



## Towards a more refined understanding of the interplay between burnout and engagement among secondary school teachers: A person-centered perspective

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### ABSTRACT

Recent research in different types of employees has suggested that burnout and engagement at work may occur to different degrees. However, little is known about the interplay between burnout and engagement among secondary school teachers. Using a person-centered approach, this study examined which configurations of the three Farber burnout subtypes (i.e., frenetic, underchallenged, and wornout), together with engagement at work, emerged among teachers, and which resulting profiles yielded the most adaptive pattern of teachers' psychological, physical, and work-related functioning. A sample of 584 secondary school teachers ( $M = 45.04 \pm 8.97$ ) participated in this study. Five profiles were identified, showing a co-occurrence of frenetic burnout and engagement in three of those profiles. Further, experiencing moderate levels of engagement appeared to be more adaptive than experiencing high levels of engagement combined with moderate levels of frenetic burnout. These results support the coexistence of burnout and engagement, highlighting how different profiles can differently affect teachers' well-functioning at work.

### 1. Introduction

Over the last three decades, significant reforms and changes in the educational system of some European countries have provoked a higher risk of developing mental health problems within the teaching profession (Betoret, 2009; Skaalvik & Skaalvik, 2015). In fact, teachers have been found to experience more burnout than members of other social professions (Garrick et al., 2014; Innstrand, Langballe, Falkum, & Aasland, 2011), with prevalence rates of between 25% and 35% in European secondary school teachers (García-Carmona, Marín, & Aguayo, 2018; Quattrin et al., 2010; Rodríguez-Mantilla & Fernández-Díaz, 2011). Teacher burnout is typified as a negative work-related mental state that has a direct influence on their psychological health (e.g., anxiety; Gluschkoff et al., 2016) and quality of life (e.g., sleep problems; Moriana & Herruzo, 2006), even affecting their students' academic achievement (e.g., Klusmann, Richter, & Lüdtke, 2016). In contrast, teacher engagement is typified as a positive mental state, which not only may buffer their health problems (e.g., anxiety;

Simbula, Guglielmi, Schaufeli, & Depolo, 2013), but may also lead to good psychological functioning and work performance, as well as benefit students' motivation (Abós, Sevil, Martín-Albo, Julián, & García-González, 2018; Kangas, Siklander, Randolph, & Ruokamo, 2017).

Traditionally, most studies have suggested that burnout and engagement represent the opposite ends of a single continuum (e.g., Crawford, LePine, & Rich, 2010; González-Romá, Schaufeli, Bakker, & Lloret, 2006; Høigaard, Giske, & Sundslid, 2012). Conversely, a previous study on a sample of teachers suggested that some dimensions of burnout and engagement could be experienced simultaneously (i.e., distinct dimensions; Trépanier, Fernet, Austin, & Ménard, 2015). These aforementioned studies were conducted using a variable-centered approach (i.e., inter-individual), which does not permit analyzing the simultaneous co-occurrence of both constructs. In contrast, the use of a person-centered approach (i.e., intra-individual) not only provides an opportunity to shed light on the question of whether burnout and engagement represent distinct constructs or are opposites of a single continuum, but its use may also permit the identification of potential

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relative risk profiles based on the interconnectedness of both constructs (Morin, Morizot, Boudrias, & Madore, 2011). To illustrate, a recent person-centered study conducted among employees<sup>1</sup> (Moeller, Ivcevic, White, Menges, & Brackett, 2018) revealed that some individuals may experience burnout symptoms, while being simultaneously highly engaged. The current study adds to this emerging body of literature by investigating whether such combinations of burnout and engagement also occur among teachers, a topic that has not been explored to date. If so, from a preventive perspective, it becomes interesting to study which resulting profiles yield the most (mal)adaptive patterns in terms of teachers' psychological (i.e., anxiety, depression), physical (i.e., sleep quality), and work-related outcomes (i.e., intention to quit the job).

### 1.1. Teacher burnout

When studying burnout, most researchers have relied on the internationally accepted definition of burnout described by Maslach and Jackson (1986). According to this definition, burnout is determined by the three dimensions of emotional exhaustion (i.e., the feeling of not being able to offer any more of oneself), cynicism (i.e., a distant attitude towards work and colleagues), and inefficacy (i.e., the feeling of not conducting tasks adequately at work) (Maslach & Jackson, 1986; Maslach, Schaufeli, & Leiter, 2001). Despite being extensively used, Maslach's definition considers burnout as a single phenomenon with a similar pattern of symptoms in all individuals as a response to chronic stress at work (Montero-Marín, García-Campayo, Mera, & del Hoyo, 2009), which makes it difficult to design specific prevention strategies based on the characteristics and feelings experienced by each person (Montero-Marín & García-Campayo, 2010). To overcome this issue, from a more practical point of view and focusing on teaching job characteristics, Farber (1990, 2000) identified three different burnout subtypes in teachers based on different ways of responding to stress and frustration at work. From the highest to the lowest degree of energy, these burnout subtypes are frenetic, underchallenged, and wornout (Montero-Marín et al., 2009). Given the possibilities of Farber's definition to design and apply more specific interventions (Montero-Marín et al., 2009), the present study relies on the frenetic, underchallenged, and wornout burnout subtypes.

The frenetic subtype comprises teachers who invest an irrational and excessive amount of time and effort in their work, even risking their health and personal lives because they need to achieve great success at work and avoid failure (Farber, 2000; Montero-Marín et al., 2009). Previous studies have shown that frenetic burnout is positively related to Maslach's dimension of emotional exhaustion (Montero-Marín et al., 2012; Montero-Marín & García-Campayo, 2010), possibly owing to the excessive workload experienced by this highly devoted type of teacher. The underchallenged subtype involves teachers who experience non-stimulating work conditions that do not provide the necessary job satisfaction, and who consider their jobs to be monotonous and routine. They work superficially because their talents remain unacknowledged and they are characterized by feelings of indifference (Farber, 2000; Montero-Marín & García-Campayo, 2010). Underchallenged burnout is positively related to Maslach's dimension of cynicism (Montero-Marín et al., 2012; Montero-Marín & García-Campayo, 2010), which is comprehensible given the possible lack of enthusiasm of teachers, resulting from their own negative evaluation of their jobs. Finally, the wornout subtype comprises teachers who no longer care about their responsibilities. They do not feel professionally appreciated or recognized by the educational administration or principals, and feel that they have lost control over some results of their actions at school (e.g., students' misbehavior or insufficient involvement of parents) (Farber, 2000; Montero-Marín et al., 2009). Teachers' wornout burnout is positively

related to Maslach's dimension of inefficacy (Montero-Marín et al., 2012; Montero-Marín & García-Campayo, 2010), possibly due to apathy and increasing lack of interest in teaching, enhanced by their experiences of lack of acknowledgement and control.

Grounded in Maslach's definition, a wealth of studies has revealed that teacher burnout may lead to negative outcomes such as anxiety (Bianchi, Boffy, Hingray, Truchot, & Laurent, 2013; Moriana & Herruzo, 2006), depression symptoms (Moriana & Herruzo, 2006; Shin, Noh, Jang, Park, & Lee, 2013), sleep disorders (Bianchi et al., 2013; Gluschkoff et al., 2016), and intention to quit their jobs (Høigaard et al., 2012; Ryan et al., 2017; Skaalvik & Skaalvik, 2016, 2017). Yet, to the best of our knowledge, no previous study based on Farber's burnout proposal has addressed these associations in teachers.

