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# Burnout and emotional regulation: insights from students enrolled in higher education programs for initial teacher training

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Research has emphasized the importance of teachers developing their socioemotional competencies to effectively deal with the challenges associated with teaching, considering its impact on their occupational health and wellbeing, namely on the risk of experiencing burnout. However, there is a lack of studies on the relationship between these variables in initial teacher training courses for students. Therefore, explores students attending higher education programs for teaching certification burnout symptoms, examine differences in their burnout symptoms according to sociodemographic and academic factors, and analyze the predictive role of emotional regulation in the explanation of those symptoms. Data were collected using the Emotional Regulation Questionnaire and the Maslach Burnout Inventory—Students Survey. A total of 157 Portuguese students, attending bachelor's and master's degrees in initial teacher training courses, participated in the study. The results showed that students attending higher education courses for teacher training perceived low emotional exhaustion and cynicism and moderate academic efficacy. The criteria for burnout were met by 4.5% of participants, with high variability in burnout scores. Regression models explored how emotional regulation strategies were associated with burnout symptoms, controlling for socio-demographic and academic variables. Before conducting the regression models, we explored associations between both socio-demographic and academic variables and emotional regulation strategies, finding that study cycle and worker-student status were significantly associated with emotional exhaustion, with master's students reporting higher levels of exhaustion compared to bachelor's students, and worker-students reporting lower levels of exhaustion. Additionally, worker-students also exhibited lower levels of cynicism. Regarding academic efficacy, significant differences were found for gender, study cycle, and worker-student status, with females, master's students, and worker-students reporting higher levels of professional efficacy. The results suggest the importance of initial

teacher training schools designing and implementing socioemotional learning programs that may promote effective emotional regulation competencies.

#### KEYWORDS

socioemotional competencies, burnout, emotional regulation, initial teacher training, students

## Introduction

In the last few decades, education has experienced numerous challenges (Jennings et al., 2020) and has become more socially and emotionally demanding for students, but particularly for teachers (Jennings, 2011). To deal with these challenges, they must have a variety of skills, including socioemotional competencies such as emotional knowledge and emotional regulation (Goegan et al., 2017). Studies on teachers' emotional experiences have multiplied mainly due to two reasons. Primarily, teachers' emotions affect their relationship with students, the quality of their pedagogical practices, and the classroom climate (Hagenauer and Volet, 2014; Jennings and Greenberg, 2009). Second, teachers' emotions, particularly their emotional regulation competence, influence their wellbeing, job satisfaction, and risk of experiencing burnout (Gross, 2002; Hagenauer and Volet, 2014; Lee, 2019).

Burnout is particularly relevant when analyzing conditions that affect teachers' occupational health and wellbeing. Demanding work conditions and lack of training to deal with them have been highlighted as some of the factors responsible for altering teachers' wellbeing, contributing to a high risk of exhaustion and burnout (Carlotto and Palazzo, 2006; Gomes et al., 2006; Greenberg et al., 2016; Otero-López et al., 2008). This condition has numerous consequences for teachers at an individual level (Mesquita et al., 2013), but also for the organizations where they work, and, inevitably, for the relationships they establish daily with their students (Carlotto, 2002).

Emotional regulation has been identified as a key protection factor against the effects of stress that may be responsible for the development of teachers' burnout (Jennings, 2011). Teachers who have difficulties regulating their emotions in the classroom tend to experience more negative emotions and challenges associated with teaching (Frenzel et al., 2021). In contrast, teachers with higher levels of socioemotional competence can effectively regulate their emotions and maintain their wellbeing (Zaretsky and Katz, 2019) and motivation for the profession (Dung and Zsolnai, 2022), as well as maintain a positive classroom climate that is conducive to students' socioemotional development (Hagenauer and Volet, 2014; Jennings and Greenberg, 2009; Schonert-Reichl, 2017).

