 Coef. (SE)	OR	Profile 3 vs 5 Coef. (SE)	OR	Profile 4 vs 5 Coef. (SE)	OR	Profile 1 vs 4 Coef. (SE)	OR
Perceived organizational support	1.738 (1.373)	5.687	-.011 (.350)	.989	.768 (.333)*	2.155	-2.076 (.359)**	.125	3.815 (1.511)*	45.358
Ethical leadership	-.248 (.760)	.780	.236 (.315)	1.266	-.415 (.191)*	.660	-.004 (.265)	.996	-.244 (.873)	.783
Predictors	**Profile 2 vs 4 Coef. (SE)**	**OR**	**Profile 3 vs 4 Coef. (SE)**	**OR**	**Profile 1 vs 3 Coef. (SE)**	**OR**	**Profile 2 vs 3 Coef. (SE)**	**OR**	**Profile 1 vs 2 Coef. (SE)**	**OR**
Perceived organizational support	2.065 (.438)**	7.885	2.844 (.514)**	17.187	.970 (1.335)	2.639	-.779 (.465)	.459	1.750 (1.412)	5.752
Ethical leadership	.240 (.374)	1.271	-.412 (.324)	.663	.167 (.743)	1.182	.651 (.301)*	1.918	-.484 (.819)	.616

Note. * $p < .05$; ** $p < .01$; SE: Standard error of the coefficient; OR: Odds ratio; the coefficients and OR reflect the effects of the predictors on the likelihood of membership into the first listed profile relative to the second listed profile; predictors are estimated from factor scores with a standard deviation of 1 and a mean of 0; Profile 1: *Thriving*; Profile 2: *Healthy*; Profile 3: *Weary*; Profile 4: *High Burnout*; Profile 5: *Normative*.

Table 2

Associations between Profile Membership and the Outcomes

	Profile 1 Mean [CI]	Profile 2 Mean [CI]	Profile 3 Mean [CI]	Profile 4 Mean [CI]	Profile 5 Mean [CI]	Significant Differences
Affective commitment	.646 [.390; .903]	.257 [-.019; .533]	.063 [-.419; .546]	-1.018 [-1.155; -.880]	.476 [.368; .584]	1 > 2 = 3 > 4; 5 > 4; 2 = 3 = 5; 1 = 5
Normative commitment	.099 [-.201; .398]	.069 [-.284; .423]	-.395 [-.846; .056]	-.678 [-.800; -.557]	.411 [.302; .520]	1 = 2 > 4; 5 > 3 = 4; 1 = 2 = 3; 1 = 2 = 5
Continuance commitment: Perceived sacrifice	.103 [-.261; .467]	-.062 [-.390; .266]	-.429 [-.975; .117]	-.584 [-.750; -.417]	.381 [.283; .478]	5 > 2 = 3; 5 > 2 > 4; 1 > 4; 1 = 2 = 3; 1 = 5; 3 = 4
Continuance commitment: Lack of alternatives	-.840 [-1.178; -.502]	-.426 [-.662; -.190]	-.648 [-1.165; -.132]	.307 [.146; .468]	.028 [-.072; .128]	4 > 5 > 1 = 3; 4 > 5 > 2 = 3; 2 > 1
Job satisfaction	.981 [.774; 1.189]	.630 [.449; .812]	.379 [.045; .713]	-1.080 [-1.215; -.946]	.407 [.304; .510]	1 > 2 = 3 > 4; 1 > 2 > 5 > 4; 3 = 5
Perceived stress	-1.123 [-1.335; -.911]	-.539 [-.741; -.336]	-.636 [-.835; -.437]	.661 [.524; .798]	-.132 [-.226; -.037]	4 > 5 > 2 = 3 > 1

Note. CI = 95% confidence interval; outcomes levels are estimated from factor scores with a standard deviation of 1 and a mean of 0; Profile 1: *Thriving*; Profile 2: *Healthy*; Profile 3: *Weary*; Profile 4: *High Burnout*; Profile 5: *Normative*.

Online Supplemental Materials for:

Burnout Profiles: Dimensionality, Replicability, and Associations with Predictors and Outcomes

Authors' note:

These online technical appendices are to be posted on the journal website and hot-linked to the manuscript. If the journal does not offer this possibility, these materials can alternatively be posted on one of our personal websites (we will adjust the in-text reference upon acceptance).

We would also be happy to have some of these materials brought back into the main manuscript, or included as published appendices if you deem it useful. We developed these materials to provide additional technical information and to keep the main manuscript from becoming needlessly long.

Preliminary Measurement Models

A Bifactor Operationalization of Burnout

As noted in the main manuscript, accumulating research evidence supports the idea that burnout ratings are best represented by a bifactor operationalization (e.g., Morin et al., 2016a, 2020) making it possible to simultaneously assess respondents' global levels of burnout (G-factor) together with non-redundant estimates of the specificity remaining a the levels of each burnout subscale (S-factors) over and above these global levels (Barcza-Renner et al., 2016; Doherty et al., 2021; Hawrot & Koniewski, 2018; Isoard-Gautheur et al., 2018; Mészáros et al., 2014; Szigeti et al., 2017). In bifactor models, all burnout items are used to define the overarching burnout G-factor, whereas all subscale-specific items are simultaneously used to define the S-factors reflecting the unique quality associated with each burnout facet left unexplained by the G-factor. Importantly, research in which these two layers of measurement cannot be properly disentangled carries the risk of leading to an overly similar assessment of the relative contribution of each burnout component, making it impossible to clearly identify the unique contribution of each of them over and above that of participants' global levels of burnout (Hawrot & Koniewski, 2018; Isoard-Gautheur et al., 2018).