### 1.2. Teacher engagement

In international literature, engagement is defined as a positive multi-dimensional mental state characterized by the dimensions of vigor, dedication, and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Vigor refers to high levels of energy, willingness, and resilience. Dedication is expressed by a sense of significance, enthusiasm, pride, and inspiration about the profession. Finally, absorption refers to a pleasant state of high concentration, whereby time passes quickly while doing the job. A large body of research has shown that engagement is negatively related to a range of health problems and maladaptive outcomes in teachers such as anxiety and depression (Simbula et al., 2013), and intention to quit their jobs (Høigaard et al., 2012; Skaalvik & Skaalvik, 2016), while being positively related to indicators of psychological and physical health (e.g., sleep quality; Garrick et al., 2014).

### 1.3. Combinations of burnout and engagement among teachers

Because engagement and burnout are traditionally characterized as the central components of well-being at work (Schaufeli, Taris, & van Rhenen, 2008), researchers have increasingly devoted attention to the relationship between both constructs. In line with their opposite relationships with work-related outcomes, a vast body of empirical research - commonly conducted with Maslach's definition - has shown that there is a strong negative relationship between some dimensions of burnout and engagement (Crawford et al., 2010; González-Romá et al., 2006; Høigaard et al., 2012). Yet, other recent studies reported only moderate (i.e.,  $-0.43 < r < -0.17$ ) negative associations between different components of burnout and engagement, suggesting that feelings of burnout and engagement may coexist at the same time among teachers (Trépanier et al., 2015). However, according to Farber's burnout proposal, little is known about the interplay between burnout subtypes and engagement. According to Farber's proposal, teachers who experience frenetic feelings try to cope with stress by working harder (Montero-Marín et al., 2009). Particularly, the frenetic burnout subtype proposed by Farber could be positively related to engagement given that frenetic people are characterized by involvement in work and need for achievements. In a person-centered study, a possible "moderate to high engaged - moderate to high frenetic" group could emerge from this hypothetical relationship.

Yet, frenetic burnout teachers are also characterized by an inability to acknowledge failure, neglecting own needs, and irritability, which, contrary to engagement, are widely related to detrimental health outcomes (Montero-Marín et al., 2009). Therefore, although both constructs share some common similarities, they are conceptually distinct and need to be separated, from a functional point of view. Indeed, Farber (2000) suggests that frenetic subtype teachers, despite their high energy and dedication levels, are still at risk of suffering mental health problems (e.g., lower sleep quality, anxiety, or stress). Whereas the frenetic subtype is considered highly energetic, the underchallenged and wornout subtypes would display moderate to low levels of energy

<sup>1</sup> Employees were recruited from all industrial sectors in the approximate proportion of each industry in the US workforce.

at work, respectively, and burnout and engagement would thus be either unrelated or negatively related in these teachers (Montero-Marín et al., 2009). To date, we do not have much empirical data supporting these claims. However, the scarce research conducted with Farber's proposal has shown that not only experiencing feelings of frenetic burnout is risky, but also that the underchallenged and wornout burnout subtypes are especially related to a range of maladaptive outcomes (e.g., anger, irritability, anxiety; Aydemir & Icelli, 2013; Montero-Marín et al., 2009).

Furthermore, most studies to date have used inter-individual methods (e.g., correlations, regression, or ESEM; Morin et al., 2011) to establish relationships between burnout, engagement, and work-related outcomes, which allows for conclusions at group level (e.g., Trépanier et al., 2015), but does not permit identifying possible combinations of burnout and engagement. However, relying on intra-individual methods instead of variable-centered (i.e., inter-individual) analyses, three studies have found evidence for the co-occurrence of burnout and engagement in different types of employees (Mäkikangas et al., 2014; Mäkikangas, Feldt, Kinnunen, & Tolvanen, 2012; Moeller et al., 2018). Two studies with Finnish employees - one longitudinal with engineer managers (Mäkikangas et al., 2012), and one diary study with health and social care professionals (Mäkikangas et al., 2014) - showed that moderate to high feelings of burnout (as operationalized by Maslach's dimensions), and engagement at work may be experienced together. Unlike these two studies with Finnish employees, the present study based its methodological approach mainly on one research study on intra-individual profiles of burnout and engagement conducted recently by Moeller et al. (2018) in US employees. In particular, in this above-mentioned study, three profiles that combined burnout and engagement (as operationalized by global dimensions) emerged, which offered support to the coexistence of the two constructs at different levels (i.e., “lowly engaged –low burnout”, “moderately engaged –moderate burnout”, “highly engaged – high burnout”). Interestingly, the “highly engaged –high burnout” profile was more detrimental in terms of negative work-related outcomes than the “moderately engaged –moderate burnout” and the “lowly engaged –low burnout” profiles (Moeller et al., 2018). However, to the best of our knowledge, there are no person-centered studies to date that have examined whether a “highly-high”, “moderately-moderate”, or “lowly-low” engaged burnout profile also exists among teachers, hereby relying on the three Farber burnout subtypes instead of a global burnout dimension.

Identifying different burnout-engagement profiles among teachers is crucially important for the design and development of specific preventive recommendations that are optimally tailored to the way burnout and engagement are manifested among individual teachers (Montero-Marín & García-Campayo, 2010). Likewise, previous research in teachers has commonly been aimed at examining the roots of burnout and engagement (i.e., personal, interpersonal, organizational, etc.) instead of possible health and work-related outcomes (García-Carmona et al., 2018). Identifying profiles of teachers based on the interconnectedness of engagement and burnout may also be useful to the most (mal)adaptive patterns regarding teachers' psychological functioning, physical health, and work-related outcomes. This could shed more light to better understand how teachers may feel every day, based on their levels of burnout and engagement.

#### 1.4. The present study

Considering the gaps that have been identified in literature, the current study aims at identifying different burnout-engagement profiles among teachers. Specifically, our first aim was to study, in a sample of secondary school teachers, how the three Farber burnout subtypes (i.e., frenetic, underchallenged, and wornout) and engagement could cluster together by adopting a person-centered perspective. Based on Farber's burnout subtypes (Farber, 2000; Montero-Marín et al., 2009) and past person-centered studies in employees (Mäkikangas et al., 2012, 2014;

Moeller et al., 2018), we expect (1) to find at least two groups of teachers that are highly engaged and low in all three burnout subtypes and vice versa (i.e., lowly engaged and high in all three burnout subtypes). Moreover, because the frenetic subtype is expected to display the highest level of energy, while the underchallenged and wornout subtypes are expected to display moderate and low levels, respectively (Montero-Marín et al., 2009), based on past studies with employees (Mäkikangas et al., 2012, 2014; Moeller et al., 2018), we also expect (2) to find a third group of teachers that is highly engaged and with highly frenetic burnout. In addition, analogous to previous studies (Moeller et al., 2018), (3) it might be possible to identify a fourth group that may combine low to moderate levels of frenetic burnout and low to moderate levels of engagement. However, based on Farber's burnout proposal (Montero-Marín et al., 2012), we can practically rule out the coexistence of underchallenged and wornout subtypes with engagement, at least, at moderate-high levels.