There is alarming evidence that teachers are one of the professional groups most vulnerable to burnout (e.g., Candeias et al., 2021; García-Carmona et al., 2019; Peláez-Fernández et al., 2022) and that its prevalence has increased in recent years, becoming a problem of extreme concern (Benevides-Pereira and Yaegashi, 2009). The initial teacher training period (i.e., the training received by teacher candidates before entering the teaching profession) is the foundation of their professional development (Jennings and Greenberg, 2009). As such, it is a favorable period in which to develop their socioemotional competencies, such as

emotional regulation, which in turn may protect them against burnout (Jennings, 2011; Jennings and Greenberg, 2009). As such, this study sought to analyze the burnout experience of students attending higher education courses for becoming a teacher in Portugal and the predictive role of emotional regulation in the explanation of their burnout as students. We planned this study to analyze students' attending higher education courses for becoming a teacher scholar burnout, once authors argue that initial teacher training represents a pivotal period to develop future professionals competencies, including those who will allow future professionals to deal with emotional challenge situations that can lead to future professional burnout.

## Teacher's burnout

Burnout is an occupational syndrome that arises due to continuous exposure to stress at work (Maslach, 1993; Maslach et al., 2001; Maslach and Leiter, 2016). This tri-dimensional condition may be characterized by increased emotional exhaustion and depersonalization (or cynicism) and diminished professional efficacy (or lack of professional accomplishment). Emotional exhaustion is the distress dimension of burnout and is characterized by feelings of being emotionally worn-out. Depersonalization represents the interpersonal dimension of burnout and refers to the negative and overly distant response to various aspects of work. Finally, diminished professional efficacy represents the self-assessment dimension of burnout (Maslach et al., 2001), and occurs in the presence of feelings of incompetence, and a lack of satisfaction and productivity at work (Maslach et al., 2001; Maslach and Leiter, 2016).

In recent years, teachers' demanding working conditions (e.g., low salaries, precarious working conditions, excessive bureaucracy, high number of students and classes, disruptive behaviors by students, time pressure to complete some tasks) and the lack of training to deal with them have been suggested as possible explanatory factors of the deterioration of teachers' wellbeing, contributing to the high risk of wearing out and burnout (Carlotto and Palazzo, 2006; Gomes et al., 2006; Greenberg et al., 2016; Otero-López et al., 2008; Peixoto et al., 2018).

Burnout has negative impacts on the individual (Mesquita et al., 2013), interpersonal, and organizational levels (Carlotto, 2002). At the individual level, teachers who experience burnout can see their wellbeing compromised, as well as their self-esteem and personal values (Gomes et al., 2006). Furthermore, they can also become more vulnerable to experiencing depressive symptoms and presenting psychosomatic complaints (Madigan et al., 2023), anxiety (Carroll et al., 2022), insomnia, ulcers, and headaches (Larrivee, 2012; Madigan et al., 2023). Professionally, teachers

who experience burnout may show signs of decreased creativity, enthusiasm, and attention to detail in lesson planning. They may also be less friendly toward their students and feel more frustrated with problems in school and a lack of progress from students (Carlotto, 2002). This also has organizational implications. Teachers with burnout may consider leaving the profession (Carlotto, 2002) and show a decrease in work productivity. They may also increase absenteeism (Mesquita et al., 2013) and be more prone to use sick leave to avoid work (Carlotto, 2002). This situation can affect the normal functioning of schools and the education system (Carlotto, 2002). Finally, regarding the teacher–student relationship, teachers diminished occupational wellbeing may have undesirable consequences for their students' academic performance, as the difficulties they experience may be reflected in the quality of their teaching practices, reducing students' learning potential (Gomes et al., 2006).

Consequently, the phenomenon of burnout has become extremely relevant (Benevides-Pereira and Yaegashi, 2009) and has been the subject of research worldwide. Studies across the world (e.g., Arvidsson et al., 2019; Bozkuş, 2018; García-Carmona et al., 2019; Marić et al., 2020; Peláez-Fernández et al., 2022), including Portugal (e.g., Candeias et al., 2021; Gomes et al., 2010; Marques-Pinto et al., 2003; Oliveira et al., 2021; Varela et al., 2018), have revealed the presence of stress and burnout symptoms in teachers from different levels of education. With regard to other countries, for example, a study conducted with Swedish teachers from the 4th to 9th grades revealed that 15% reported considerable burnout symptoms, low perceived efficacy, and a sense of inadequacy (Arvidsson et al., 2019). A study conducted in Turkey with teachers from primary to secondary schools found that almost half of the teachers (44.3%) experienced symptoms of burnout (Bozkuş, 2018). Another study conducted in Bosnia and Herzegovina with a large sample of primary and secondary school teachers found that a significant percentage of participants reported high emotional exhaustion (5.1%), high depersonalization (3.8%), and low personal accomplishment (22.3%; Marić et al., 2020). According to the Eurydice Report, Portugal tops the list of European countries where teachers experience the highest levels of stress at work (European Commission., 2021). This indicates that many teachers in Portugal may be at risk of experiencing burnout (Mota et al., 2023). Various studies conducted in Portugal have revealed alarming indicators of burnout in the teaching profession (e.g., Gomes et al., 2006; Marques-Pinto et al., 2003; Varela et al., 2018). A recent systematic review aimed at analyzing the prevalence of burnout symptoms among teachers from primary to secondary education in Portugal showed that burnout affected 9.5% of participants. However, since different studies present varying percentages, the prevalence of burnout among Portuguese teachers remains unclear (Mota et al., 2021).