Preliminary Measurement Models: Estimation

Preliminary measurement models were estimated using Mplus 8 (Muthén & Muthén, 2018) and the robust Maximum Likelihood (MLR) estimator, which provides parameter estimates, standard errors, and goodness-of-fit indices that are robust to the non-normality of the response scales used in the present study. These models were estimated using Full Information Maximum Likelihood (FIML; Enders, 2010) procedures to account for the limited amount of missing responses present at the item level (0% to 2.4% across items and samples). Due to the complexity of the models underlying all constructs assessed in the present study, preliminary analyses were conducted separately for the burnout measure and for the multi-items predictors (perceived organizational support and ethical leadership) and outcomes (affective, normative, continuance-perceived sacrifices, and continuance-lack of alternatives organizational commitment, job satisfaction, and perceived stress).

For the burnout measure, a bifactor-CFA model (e.g., Mészáros et al., 2014; Szigeti et al., 2017) including one burnout G-factor and three orthogonal S-factors (cognitive weariness, physical fatigue, and emotional exhaustion) was estimated. We also contrasted this solution to a simpler CFA solution in which items were only allowed to load on their a priori dimension, allowing all factors to correlate.

For the predictors and outcomes, an eight-factor CFA was specified to reflect ratings of perceived organizational support, ethical leadership, affective commitment, normative commitment, continuance commitment-perceived sacrifices, continuance commitment-lack of alternatives, perceived stress, and job satisfaction. Each item was only allowed to load on the factor it was assumed to measure and all factors were allowed to freely correlate. This model included a priori correlated uniquenesses to account for the negative wording of six of the items (Marsh et al., 2010).

We finally verified that the measurement models operated in the same manner across samples through sequential tests of measurement invariance (Millsap, 2011). More precisely, we assessed: (1) configural invariance; (2) weak invariance (loadings); (3) strong invariance (loadings and intercepts); (4) strict invariance (loadings, intercepts, and uniquenesses); (5) invariance of the latent variance-covariance matrix (loadings, intercepts, uniquenesses, and latent variances and covariances); and (6) latent means invariance (loadings, intercepts, uniquenesses, latent variances and covariances, and latent means). Factor scores were saved from the most invariant model for the main analyses.

Given the known oversensitivity of the chi-square test of exact fit (χ^2) to sample size and minor model misspecifications (e.g., Marsh et al., 2005), we relied on sample-size independent goodness-of-fit indices to describe the fit of the alternative models (Hu & Bentler, 1999): The comparative fit index (CFI), the Tucker-Lewis index (TLI), as well as the root mean square error of approximation (RMSEA) and its 90% confidence interval. Values greater than .90 for the CFI and TLI indicate adequate model fit, although values greater than .95 are preferable. Values smaller than .08 or .06 for the RMSEA respectively support acceptable and excellent model fit. Like the chi-square, chi-square difference tests present a known sensitivity to sample size and minor model misspecifications so that recent studies suggest complementing this information with changes in CFIs and RMSEAs (Chen, 2007; Cheung & Rensvold, 2002) in the context of tests of measurement invariance. A ΔCFI of .010 or less, a ΔTLI of .010 or less, and a ΔRMSEA of .015 or less between a more restricted model and the previous one support the invariance hypothesis.

Preliminary Measurement Models: Results

The goodness-of-fit results from all burnout models are reported in Table S1. These results clearly support the adequacy of the a priori bifactor-CFA model underlying the burnout measure (with all CFI and TLI ≥ .90, and all RMSEA ≤ .08) and its superiority relative to the CFA model (ΔCFI = .012 to .027; ΔTLI = .005 to .028; ΔRMSEA = .002 to .021). This solution was thus retained for tests of measurement invariance. The results from these tests, reported in the bottom section of Table S1, supported the configural, weak, strong, strict, latent variance-covariance, and latent means invariance of the model. These results thus show that the measurement models underlying burnout ratings can be considered to be fully equivalent across groups, leading to the estimation of similar constructs, and consistent with a lack of latent means differences across samples. Factor scores used in the main analyses were extracted from the final model of latent means invariance.

Parameter estimates from this final model of latent means invariance are reported in Table S2. When interpreting bifactor-CFA results, it is important to keep in mind that, because bifactor models rely on two factors to explain the covariance present at the item level for each specific item, factor loadings on G- and S-factors are typically lower than their first-order counterparts (e.g., Morin et al., 2016a, 2020). As such, the critical question when interpreting a bifactor solution is whether the G-factor really taps into a meaningful amount of covariance shared among all items, and whether there remains sufficient specificity at the subscale level unexplained by the G-factor to result in the estimation of meaningful S-factors. The results from the bifactor-CFA solution revealed a well-defined G-factor across groups (ω = .969) with strong positive loadings from the cognitive weariness (λ = .642 to .848), physical fatigue (λ = .645 to .743), and emotional exhaustion (λ = .452 to .514) items. Over and above this G-factor, items associated with the cognitive weariness (λ =.055 to .518, ω = .743), physical fatigue (λ =.544 to .655, ω = .919), and emotional exhaustion (λ =.498 to .856, ω = .851) S-factors all retained a satisfactory level of specificity.