A second aim was to identify whether one burnout-engagement profile is more detrimental than another, by comparing each of the identified profiles in terms of a range of psychological (i.e., anxiety, depression), physical (i.e., sleep quality) and work-related outcomes (i.e., intention to quit the job). Based on Farber's burnout proposal (Farber, 2000; Montero-Marín et al., 2009), and previous studies (Mäkikangas et al., 2012, 2014; Moeller et al., 2018), we hypothesize (4) that the profiles characterized by a higher presence of engagement and a low presence of burnout subtypes would display the most adaptive pattern of outcomes, while the opposite would be true for profiles that involve low levels of engagement and high levels of burnout, in particular if the resulting profiles have high levels of underchallenged and wornout subtypes. In that respect, we also hypothesize (5) that the profiles characterized by a low presence of engagement and a high presence of frenetic burnout subtype, because of the higher presence of energy than in the underchallenged and wornout subtypes (see Montero-Marín et al., 2009), would yield a more (but not the most) adaptive pattern of outcomes, compared to the above-mentioned profiles characterized by low levels of engagement and high levels of underchallenged and/or wornout burnout subtypes. According to Moeller et al. (2018) and past research, experiencing very high levels of frenetic burnout may be risky (Farber, 2000), thus, the last hypothesis (6) is that if two groups with different levels (i.e., moderate and high) of frenetic burnout and engagement were to emerge, the moderately frenetic-moderate engaged would display a more adaptive pattern of outcomes when compared to a possible group that is high on both frenetic burnout and engagement constructs.

## 2. Methods

### 2.1. Participants and procedure

Approval for this study was obtained from the University's research ethics committee. As our target population was in-service secondary school teachers, we contacted all the 6393 teachers who had worked during the 2014/2015 academic year in one Spanish region (Aragon). The response rate was 10%. A sample of 584 in-service teachers from 106 secondary schools participated in this study (81 state schools, 25 non-state schools). The sample of the present study included the same proportion of male (i.e., 43%) and female (i.e., 57%) teachers as the total population of secondary school teachers of Aragon. In addition, participants represented a wide variety of ages and teaching experience, ranging from 25 to 66 years old ( $M_{age} = 45.04$ ,  $SD = 8.97$ ) and from 1 to 45 years' experience ( $M_{experience} = 17.55$ ,  $SD = 10.26$ ). In terms of teaching areas, the proportion of participants who taught in each area was also balanced: 29% taught subjects in the Humanities area (e.g., foreign languages, Spanish language and literature, philosophy, and ethics, etc.), 19% taught subjects in the Social Sciences area (e.g., geography, history, economics, etc.), 26% taught subjects in the Scientific-Technical Sciences area (e.g., mathematics, biology, physics,

chemistry, etc.), 19% taught subjects in the Artistic-Corporal Sciences area (e.g., physical education, music, plastic arts, etc.), and 7% taught subjects in two or more different areas. Finally, despite most of the participants working in state schools (71%), secondary school teachers who worked in non-state schools (29%) were also represented in the present study. These sample proportions of the study were equal to the total population of secondary teachers of the region of Aragon. These data statistics were provided by the Spanish Ministry of Education, Culture, and Sport (MECD; for further information, see <http://www.mecd.gob.es>).

Teachers received an explanation of the study aims and a weblink to access the online questionnaire via e-mail during the last term of the academic year. The teachers' contact information (i.e., e-mail) was obtained through the Educational Administration of the region of Aragon. The online questionnaire was designed to avoid missing values, making it impossible to continue until all the answers had been completed. The deadline to complete and submit the questionnaire was 30 days. Given the potential importance of collecting the data in the same period of the academic year, reminders were not sent to those teachers who did not respond the first time. Participation was strictly voluntary and anonymous.

## 2.2. Measures

### 2.2.1. Burnout at work

Based on Farber's conceptualization, the three burnout subtypes were measured using the Spanish version of the Burnout Clinical Subtype Questionnaire (Montero-Marín & García-Campayo, 2010). This questionnaire consists of 36 items evenly distributed into three subscales with 12 items each: frenetic (e.g., "I need to achieve great success in my work",  $\omega = 0.92$ ), underchallenged (e.g., "I feel helpless in many situations in my work",  $\omega = 0.95$ ), and wornout (e.g., "I feel bored at work",  $\omega = 0.94$ ). The items were rated on a 7-point Likert scale ranging from 1 ("totally disagree") to 7 ("totally agree"). This scale has shown adequate reliability and validity in prior research with university employees (Montero-Marín et al., 2012). In the present study, a confirmatory factor analysis (CFA) was performed showing adequate goodness-of-fit ( $\chi^2/df = 3.36$ ,  $p < .001$ ; RMSEA = 0.06; CFI = 0.90; TLI = 0.90).

### 2.2.2. Engagement at work

Teacher engagement was measured using the Spanish version of the Utrecht Work Engagement Scale (Schaufeli et al., 2002). This scale consists of 17 items and taps into vigor (six items; e.g., "At work, I feel strong and vigorous",  $\omega = 0.88$ ), dedication (five items; e.g., "I feel happy when I am working intensely",  $\omega = 0.92$ ), and absorption (six items; e.g., "I am immersed in my work",  $\omega = 0.86$ ). The items were rated on a 7-point Likert scale ranging from 0 ("never") to 6 ("always"). In the present study, the relationships between each of the three engagement factors as well as the relationships between each one individually and the engagement composite score showed strongly significant and positive associations. More precisely, vigor was highly correlated with dedication ( $r = 0.83$ ,  $p < .001$ ) and absorption ( $r = 0.80$ ,  $p < .001$ ), as well as dedication with absorption ( $r = 0.79$ ,  $p < .001$ ). Furthermore, vigor ( $r = 0.94$ ), dedication ( $r = 0.93$ ), and absorption ( $r = 0.91$ ) were also highly positively correlated with the engagement composite score at  $p < .001$  level. In addition, a one-factor CFA was performed showing adequate goodness-of-fit ( $\chi^2/df = 3.58$ ,  $p < .001$ ; RMSEA = 0.066; CFI = 0.98; TLI = 0.97). Given that the inspection of engagement at work as a one-dimensional construct may be a more parsimonious and interpretable option in this study, and consistent with previous research (e.g., Shimazu et al., 2008) that found a proper fit for the one-dimensional representation of engagement at work, we used the mean composite score of all 17 items ( $\omega = 0.91$ ) as a measure of work engagement.

### 2.2.3. Anxiety and depression

Anxiety and depression were measured using the Spanish version of the Hospital Anxiety and Depression Scale (Quintana et al., 2003). This scale consists of 14 items assessing respondents' anxiety (seven items; e.g., "I feel tense or 'wound up'",  $\omega = 0.96$ ) and depression (seven items; e.g., "I have lost interest in my appearance",  $\omega = 0.93$ ). Each item is rated on a 4-point scale from 0 to 3 (with 3 indicating maximum symptom severity). Each subscale has a summed score with a potential range from 0 to 21, with a higher score pointing to higher symptom severity. This scale has shown adequate reliability and validity in prior research with teachers (Bellingrath, Weigl, & Kudielka, 2008). In the current study, a CFA was conducted showing adequate goodness-of-fit ( $\chi^2/df = 3.42$ ,  $p < .001$ ; RMSEA = 0.064; CFI = 0.92; TLI = 0.90).

### 2.2.4. Sleep quality

Sleep quality was assessed using one single item (i.e., "During the past month, how would you rate your sleep quality overall?") from the Spanish version of the Pittsburgh Sleep Quality Index (Macias & Royuela, 1996). The item was rated on a 4-point Likert scale, ranging from 1 ("very bad") to 4 ("very good"). This question has widely been included to measure sleep quality in past research with employees (e.g., Kalmbach, Pillai, Cheng, Arnedt, & Drake, 2015; Pereira & Elfering, 2014).

### 2.2.5. Intention to quit the job

Intention to quit the job was measured by the dichotomous question "Have you ever thought about leaving your job as a teacher? (yes or no)". This question has been used previously in studies with teachers (e.g., Høigaard et al., 2012).

## 2.3. Data analysis

### 2.3.1. Preliminary descriptive, correlational, and reliability analyses

Prior to the main analyses, the descriptive statistics ( $M$  and  $SD$ ), bivariate correlation analyses (Pearson's for continuous variables and Spearman's rho for intention to quit the job), and scales reliability (McDonald's omega) were computed using IBM SPSS Statistics 22.0 and Mplus 7.3. McDonald's omega (McDonald, 1999) was calculated because Cronbach's alpha may be biased by the number of items (Dunn, Baguley, & Brunson, 2014). Further, previous studies in social sciences have supported the use of this reliability parameter (e.g., León, Núñez, & Liew, 2015), showing evidence of better accuracy than Cronbach's alpha (Revelle & Zinbarg, 2009).

### 2.3.2. Person-centered approach

A two-step procedure, adopting a combination of hierarchical and non-hierarchical clustering methods (Garson, 2014), was conducted on the one dimension of engagement and the three burnout subtypes (i.e., frenetic, underchallenged, and wornout). First, the standardized scores ( $Z$ -scores) were calculated using the teachers' descriptive values ( $M$ ,  $SD$ , Minimum and Maximum) for frenetic, underchallenged, and wornout burnout, as well as for engagement. Then, individuals with values of more than three standard deviations above or below the mean, or with high Mahalanobis values, were removed from the analyses to reduce the impact of univariate and multivariate outliers, respectively (Steinley & Brusco, 2011). Second, to identify initial cluster centers, Ward's method was used to guide hierarchical cluster analysis based on square Euclidian distances. Three to six possible cluster solutions were considered by inspecting the percentage of explained variance. The cluster solution with explained variance values of  $< 50\%$  for each dimension was not retained for subsequent analyses. The increase in clustering variance in each of the possible groupings was examined to identify the final number of profiles (Aguinis, Gottfredson, & Joo, 2013). Third, the previously obtained cluster centers, using Ward's hierarchical method, were used as non-random initial cluster centers in an iterative, non-hierarchical k-means clustering procedure (Asendorpf,



Borkenau, Ostendorf, & Van Aken, 2001). Fourth, a double-split cross-validation method was used to examine the stability of the final cluster solution. The individuals were randomly split into two subsamples and the full two-step procedure (i.e., Ward, k-means) was then applied in each subsample. The teachers in each subsample were assigned to new clusters based on their Euclidean distances to the cluster centers of the other half of the sample. Then, these new cluster solutions were compared for agreement with the original cluster solution using Cohen's kappa (K) statistic. The two resulting kappas were averaged and an agreement of at least 0.60 was considered acceptable (Asendorpf et al., 2001). Finally, given that gender and teaching experience may influence teachers' psychological functioning (e.g., Antoniou, Ploumpi, & Ntalla, 2013; Betoret & Artiga, 2010), the cluster assignment in these two socio-demographic variables was examined via Chi-square test and multinomial regression, respectively. The results of this analysis told us if it was necessary to include them as covariates in the subsequent analyses.

2.3.3. Differences in teachers' profiles and outcomes

A multivariate analysis of variance (MANOVA) with post-hoc tests using Bonferroni method was conducted to examine differences between the retained clusters regarding anxiety, depression, and sleep quality. Partial eta squared ( $\eta_p^2$ ) effect sizes above 0.01 were considered small, above 0.06 moderate, and above 0.14 large (Cohen, 1988). Pearson's chi-square test and Cramer's V by mean crosstabs were performed to examine associations between cluster membership and intention to quit the job. Cramer's V values above 0.10 were considered small, above 0.30 medium, and above 0.50 large (Cohen, 1988). To analyze the adjusted residuals, a value greater than two (i.e., > 2) was taken to establish an excitatory relationship, and lower than minus two (i.e., < -2) to establish an inhibitory relationship. The statistical significance level considered was  $p < .05$ .

3. Results

3.1. Preliminary descriptive and correlational results

Means, standard deviations, and correlations among the study variables are reported in Table 1. We found that correlations between the three dimensions of burnout ranged from non-significant among the frenetic and underchallenged subtypes ( $r = -0.02, p > .05$ ) or moderate among the frenetic and wornout subtypes ( $r = 0.10, p < .05$ ) to slightly large among the underchallenged and wornout subtypes ( $r = 0.66, p < .01$ ). Further, frenetic burnout showed a moderate positive relationship to engagement ( $r = 0.35, p < .01$ ), whereas the underchallenged and wornout subtypes showed high ( $r = -0.58, p < .01$ ) and moderate ( $r = -0.48, p < .01$ ) negative relationships to engagement, respectively. Regarding study outcomes, the three burnout subtypes were positively related to anxiety, depression, and intention to

quit, and negatively related to sleep quality. On the contrary, engagement was negatively related to anxiety, depression, and intention to quit, and positively related to sleep quality.

3.2. Aim 1: simultaneous coexistence of Farber's burnout subtypes and engagement in the teaching profession

Prior to conducting the cluster analysis, twelve univariate outliers and four multivariate outliers were removed, resulting into a sample of 568 secondary teachers (247 males, 321 females) for the person-centered approach. Consistent with recent studies with employees (e.g., Moeller et al., 2018), three, four, five, and six-cluster solutions were considered and compared. The three and four-cluster solutions were not retained because the explained variance for frenetic burnout and underchallenged burnout was < 50% (Aguinis et al., 2013). A five-cluster solution explained 51%, 63%, 50%, and 60% of the variance in frenetic, underchallenged, wornout burnout subtypes, and engagement, respectively, and a six-cluster solution explained 51%, 64%, 50%, and 63%, respectively. In this sense, the five-cluster solution was retained because it was more interpretable than the six-cluster solution, and because, compared to the five-cluster solution, the variation explained in the three burnout subtypes, as well as in engagement in the six-cluster solution, scarcely increased (Aguinis et al., 2013). The double-split cross-validation method showed an average kappa value of 0.70 (good agreement) for the five-cluster solution.

Fig. 1 shows the graphical results for the five-cluster solution based on Z-scores (Y-axis) for the three burnout subtypes and engagement at work. Two groups scored either extremely low or low on engagement, and relatively high on the burnout subtypes of underchallenged and wornout. These groups were labelled as (1) the “disengaged-underchallenged/wornout” group ( $n = 102, 18\%$ ), and (2) the “lowly engaged-underchallenged/wornout” group ( $n = 144, 25\%$ ). Further, two groups were characterized by relatively high scores in engagement, and high or moderate scores in frenetic burnout, while the other two burnout subtypes (i.e., underchallenged and wornout) were relatively low. These groups were labelled as (3) the “highly engaged-high frenetic” group ( $n = 54, 10\%$ ), and (4) the “highly engaged-moderate frenetic” group ( $n = 52, 9\%$ ). Finally, there was a group that was moderately engaged ( $n = 216, 38\%$ ) and had lower scores in the three burnout subtypes, which we labelled as (5) the “moderately engaged-low burnout” group.