Finally, the results (see Table S3) also support the adequacy of the model underlying the predictor and covariable measures (CFI = .918; TLI = .911; and RMSEA = .051), as well as their complete measurement invariance across samples. Factors scores were thus extracted from the final model of latent means invariance. The final parameter estimates from this model of latent means invariance are reported in reported in Table S4. These results reveal well-defined factors for all constructs considered here: (a) perceived organizational support (λ =.412 to .876, ω = .898); (b) ethical leadership (λ =.427 to .906, ω = .956); (c) affective commitment (λ =.510 to .820, ω = .880); (d) normative commitment (λ =.713 to .791, ω = .893); (e) continuance-perceived sacrifices commitment (λ =.596 to .748, ω = .735); (f) continuance-lack of alternatives commitment (λ =.700 to .807, ω = .789); (g) job satisfaction (λ =.694 to .840, ω = .886), and (h) perceived stress (λ =.319 to .802, ω = .849). The correlations between all variables used in the main analyses (i.e., the factor scores from these final measurement models) are reported in Table S5.

Latent Profile Analyses

Selection of the Optimal Solution in each Sample

To select the optimal number of profiles that best represented the data in each sample, it is important to carefully examine the theoretical conformity, meaning, and statistical adequacy of the alternative solutions (Marsh et al., 2009; Muthén, 2003). Statistical indicators are also available to support this decision (McLachlan & Peel, 2000). More precisely, lower values on the Bayesian Information Criterion (BIC), sample-size Adjusted BIC (ABIC), Akaïke Information Criterion (AIC), and Consistent AIC (CAIC) indicate a better fitting model. In addition, a statistically significant p-value associated with the adjusted Lo, Mendell, and Rubin's (2001) Likelihood Ratio Test (aLMR) and the Bootstrap Likelihood Ratio Test (BLRT) supports the added value of a solution when contrasted with a solution including one fewer profile. Statistical studies support the accuracy of the CAIC, BIC, ABIC, and BLRT, but not that of the AIC and aLMR (Diallo et al., 2016, 2017). We thus only report these indicators (AIC and aLMR) for complete disclosure, but do not use them to guide our decision. Furthermore, all of these indicators remain heavily influenced by sample size, so that they often keep on suggesting the addition of latent profiles without converging on a specific model (Marsh et al., 2009). In this situation, the point at which the decrease in the value of these indicators reaches a plateau, on a graphical display called an elbow plot, can be used to suggest the optimal solution (Morin et al., 2011).

Tests of Profile Similarity

The first step verifies if the same number of profiles can be identified in each sample (*configural*

similarity). In the second step, the *structural* similarity of the profiles is verified by including equality constraints across samples on the means of the profile indicators to test whether the profiles retain the same shape across samples. The third step tests the *dispersion* similarity of the profiles by including equality constraints on the variances of the profile indicators to verify whether the within-profile variability remains comparable across samples. The fourth step tests the *distributional* similarity of the profiles by constraining the class probabilities to equality across samples to ascertain whether the relative size of the profiles remains unchanged. In these tests, Morin et al. (2016b) note that at least two indices out of the CAIC, BIC, and ABIC should be lower for the more "similar" model for the hypothesis of profile similarity to be supported. Finally, the entropy (ranging from 0 to 1) indicates the precision with which the cases are classified into the various profiles, but should not be used to guide model selection.

Model Comparisons

Latent Profile Analyses and Tests of Profile Similarity: Results

The fit indices associated with the sample-specific latent profile analyses are reported in Table S6. Matching elbow plots are reported in Figure S1. In Sample 1, the CAIC, BIC, and ABIC kept on decreasing without reaching a minimum. In Sample 2, the CAIC and BIC reached their lowest point for the four-profile solution, whereas the ABIC failed to reach a minimum. Finally, the BLRT supported a two-profile solution in Sample 1, but a five-profile solution in Sample 2. Examination of the elbow plots associated with the information criteria was more informative, suggesting a clear plateau in the decrease of the value of these indicators after the five-profile solution in Sample 1, and after the four-profile solution in Sample 2. These two solutions, together with the subsequent six-profile solution, were thus more specifically examined. This examination revealed that all of these solutions were statistically proper, and already showed a high level of similarity across samples. This apparent similarity thus already provides some support to the *configural* similarity of the model across samples. Moreover, this examination revealed that up to five profiles, each new profile represented a meaningful addition to the solution. In contrast, adding a sixth profile only resulted in the arbitrary division of an existing profile into smaller ones. Thus, the five-profile solution was retained across samples and formed the baseline model of *configural* similarity[2].