The standardized and absolute scores for the five-cluster solution in each dimension are reported in Table 2. Most of the groups differed significantly from each other in terms of the three burnout subtypes and engagement at work. The only exceptions were the “highly engaged-high frenetic” group and the “moderately engaged-low burnout” group that were similar in terms of their lower values for underchallenged, and the “disengaged-underchallenged/wornout” group and the “highly engaged-high frenetic” group in terms of their average values of

Table 1  
Possible range, means, standard deviation and intercorrelation among measured variables.

Study variables	Possible range	M (SD)	1	2	3	4	5	6	7	8
1. Frenetic burnout	1–7	4.22 (0.89)	–							
2. Underchallenged burnout	1–7	2.20 (1.11)	–0.02	–						
3. Wornout burnout	1–7	3.21 (1.04)	0.10*	0.66**	–					
4. Engagement	0–6	3.98 (0.96)	0.35**	–0.58**	–0.48**	–				
5. Anxiety	0–21	7.24 (3.63)	0.38**	0.21**	0.39**	–0.15**	–			
6. Depression	0–21	3.95 (3.25)	0.22**	0.44**	0.49**	–0.37**	0.62**	–		
7. Sleep quality	1–4	2.83 (0.75)	–0.13**	–0.12**	–0.20**	0.10**	–0.30**	–0.30**	–	
8. Intention to quit <sup>a</sup>	(yes/no)	29.80% <sup>b</sup>	0.09*	0.35**	0.41**	–0.23**	0.22**	0.27**	0.15**	–

\*  $p < .05$ .

\*\*  $p < .001$ .

<sup>a</sup> Spearman's rho correlation.

<sup>b</sup> Teachers who have ever considered leaving your job.

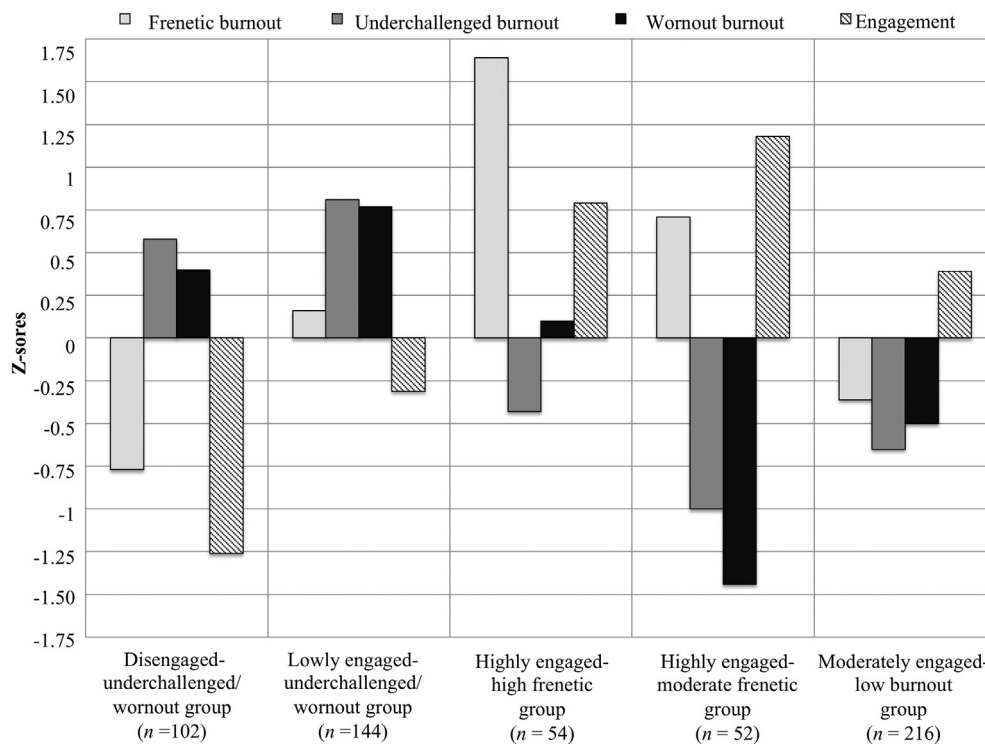


Fig. 1. Five-cluster solution based on Z-scores for Farber’s burnout subtypes of frenetic, underchallenged, and wornout, as well as Z-scores for engagement among secondary school teachers. Above can be observed the colors with which each variable included in the cluster analysis is identified.

wornout. Prior to conducting a MANOVA, the cluster assignment by gender and teaching experience was examined. Chi-square testing revealed a non-significant cluster assignment by gender effect ( $\chi^2 [4, n = 568] = 2.43, p > .05$ ). Male and female teachers were almost equally distributed across the “disengaged-underchallenged/wornout” group (male = 43, 8%; female = 59, 10%), the “lowly engaged-underchallenged/wornout” group (male = 65, 11%; female = 79, 14%),

the “highly engaged-high frenetic” group (male = 19, 4%; female = 35, 6%), the “highly engaged-moderate frenetic” group (male = 21, 4%; female = 31, 5%), and the “moderately engaged-low burnout” group (male = 99, 17%; female = 117, 20%). In addition, multinomial regression analysis showed no association between teaching experience and the retained five-cluster solution (Pseudo- $R^2$  Nagelkerke = 0.40,  $p > .05$ ). Based on these results, gender and teaching experience were

Table 2  
Resulting clusters’ mean scores, F-values, and effect sizes for teachers’ burnout, engagement and psychological and physical teacher outcomes at work.