The results from the multi-sample tests of profile similarity conducted on the basis of this five-profile solution are reported in Table S7. The next model of *structural* similarity resulted in lower CAIC, BIC, and ABIC values and was thus supported. Similarly, the next model of *dispersion* similarity also resulted in lower values on the CAIC, BIC, and ABIC, and was supported by the data. In contrast, the model of *distributional* similarity resulted in higher values on the CAIC, BIC, and ABIC, suggesting that the relative size of the profiles differed across samples.

This final model of *dispersion* similarity was thus retained for interpretation. Detailed parameter estimates from this solution are reported in Table S8. This model resulted in a high level of classification accuracy of participants into their most likely profiles (see Table S9), ranging from 78.6% to 99.9% across profiles in Sample 1, and 71.5% to 100.0% for Sample 2, consistent with the high entropy value associated with this solution (.812).

Predictors of Profile Membership

As shown in the middle section of Table S7, the results regarding the associations between the demographic predictors and the likelihood of profile membership supported the null effects model. Indeed, this model resulted in the lowest values for the CAIC, BIC, and ABIC when compared to the alternative models. This result suggests that demographics only share negligible associations with the likelihood of profile membership, and do not need to be retained in further analyses. Also shown in Table S7, the analyses related to the effects of the theoretical predictors on participants' likelihood of profile membership are consistent with the presence of associations between these variables that generalize across samples. Indeed, the model of *predictive* similarity resulted in the lowest values for the CAIC, BIC, and ABIC when compared to the alternative models.

Outcomes of Profile Membership

As shown in the bottom section of Table S7, when the outcomes were included into the model, the results supported the model of *explanatory* similarity, which resulted in the lowest values for the CAIC, BIC, and ABIC when compared to the alternative ones. This evidence of similarity, obtained at the level

[2] Interested readers can consult the four- and six-profile solutions in Figures S2 and S3.

of the predictors and of the outcomes, further reinforces the idea that all five profiles tap into similar psychological processes across samples.

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Table S1

Goodness-of-Fit Statistics of the Preliminary Measurement Models (Burnout)

Description	χ^2 (*df*)	CFI	TLI	RMSEA	90% CI	CM	$\Delta\chi^2$ (*df*)	ΔCFI	ΔTLI	ΔRMSEA
Sample 1										
CFA	408.124 (74)*	.941	.927	.080	[.073; .088]	-	-	-	-	-
Bifactor-CFA	327.873 (63)*	.953	.932	.078	[.069; .086]	-	-	-	-	-
Sample 2										
CFA	204.990 (74)*	.950	.939	.078	[.066; .091]	-	-	-	-	-
Bifactor-CFA	122.262 (63)*	.977	.967	.057	[.042; .072]	-	-	-	-	-
Multi-Group Tests of Invariance										
M1. Configural invariance	319.345 (126)*	.980	.971	.056	[.048; .063]	-	-	-	-	-
M2. Weak invariance	368.452 (150)*	.977	.973	.054	[.047; .061]	M1	48.444 (24)*	-.003	+.002	-.002
M3. Strong invariance	403.997 (160)*	.975	.971	.056	[.049; .062]	M2	38.176 (10)*	-.002	-.002	+.002
M4. Strict invariance	422 .346 (174)*	.974	.973	.054	[.047; .060]	M3	24.334 (14)	-.001	+.002	-.002
M5. Latent variance-covariance invariance	431.225 (178)*	.974	.973	.054	[.047; .060]	M4	9.068 (4)	.000	.000	.000
M6. Latent means invariance	457.269 (182)*	.972	.972	.055	[.049; .062]	M5	37.283 (4)*	-.002	-.001	+.001

Note. * $p < .01$; χ^2: Robust chi-square test of exact fit; *df*: Degrees of freedom; CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: Root mean square error of approximation; 90% CI: 90% confidence interval; CM: Comparison model; Δ: Change in fit relative to the CM.

Table S2

Standardized Factor Loadings (λ) and Uniquenesses (δ) from the Bifactor-CFA Solution (Burnout)

Items	G λ	S-CW λ	S-PF λ	S-EE λ	δ
CW					
Item 1	.642	.419			.413
Item 2	.821	*.055*			.323
Item 3	.771	.441			.211
Item 4	.848	*.121*			.267
Item 5	.808	.485			.112
Item 6	.789	.518			.109
PF					
Item 1	.699		.544		.216
Item 2	.720		.549		.181
Item 3	.743		.578		.114
Item 4	.711		.655		.065
Item 5	.645		.629		.189
EE					
Item 1	.514			.498	.488
Item 2	.462			.856	*.054*
Item 3	.452			.751	.232
ω	.969	.743	.919	.851	

Note. G = Global factor estimated as part of a bifactor model; S = Specific factor estimated as part of a bifactor model; λ: Factor loading; δ: Item uniqueness; ω: Omega coefficient of model-based composite reliability; CW = Cognitive weariness; PF = Physical fatigue; EE = Emotional exhaustion; non-significant parameters ($p \geq .05$) are marked in italics.

Table S3

Goodness-of-Fit Statistics of the Preliminary Measurement Models (Predictors and Outcomes)

Description	χ^2 (*df*)	CFI	TLI	RMSEA	90% CI	CM	$\Delta\chi^2$ (*df*)	ΔCFI	ΔTLI	ΔRMSEA
M1. Configural invariance	4691.119 (2378)*	.917	.911	.044	[.043; .046]	-	-	-	-	-
M2. Weak invariance	4788.132 (2421)*	.915	.911	.045	[.043; .046]	M1	97.333 (43)*	-.002	.000	+.001
M3. Strong invariance	5051.380 (2464)*	.907	.904	.046	[.044; .048]	M2	279.189 (43)*	-.008	-.007	+.001
M4. Strict invariance	5138.867 (2515)*	.906	.905	.046	[.044; .048]	M3	91.896 (51)*	-.001	+.001	.000
M5. Invariance of the CUs	5153.674 (2522)*	.906	.905	.046	[.044; .048]	M4	14.702 (7)	.000	.000	.000
M6. Latent variance-covariance invariance	5230.483 (2558)*	.904	.905	.046	[.044; .048]	M5	76.698 (36)*	-.002	.000	.000
M7. Latent means invariance	5283.606 (2566)*	.903	.903	.046	[.045; .048]	M6	57.509 (8)*	-.001	-.002	.000

Note. * $p < .01$; χ^2: Robust chi-square test of exact fit; *df*: Degrees of freedom; CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: Root mean square error of approximation; 90% CI: 90% confidence interval; CM: Comparison model; Δ: Change in fit relative to the CM; CUs: Correlated uniquenesses.

Table S4

Standardized Loadings (λ), Uniquenesses (δ), and Correlations for the Predictors and Outcomes CFA

Items	POS (λ)	EL (λ)	AC (λ)	NC (λ)	C-PS (λ)	C-LA (λ)	SAT (λ)	PS (λ)	δ
POS									
Item 1	.735								.460
Item 2	.876								.233
Item 3	.853								.273
Item 4	.793								.372
Item 5	.624								.611
Item 6	.414								.828
Item 7	.621								.615
Item 8	.540								.708
EL									
Item 1		.865							.253
Item 2		.427							.818
Item 3		.822							.325
Item 4		.906							.178
Item 5		.900							.190
Item 6		.895							.198
Item 7		.825							.319
Item 8		.885							.217
Item 9		.850							.278
Item 10		.826							.317
AC									
Item 1			.771						.406
Item 2			.822						.325
Item 3			.812						.340
Item 4			.715						.488
Item 5			.790						.375
Item 6			.512						.738
NC									
Item 1				.732					.465
Item 2				.769					.409
Item 3				.790					.376
Item 4				.774					.401
Item 5				.791					.374
Item 6				.714					.490
C-PS									
Item 1					.731				.465
Item 2					.748				.440
Item 3					.596				.645
C-LA									
Item 1						.699			.511
Item 2						.805			.352
Item 3						.728			.469
SAT									
Item 1							.692		.521
Item 2							.781		.390
Item 3							.841		.293
Item 4							.793		.371
Item 5							.788		.378

Items	POS (λ)	EL (λ)	AC (λ)	NC (λ)	C-PS (λ)	C-LA (λ)	SAT (λ)	PS (λ)	δ
PS									
Item 1								.466	.783
Item 2								.733	.462
Item 3								.770	.407
Item 4								.331	.891
Item 5								.597	.643
Item 6								.643	.587
Item 7								.319	.898
Item 8								.508	.742
Item 9								.743	.449
Item 10								.802	.356
ω	.898	.956	.880	.893	.735	.789	.886	.849	
Correlations	1	2	3	4	5	6	7	8	
1. POS	-								
2. EL	.704	-							
3. AC	.629	.536	-						
4. NC	.331	.331	.565	-					
5. C-PS	.306	.275	.548	.519	-				
6. C-LA	-.260	-.227	-.105	.098	.410	-			
7. SAT	.732	.624	.680	.406	.376	-.287	-		
8. PS	-.461	-.363	-.240	-.089	-.090	.324	-.496	-	

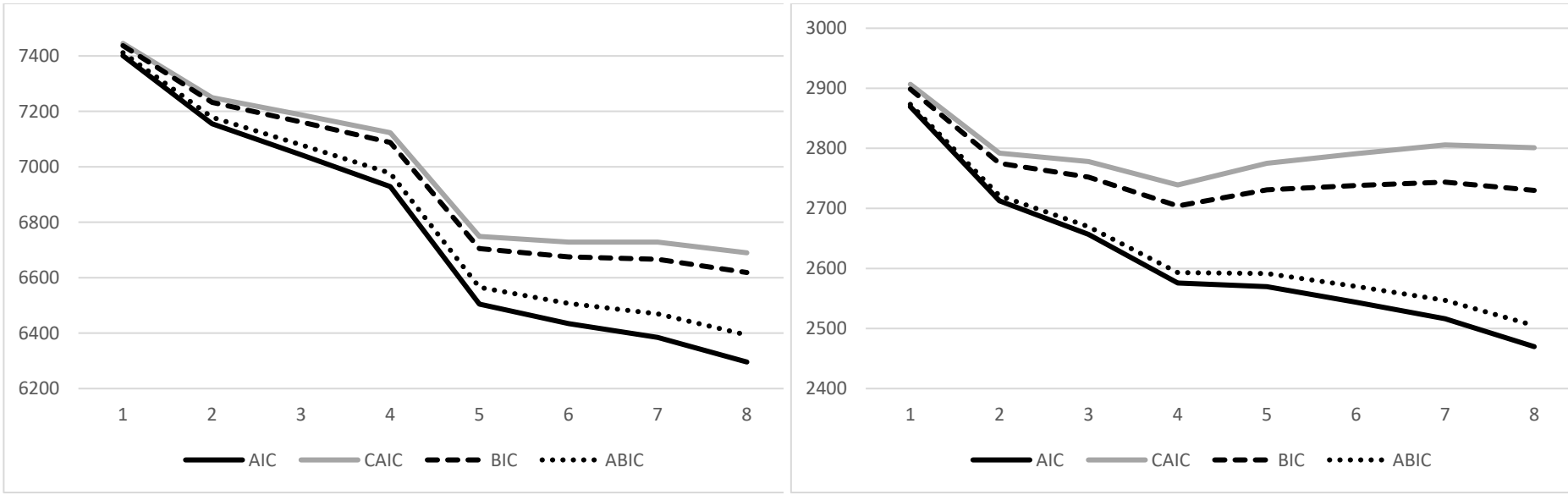
Note. λ: Factor loading; δ: Item uniqueness; ω: Omega coefficient of model-based composite reliability; POS = Perceived organizational support; EL = Ethical leadership; AC = Affective commitment; NC = Normative commitment; C-PS: Continuance commitment-perceived sacrifices commitment; C-LA: Continuance commitment-lack of alternatives commitment; SAT = Job satisfaction; PS = Perceived stress.