	Cluster (1): disengaged- underchallenged/ wornout  n = 102	Cluster (2): lowly engaged- underchallenged/ wornout  n = 144	Cluster (3): highly engaged- high frenetic  n = 54	Cluster (4): highly engaged- moderate frenetic  n = 52	Cluster (5): moderately engaged-low burnout  n = 216	F-value <sup>(4, 563)</sup>	$\eta_p^2$
Cluster dimensions							
Burnout frenetic							
Z-scores	-0.77 (0.06) <sup>2,3,4,5</sup>	0.16 (0.05) <sup>1,3,4,5</sup>	1.64 (0.09) <sup>1,2,4,5</sup>	0.71 (0.09) <sup>1,2,3,5</sup>	-0.36 (0.04) <sup>1,2,3,4</sup>	144.48*	0.51
Raw scores (1–7)	3.53 (0.06) <sup>2,3,4,5</sup>	4.36 (0.05) <sup>1,3,4,5</sup>	5.68 (0.08) <sup>1,2,4,5</sup>	4.85 (0.08) <sup>1,2,3,5</sup>	3.89 (0.04) <sup>1,2,3,4</sup>		
Burnout underchallenged							
Z-scores	0.58 (0.05) <sup>2,3,4,5</sup>	0.81 (0.04) <sup>1,3,4,5</sup>	-0.43 (0.07) <sup>1,2,4</sup>	-0.99 (0.07) <sup>1,2,3,5</sup>	-0.65 (0.03) <sup>1,2,4</sup>	235.29*	0.63
Raw scores (1–7)	2.84 (0.06) <sup>2,3,4,5</sup>	3.11 (0.05) <sup>1,3,4,5</sup>	1.71 (0.08) <sup>1,2,4</sup>	1.08 (0.08) <sup>1,2,3,5</sup>	1.47 (0.04) <sup>1,2,4</sup>		
Burnout worn-out							
Z-scores	0.40 (0.06) <sup>2,4,5</sup>	0.76 (0.05) <sup>1,3,4,5</sup>	0.09 (0.09) <sup>2,4,5</sup>	-1.44 (0.09) <sup>1,3,4,5</sup>	-0.49 (0.04) <sup>1,3,4,5</sup>	138.38*	0.50
Raw scores (1–7)	3.62 (0.07) <sup>2,4,5</sup>	4.01 (0.06) <sup>1,3,4,5</sup>	3.31 (0.09) <sup>2,4,5</sup>	1.70 (0.09) <sup>1,3,4,5</sup>	2.69 (0.05) <sup>1,3,4,5</sup>		
Engagement at work							
Z-scores	-1.26 (0.06) <sup>2,3,4,5</sup>	0.31 (0.05) <sup>1,3,4,5</sup>	0.78 (0.08) <sup>1,2,4,5</sup>	1.18 (0.08) <sup>1,2,3,5</sup>	0.39 (0.04) <sup>1,2,3,4</sup>	207.20*	0.60
Raw scores (0–6)	2.75 (0.06) <sup>2,3,4,5</sup>	3.68 (0.05) <sup>1,3,4,5</sup>	4.74 (0.08) <sup>1,2,4,5</sup>	5.12 (0.08) <sup>1,2,3,5</sup>	4.36 (0.04) <sup>1,2,3,4</sup>		
Psychological outcomes							
Anxiety (0–21)	6.96 (0.33) <sup>3</sup>	8.08 (0.27) <sup>4,5</sup>	9.11 (0.45) <sup>1,4,5</sup>	5.90 (0.46) <sup>2,3</sup>	6.35 (0.22) <sup>2,3</sup>	12.34*	0.08
Depression (0–21)	4.62 (0.27) <sup>4,5</sup>	4.97 (0.23) <sup>4,5</sup>	4.50 (0.37) <sup>4,5</sup>	2.15 (0.38) <sup>1,2,3</sup>	2.78 (0.18) <sup>1,2,3</sup>	21.57*	0.13
Physical outcomes							
Sleep quality (1–4)	2.78 (0.07) <sup>4,5</sup>	2.71 (0.06) <sup>4,5</sup>	2.55 (0.09) <sup>4,5</sup>	3.15 (0.09) <sup>1,2,3</sup>	3.01 (0.04) <sup>1,2,3</sup>	7.51*	0.05

Note: Standard errors are reported in parenthesis. Numbers in superscript refers to groups significantly different. Differences between the five groups were examined repeating the equations twice and modifying the reference category. So, coefficients for each group were extracted allowing pairwise comparisons.

\*  $p < .001$ .

not considered as covariates in subsequent analyses.

3.3. Aim 2: differences in psychological, physical, and work-related teacher outcomes according to cluster membership

The multivariate effect of cluster membership on anxiety, depression, and sleep quality was significant with a high effect size ( $F(28, 2009.71) = 66.03; p < .001, \eta_p^2 = 0.44$ ). Pairwise comparisons between groups, univariate F-values, and effect sizes ( $\eta_p^2$ ) based on the Bonferroni method are reported in Table 2. The “moderately engaged-low burnout” group and the “highly engaged-moderate frenetic” group reported significantly lower scores of anxiety and depression, and higher scores of sleep quality compared to the rest of the groups. There was only one exception with the “disengaged-underchallenged/wornout” group that did not significantly differ from these referred groups in terms of anxiety. There were no differences between the other three groups (i.e., cluster 1, 2, 3; see Table 2) in terms of depression and sleep quality. For anxiety, only one significant difference was found with the “disengaged-underchallenged/wornout” group reporting significantly lower scores than the “highly engaged-high frenetic” group.

The associations between intention to quit the job and cluster membership are reported in Table 3. Intention to quit the job showed a significant association with cluster membership with a medium effect size ( $\chi^2(4) = 54.39; V = 0.31; p < .001$ ). Inspection of the adjusted residuals showed that the highest positive relationship with intention to quit the job was obtained for the “lowly engaged-underchallenged/wornout” group, whereas the “highly engaged-moderate frenetic” group and the “moderately engaged-low burnout” group obtained a negative association with intention to quit the job.

4. Discussion

Up until today, the issue of whether burnout subtypes and engagement are different concepts representing the opposite ends of the same continuum, or whether they may coexist still remains unanswered in the teaching domain. To fill this gap, the overall goal of the present study was to examine whether the three burnout subtypes (i.e., frenetic, underchallenged, and wornout), proposed by Farber (2000), cluster differently with engagement at work, and whether these different profiles vary in terms of teacher functioning.

4.1. Interconnectedness between the three Farber burnout subtypes and engagement: a person-centered perspective (Aim 1)

Because it was the first person-centered study that combined Farber's burnout subtypes with engagement at work, our hypotheses regarding the retained profiles were tentative. Results of the cluster analyses pointed towards the retention of five different groups. Similar to research conducted with employees (Mäkikangas et al., 2012, 2014; Moeller et al., 2018) and consistent with our hypothesis, a “moderately engaged-low burnout” group (i.e., moderate scores in engagement and

low scores in frenetic, underchallenged, and wornout burnout subtypes) and a “lowly engaged-underchallenged/wornout” group (i.e., low scores in engagement and medium to high scores in frenetic, underchallenged, and wornout burnout subtypes) emerged. In line with the idea that burnout and engagement represent two opposite poles (Crawford et al., 2010; González-Romá et al., 2006; Høigaard et al., 2012), these two groups seem to indicate that at least some teachers will barely experience burnout at work when they are engaged and vice versa.

However, these two groups only represent 56% of all the secondary school teachers in our study. As in previous research in employees (Moeller et al., 2018) and consistent with the hypotheses, we also found the co-occurrence of burnout and engagement in three of the five identified profiles, providing evidence that both dimensions may also be experienced by teachers at the same time. Specifically, two groups of teachers with moderate and high scores in the frenetic subtype, and relatively high levels of engagement, were found in both groups (i.e., “highly engaged-moderate frenetic” group and “highly engaged-high frenetic” group). Likewise, in line with a profile identified by Moeller et al. (2018) in employees, named “apathetic” - which showed mutually low scores in both burnout and engagement -, we also found a third group of teachers that combined very low levels of frenetic burnout and engagement, whereas they reported relatively high levels in both the wornout and underchallenged burnout subtypes (i.e., “disengaged-underchallenged/wornout” group). Together, these results confirm that high frenetic subtype levels can exist alongside relatively high levels of engagement at work and vice versa, suggesting that some teachers may experience engagement and frenetic burnout simultaneously, while teachers who experience high levels of underchallenged and wornout subtypes are hardly likely to experience engagement at the same time. In support of this agreement, the correlational results of the present study showed a moderate positive relationship between engagement and the frenetic burnout subtype, while the relationships between engagement with underchallenged and wornout burnout subtypes, respectively, were negative. These results, in line with studies in different types of employees (Mäkikangas et al., 2012, 2014; Moeller et al., 2018), reinforce the importance of evaluating not only different burnout subtypes, but also the levels of engagement at work.