Table S5

Correlations between Variables Used in the Present Study across Samples

Variable	1	2	3	4	5	6	7	8	9	10	11
Sample 1											
1. Burnout G-factor[1]	-										
2. Cognitive weariness S-factor[1]	.259**	-									
3. Physical fatigue S-factor[1]	.147**	-.170**	-								
4. Emotional exhaustion S-factor[1]	.057	-.218**	.074	-							
5. Perceived organizational support[1]	-.570**	-.105**	.051	-.132**	-						
6. Ethical leadership[1]	-.422**	-.117**	.039	-.070	.741**	-					
7. Affective commiment[1]	-.418**	.019	.064	-.148**	.675**	.577**	-				
8. Normative commitment[1]	-.225**	.022	.039	-.055	.349**	.334**	.611**	-			
9. C-PS[1]	-.181**	.041	.073	-.046	.341**	.318**	.618**	.577**	-		
10. C-LA[1]	.332**	.090*	.071	.038	-.278**	-.228**	-.128**	.072	.477**	-	
11. Job satisfaction[1]	-.649**	-.064	.002	-.106**	.795**	.659**	.766**	.468**	.451**	-.306**	-
12. Perceived stress[1]	.692**	.254**	.155**	.024	-.493**	-.372**	-.262**	-.116**	-.107**	.327**	-.519**
Sample 2											
1. Burnout G-factor[1]	-										
2. Cognitive weariness S-factor[1]	.192**	-									
3. Physical fatigue S-factor[1]	.139*	-.223**	-								
4. Emotional exhaustion S-factor[1]	.081	-.367**	.167**	-							
5. Perceived organizational support[1]	-.603**	-.112	-.019	-.109	-						
6. Ethical leadership[1]	-.503**	-.179**	.046	-.036	.762**	-					
7. Affective commiment[1]	-.437**	-.080	.043	-.068	.692**	.586**	-				
8. Normative commitment[1]	-.171**	-.084	.130*	.057	.395**	.418**	.635**	-			
9. C-PS[1]	-.159**	-.041	.066	.011	.383**	.318**	.638**	.659**	-		
10. C-LA[1]	.447**	.084	.025	-.025	-.372**	-.302**	-.125*	.202**	.399**	-	
11. Job satisfaction[1]	-.639**	-.151*	-.017	-.060	.795**	.684**	.674**	.389**	.400**	-.374**	-
12. Perceived stress[1]	.706**	.184**	.255**	.074	-.544**	-.430**	-.307**	-.067	-.111	.482**	-.615**

Note. * $p < .05$; ** $p < .01$; [1]: indicators are estimated from factor scores with a standard deviation of 1 and a mean of 0; G = Global factor from a bifactor model; S = Specific factor from a bifactor model; C-PS = Continuance commitment-perceived sacrifices commitment; C-LA = Continuance commitment-lack of alternatives commitment.



Sample 1 Sample 2

Figure S1
Elbow Plot of the Value of the Information Criteria for Solutions Including Different Numbers of Latent Profiles

Table S6

Results from the Latent Profile Analysis Models

Model	LL	#fp	Scaling	AIC	CAIC	BIC	ABIC	Entropy	aLMR	BLRT
Sample 1										
1 Profile	-3692.432	8	1.251	7400.863	7445.249	7437.249	7411.847	Na	Na	Na
2 Profiles	-3560.587	17	1.166	7155.174	7249.494	7232.494	7178.515	.899	< .001	< .001
3 Profiles	-3495.607	26	1.073	7043.214	7187.467	7161.467	7078.912	.622	.897	1.000
4 Profiles	-3429.373	35	1.083	6928.746	7122.933	7087.933	6976.802	.702	.997	1.000
5 Profiles	-3208.346	44	1.143	6504.693	6748.815	6704.815	6565.106	.740	.009	< .001
6 Profiles	-3164.082	53	1.300	6434.165	6728.220	6675.220	6506.935	.767	.441	< .001
7 Profiles	-3130.276	62	1.143	6384.553	6728.542	6666.542	6469.681	884	.306	< .001
8 Profiles	-3076.900	71	1.183	6295.801	6689.724	6618.724	6393.285	.790	.159	< .001
Sample 2										
1 Profile	-1426.650	8	1.136	2869.299	2906.630	2898.630	2873.261	Na	Na	Na
2 Profiles	-1339.328	17	1.072	2712.657	2791.986	2774.986	2721.076	.998	< .001	< .001
3 Profiles	-1302.378	26	1.198	2656.756	2778.083	2752.083	2669.633	.850	.208	< .001
4 Profiles	-1252.863	35	1.035	2575.726	2739.051	2704.051	2593.060	.992	.080	< .001
5 Profiles	-1240.824	44	.996	2569.648	2774.971	2730.971	2591.440	.870	.186	< .001
6 Profiles	-1218.915	53	1.150	2543.829	2791.150	2738.150	2570.079	.881	.907	1.000
7 Profiles	-1196.151	62	1.085	2516.302	2805.620	2743.620	2547.008	.823	.605	1.000
8 Profiles	-1163.886	71	1.128	2469.773	2801.089	2730.089	2504.937	.817	.497	.035

Note: LL: LogLikelihood; #fp: Number of free parameters; Scaling: Scaling correction factor; AIC: Akaïke Information Criteria; CAIC: Constant AIC; BIC: Bayesian Information Criteria; ABIC: Sample-size adjusted BIC; aLMR: Adjusted Lo-Mendel-Rubin likelihood ratio test; BLRT: Bootstrap Likelihood Ratio Test.

Table S7

Fit Results from the Multi-Group Tests of Profile Similarity

	LL	#fp	SC	AIC	CAIC	BIC	ABIC	Entropy
Multi-Group Similarity: 5 Profiles								
Configural similarity	-5084.021	89	1.2838	10346.042	10870.667	10781.667	10499.001	.864
Structural similarity	-5084.713	69	1.1127	10307.427	10714.159	10645.159	10426.013	.841
Dispersion similarity	-5074.819	49	1.4430	10247.637	10536.476	10487.476	10331.851	.812
Distributional similarity	-5098.977	45	1.2984	10287.954	10553.214	10508.214	10365.293	.801
Demographic Predictors								
Null effects model	-16130.934	44	1.0830	32349.868	32609.234	32565.234	32425.488	.812
Effects freely estimated across samples	-16073.539	100	1.0543	32347.078	32936.545	32836.545	32518.942	.826
Predictive similarity	-16088.740	72	1.0689	32321.480	32745.896	32673.896	32445.222	.820
Theoretical Predictors								
Null effects model	-5074.839	9	1.0000	10167.677	10220.729	10211.729	10183.145	.812
Effects freely estimated across samples	-4957.873	25	1.0378	9965.746	10113.113	10088.113	10008.712	.860
Predictive similarity	-4961.332	17	1.1733	9956.664	10056.873	10039.873	9985.881	.858
Outcomes								
Freely estimated across samples	-12311.294	120	1.0823	24862.588	25569.949	25449.949	25068.825	.926
Explanatory similarity	-12272.457	90	1.0615	24724.915	25255.435	25165.435	24879.593	.922

Note. LL = Loglikelihood; #fp = Number of free parameters; Scaling: Scaling correction factor; AIC = Akaïke information criterion; BIC = Bayesian information criterion; CAIC = Consistent AIC; ABIC = Sample-size adjusted BIC.

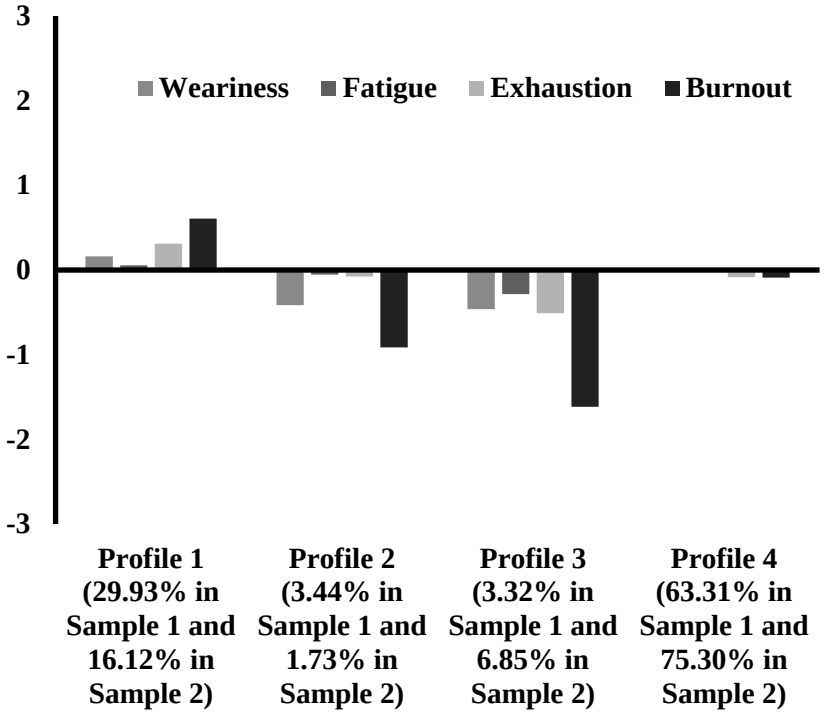


Figure S2. Four-Profile Solution of Dispersion Similarity across Samples
Note. Profile indicators are estimated from factor scores with a mean of 0 and a SD of 1.