4.2. Can highly engaged teachers still suffer psychologically when they combine high engagement with burnout? (Aim 2)

Having identified different combinations of Farber's burnout subtypes and engagement, the second aim of the present study was to examine which of the retained profiles is at a higher risk of maladaptive psychological, physical, and work-related functioning. To address this aim, teachers' levels of anxiety, depression, sleep quality, and intention to quit their jobs were compared across the retained profiles.

We found that two of the three groups, characterized by higher engagement levels (i.e., the “moderately engaged-low burnout” group and the “highly engaged-moderate frenetic” group), displayed the most

Table 3 Association between resulting clusters and intention to quit the job (n = 568).

	Cluster (1): disengaged-underchallenged/ wornout n = 102	Cluster (2): lowly engaged-underchallenged/wornout n = 144	Cluster (3): highly engaged-high frenetic n = 54	Cluster (4): highly engaged-moderate frenetic n = 52	Cluster (5): moderately engaged-low burnout n = 216
Intention to quit the job*					
No	n (%) 69 (68%)	74 (51%)	41 (76%)	50 (96%)	174 (80%)
ar	-1.0	-6.3	0.7	4.1	3.6
Yes	n (%) 33 (32%)	70 (49%)	13 (24%)	2 (4%)	42 (20%)
ar	1.0	6.3	-0.7	-4.1	-3.6

Note: n = subject frequency; % = percentage; ar = adjusted residuals.

\* p < .001.

adaptive pattern of outcomes as indexed by the lowest scores of anxiety and depression, the highest levels of sleep quality, and highest inhibitory relationships to the intention the quit their jobs as teachers. Similar results were found by Moeller et al. (2018), who showed that a group of employees, characterized by the highest levels of engagement and low burnout, displayed the highest positive emotions and skill acquisition at work, as well as the lowest negative emotions. Likewise, these findings are also in line with past research among teachers that adopts a variable-centered approach, showing that engagement at work is negatively related to anxiety, depression, sleeplessness, and motivation to quit the job (Garrick et al., 2014; Simbula et al., 2013; Skaalvik & Skaalvik, 2016; Trépanier et al., 2015). Interestingly, although also scoring high on engagement, the “highly engaged-high frenetic” group displayed a less adaptive pattern of outcomes than the “moderately engaged-low burnout” group. On average, this group even displayed the highest levels of anxiety. It seems that this group, while probably being described as a well-functioning group of teachers by principals and colleagues, suffers psychologically (i.e., in terms of anxiety and depression) and physically (i.e., in terms of sleep quality), in a similar manner to teachers who are lowly engaged and high on the underchallenged and wornout subtypes (i.e., “disengaged-underchallenged/wornout” group and “lowly engaged-underchallenged/wornout” group). Indeed, our findings are congruent with the study of Moeller et al. (2018), which showed that employees who combined high scores of engagement with high scores of burnout, experienced negative emotions at work, similarly to those employees who combined low scores of engagement with high scores of burnout. Returning to the current study, this is an important finding, as this group of teachers at risk may remain undiscovered due to their high engagement levels. These teachers who put tremendous effort into their work, to the extent of neglecting their own personal needs to avoid failure (i.e., frenetic burnout) and starting to suffer lack of professional recognition (i.e., wornout burnout), are at a high risk of suffering health problems even though they are still highly engaged in their profession.

Together with the “highly engaged-high frenetic” group, we found that the groups characterized by higher burnout levels (i.e., the “disengaged-underchallenged/wornout” group and the “lowly engaged-underchallenged/wornout” group) displayed a less optimal pattern of outcomes. In these three groups, more depression and lower sleep quality were noticed. These results suggest that experiencing any burnout subtype, whether it is wornout, underchallenged, or frenetic, could elicit depressive tendencies and relatively poor sleep quality (see Macias & Royuela, 1996), even when some burnout subtypes coexist with high levels of engagement (i.e., in the case of the “highly engaged-high frenetic” group). However, it is important to note that all resulting groups reported depression values of normality (ranges from 1 to 7; see Quintana et al., 2003). Although the three burnout subtypes were positively related to depression, burnout is an exclusive work-related outcome, whereas the nature of depression is multifactorial in origin, which could explain these results (Bakker et al., 2000). Regarding anxiety, the “lowly engaged-underchallenged/wornout” group and the “highly engaged-high frenetic” group reported significantly more anxiety than the “disengaged-underchallenged/wornout” group. In addition, both groups reported anxiety scores of above seven, indicating that these teachers are more nervous, worried, and distressed in their daily lives (see Quintana et al., 2003).

Interestingly, our results also seem to point out that it is more adaptive to be moderately engaged at work and relatively less frenetic (i.e., the “moderately engaged-low burnout” group) than to be (too) highly engaged and frenetic (i.e., the “highly engaged-moderate frenetic” group). There seems to be a threshold above which the combination of high engagement with frenetic burnout becomes a risk in terms of experienced negative psychological (i.e., anxiety and depression) and physical outcomes (i.e., sleep quality). This threshold might similarly be identified in the study of Moeller et al. (2018), where highly engaged-exhausted employees experienced higher negative

emotions than the moderately engaged-exhausted employees, despite the latter group reporting lower levels of engagement. Therefore, according to our results and in support of this potential threshold, a high frenetic burnout can act as a trampoline for developing underchallenged and wornout symptoms, triggering a full-burnout syndrome in the long run (Farber, 2000; Montero-Marín et al., 2009). Indeed, while the “lowly engaged-underchallenged/wornout” group intended to quit the job, this was not yet the case for the “highly engaged-high frenetic” group. According to Ryan et al. (2017), these results suggest that fully burnt-out teachers, in addition to harming the teaching quality and generating higher administrative health costs, could also yield an additional economic cost to the educational system when the intention to quit the job ends up becoming a real fact. Therefore, the early detection of possible teachers at this hypothetical threshold level (i.e., highly engaged-high frenetic), could be essential, not only to prevent them from continuing to suffer physically and psychologically, but also to prevent cases of totally burnt-out teachers and, consequently, to avoid unnecessary costs to education and health administrations.

#### 4.3. Practical implications

Based on the present findings, we suggest that a specific evaluation of the different burnout subtypes in combination with engagement could shed light on how to design effective preventive strategies for risk profiles among teachers. According to the treatment strategies for the different types of teacher burnout proposed by Farber (1998, 2000) and the definition of work engagement (Schaufeli et al., 2002), some practical implications for teachers, but also for principals and the educational administration are proposed.