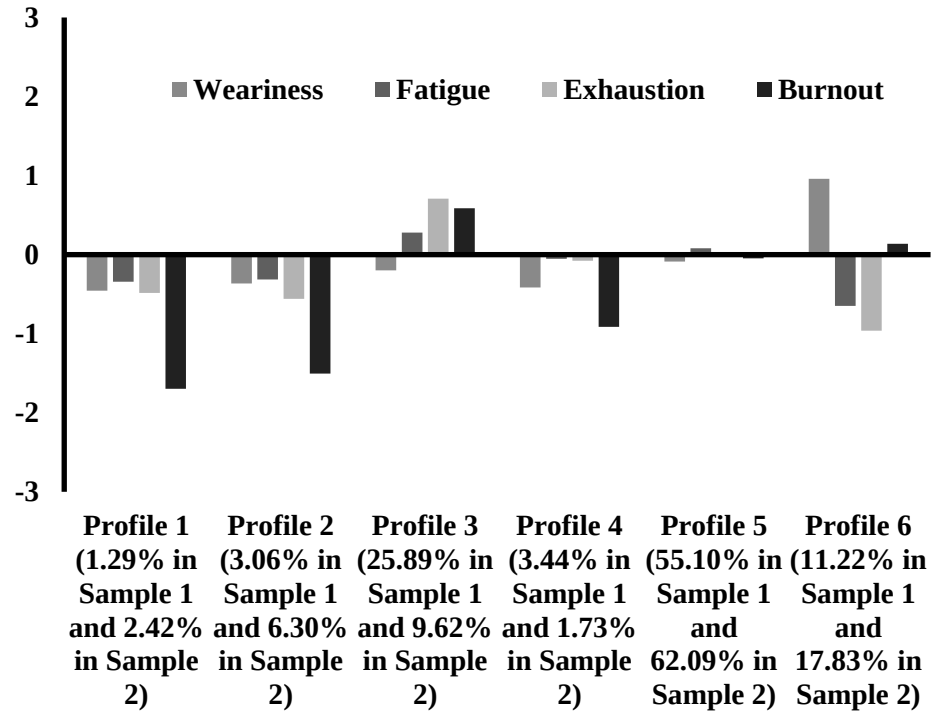


Figure S3. Six-Profile Solution of Dispersion Similarity across Samples
Note. Profile indicators are estimated from factor scores with a mean of 0 and a SD of 1

Table S8

Detailed Results from the Final Latent Profile Solution

	Profile 1 Mean [CI]	Profile 2 Mean [CI]	Profile 3 Mean [CI]	Profile 4 Mean [CI]	Profile 5 Mean [CI]
Specific weariness	-.461 [-.532; -.390]	-.415 [-.450; -.380]	.689 [-.473; 1.852]	.077 [-.494; .649]	-.132 [-.243; -.020]
Specific fatigue	-.313 [-.342; -.285]	-.054 [-.057; -.050]	-.794 [-1.340; -.248]	.140 [-.330; .609]	.122 [-.103; .348]
Specific exhaustion	-.488 [-.494; -.483]	-.077 [-.078; -.075]	-.823 [-1.361; -.284]	.396 [-.285; 1.077]	.037 [-.118; .192]
Global burnout	-1.686 [-1.697; -1.674]	-.913 [-.916; -.910]	-.328 [-1.674; 1.018]	.696 [.378; 1.015]	-.092 [-.284; .100]

Note. CI = 95% confidence interval; the profile indicators are estimated from factor scores with a mean of 0 and a standard deviation of 1; Profile 1: *Thriving*; Profile 2: *Healthy*; Profile 3: *Weary*; Profile 4: *High Burnout*; Profile 5: *Normative*.

Table S9

Classification Accuracy: Average Probability of Membership into Each Latent Profile (Column) as a Function of the Most Likely Profile Membership (Row)

	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5
Sample 1					
Profile 1	.999	.000	.000	.000	.001
Profile 2	.000	.999	.000	.000	.001
Profile 3	.000	.000	.786	.054	.161
Profile 4	.000	.000	.004	.839	.157
Profile 5	.000	.000	.072	.077	.851
Sample 2					
Profile 1	.994	.000	.001	.000	.005
Profile 2	.000	1.000	.000	.000	.000
Profile 3	.000	.000	.715	.109	.176
Profile 4	.000	.000	.025	.828	.147
Profile 5	.000	.000	.045	.141	.814

Note. Profile indicators are estimated from factor scores with a mean of 0 and a standard deviation of 1; Profile 1: *Thriving*; Profile 2: *Healthy*; Profile 3: *Weary*; Profile 4: *High Burnout*; Profile 5: *Normative*.