Frenetic teachers (e.g., teachers belonging to the “lowly engaged-underchallenged/wornout” group, the “highly engaged-high frenetic” group, and the “highly engaged-moderate frenetic” group) find it difficult to switch off from their work and they do not contemplate failure in any way (Farber, 1991, 2000). Firstly, it is important to note that highly frenetic levels in teachers may be hidden from the eyes of the environment, especially because they coexist with high levels of dedication (Montero-Marín et al., 2009). Yet, as the results of the present study show, these teachers may suffer psychologically and physically as if they were completely burnt out. As such, it is crucial for principals to be able to differentiate between teachers who are engaged and teachers who are not only highly engaged but also highly frenetic. An engaged teacher is not anxious, has good sleep quality, does not neglect his/her personal appearance or does not let go of personal relationships, while a frenetic teacher shows an opposite pattern (Farber, 2000; Montero-Marín et al., 2009). By being vigilant for these signals, principals could detect the coexistence of engagement and frenetic burnout, and take steps to reduce frenetic burnout. To illustrate this, delegating roles to other workmates could be an effective strategy to reduce the workload these teachers may suffer from (Farber, 1998). In addition, participation in activities that involve cooperation with significant others (i.e., family members, friends), such as physical activity, sports, dancing or family hiking trips, could reduce their frenetic levels (Brajša-Žganec, Merkaš, & Šverko, 2011; Naczenski, de Vries, van Hooff, & Kompier, 2017). Likewise, these teachers usually find it difficult to relax so they may also benefit from common stress-reduction techniques (e.g., meditation; Farber, 1998; Heckenberg, Eddy, Kent, & Wright, 2018). Further, cognitive therapies to help teachers accept early failures that are inherent to their work could also be useful for frenetic teachers (Iancu, Rusu, Măroiu, Păcurar, & Maricuțoiu, 2018). The educational administration and policy-makers should not only encourage teachers to participate in these types of therapies or techniques, but also, and insofar as this is possible, help towards teacher participation through economic funding.

Underchallenged and wornout teachers (e.g., teachers belonging to the “disengaged-underchallenged/wornout” group and the “lowly



engaged-underchallenged/wornout” group) feel that, given the work they put in, they are getting insufficient challenges from teaching, which likely undermines their self-esteem (Farber, 1991, 2000). Further, those teachers feel that several situations are out of control and that nothing they do is acknowledged by principals or educational administration (Farber, 2000; Montero-Marín et al., 2009). Therefore, principals could provide new challenges at work and improve teachers' self-esteem by providing more academic freedom in teaching, listening to their problems, and supporting curricular and extracurricular activities that are more challenging for them (Farber, 1998). In addition, involving teachers in interdisciplinary projects with teachers of other subjects could provide new challenges to combat their work routine (Farber, 1998). Offering courses funded by the educational administration to improve professional development, and their perceived competence and self-efficacy, could also help teachers to better manage some situations at work (Rothmann & Fouché, 2018). These types of teachers tend to minimize successes and perceive the future even worse than the present. Keeping a diary of successes and pleasant work experiences (e.g., with colleagues, families or students) may be useful, to remind teachers of all positive activities of their work on a daily basis (Farber, 1998). Importantly, the burnout subtypes of underchallenged and wornout, which often coexist to the same extent, seem to show a stable opposing pattern regarding teacher engagement. Thus, strategies focused on improving engagement could also be effective for these referred profiles. To illustrate this, the educational administration could play an important role in providing higher quality resources in classrooms to stimulate and facilitate teaching tasks (Knight, Patterson, & Dawson, 2017). Further, reducing some non-teaching tasks - if it is possible - that are negatively related to engagement, such as the excessive demands of the educational administration in terms of filling in bureaucratic documents, could have a positive impact on teacher engagement (Rothmann & Fouché, 2018; Skaalvik & Skaalvik, 2018).

These are just some suggested strategies that could improve teachers' psychological outcomes. Most importantly, these strategies are not mutually exclusive, and depending on the diagnosed profile for each teacher, greater efforts may be put into one strategy or another.

#### 4.4. Limitations and future directions

There are several limitations to the present study that demand further study. First, this study has been carried out using a burnout conceptualization that has been less explored to date, while most previous studies have relied on Maslach's definition. This must be considered when interpreting and generalizing the results of this study. In addition, the present study relied on the cluster analysis method, which has been considered appropriate for research with exploratory features (Eshghi, Haughton, Legrand, Skaletsky, & Woolford, 2011; Stanley, Kellermanns, & Zellweger, 2017). However, future person-centered research should refute current results using statistical methods capable of providing more robust evidence such as latent profile analysis. Second, this study was conducted on a sample of teachers, which limits the generalizability of the findings to other working populations. Future studies should examine if the three Farber burnout subtypes and engagement also coexist in other occupations. Third, results of the current study are based on cross-sectional data, precluding causal effect conclusions. Also, while we considered engagement and the three burnout subtypes (i.e., frenetic, underchallenged, and wornout) as predictors of teachers' psychological outcomes, some of the outcomes studied could also impact on the scores of these factors. Future longitudinal studies are needed to shed light on the direction of the relationships studied. Further, in a study adopting a longitudinal design we could study whether teachers shift from one group to another, before eventually dropping out from teaching. Fourth, the low response rate (i.e., 10%) can introduce bias, limiting the generalizability of the results. The moment when information was collected (i.e., the last term of the academic year), when teachers usually experience higher workload,

could lead to a sample composed of the most engaged and/or the least burnt-out, which may affect the variables assessed. Consequently, results should be interpreted with caution. To overcome these limitations, future research should take these factors into account and obtain a more representative sample that allows expanding and verifying these contributions. Fifth, sleep quality was measured with a single item that might be considered a bit too general. Therefore, in the present study the reliability of this single item could not be examined, so results have to be interpreted cautiously. Future studies could refine this measure including other indicators of sleep quality such as, for instance, sleep maintenance problems, sleep onset problems, and non-restorative sleep (e.g., Gluschkoff et al., 2016; Önder, Beşoluk, İskender, Masal, & Demirhan, 2014). This would also allow examining the reliability of the scale used. Similar guidelines should be considered to measure intention to quit the job. Future studies should not only measure this variable in a dichotomous way (i.e., yes or no) but also consider the intensity of this thought occurring (e.g., by using a Likert scale ranging from “never” to “I'm actively looking for a new job”; see Bothma & Roodt, 2013). Finally, in the current study most of the outcomes studied were theoretically negative (with the only exception of sleep quality). Further, all the outcomes studied were related to teacher functioning. Examining links between burnout-engagement profiles and other behavioral outcomes such as teachers' interpersonal styles (e.g., Abós et al., 2018) or students' achievement (e.g., Collie & Martin, 2017) could be a new and interesting avenue of research. Moreover, intervention programs aimed at applying specific preventive strategies regarding the different levels of burnout subtypes and engagement experienced by teachers are required.

#### 5. Conclusion

Using a person-centered approach, this study provided new evidence and a more refined insight into the question of whether the three Farber burnout subtypes and engagement represent endpoints of the same continuum or co-exist in teachers, instead. First, five distinct profiles were identified, showing the co-occurrence of frenetic burnout and engagement in three of those profiles. These findings, therefore, suggest that burnout and work engagement do not represent two perfect ends of the same continuum. Second, the groups characterized by moderate to high engagement showed the most adaptive psychological functioning patterns, whereas the opposite was true for the groups characterized by high feelings of underchallenged and wornout burnout. Yet, there seems to be a risk threshold for teachers when feelings of engagement are overcome by feelings of frenetic burnout. So, in the long run, moderate levels of engagement could be more adaptive compared to high levels of engagement combined with moderate levels of frenetic burnout.

#### Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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