## Emotional regulation

Emotional regulation was defined by Gross (1998) and Gross (2014) as the process by which individuals influence what emotions they feel, when they feel them, and how they experience and express them. This author characterized emotional regulation according

to five processes: (i) situation selection, which implies that the individual engages and chooses his or her actions in such a way that he/she has an emotionally desirable outcome; (ii) situation modification, which refers to the intentional alteration of the environment in which a given situation occurs; (iii) attentional deployment, which implies that the individual directs his or her attention in a given situation and selects the aspects on which to focus; (iv) cognitive change, which corresponds to the modification of the evaluation of the situation in such a way that its emotional meaning is also changed—the most common form of the cognitive change process is cognitive reappraisal, which involves construing a potentially emotion-eliciting situation in a way that changes its emotional impact (Gross, 1999; Gross and John, 2003); and (v) response modulation, which occurs when the tendency to respond to emotion has already been initiated and directly affects the behavioral and/or physiological components of the emotional response—this includes the process of regulating the expressive behavior response known as emotional suppression, in which the person attempts to inhibit the expression of positive and negative emotions.

Research has revealed that the predominant use of cognitive reappraisal as an emotional regulation process is associated with an increase in favorable emotional experiences and a decrease in unfavorable emotional experiences without maladaptive physiological, cognitive, or interpersonal consequences (Gross, 1998; Gross and John, 2003). Conversely, research suggests that people who use more emotional suppression have an emotional regulation process that decreases their pleasurable emotional experiences (Gross, 1998), increases unpleasant emotional experiences (Gross and John, 2003), and increases the physiological response due to the effort that needs to be made to inhibit the emotional impact (Gross, 2002).

Emotional regulation has been identified as a key factor in protecting teachers from stress and burnout (Jennings, 2011). Teachers with difficulty regulating their emotions tend to experience more negative emotions (e.g., frustration, anger, guilt, and sadness) and lower self-efficacy and may also face more challenges in the classroom, particularly in managing students' behavior and completing tasks. In contrast, teachers who can effectively regulate their emotions are more prone to develop supportive relationships with students, promote students' motivation, manage conflict situations, and promote an appropriate communication model (Jennings and Greenberg, 2009). Furthermore, research has confirmed that teachers' emotional regulation skills are positively associated with job satisfaction, and greater personal fulfillment (e.g., Brackett et al., 2010). In addition, studies suggest that teachers who use more cognitive reappraisal as an emotional regulation strategy tend to have higher levels of wellbeing than those who employ emotional suppression (Yin et al., 2016).

Few studies have found higher education students emotion regulation strategies. Regardless, literature underlines that while attending higher education courses, it is important that students develop not only academic skills but also emotional regulation skills, particularly in higher education courses preparing students for emotionally challenging professions, as is the case of the teachers (Cristóvão et al., 2023).

## Burnout in courses for initial teacher education

In addition to the concerning evidence that teachers are one of the professional groups most vulnerable to burnout, research has found that symptoms of burnout in initial teacher education can be seen as a predictor of burnout in the first 2 years of the profession (e.g., [Goddard and O'Brien, 2006](#)). Several studies have also shown that students attending higher education courses for teacher training experience worrying levels of burnout (as students) during their initial training (e.g., [Das and Pallai, 2019](#); [Rodríguez-Hidalgo et al., 2014](#); [Schorn and Buchwald, 2007](#)). In the same line, higher levels of burnout among pre-service teachers were found to be associated with lower self-perception of their skills development (e.g., [Rodríguez-Hidalgo et al., 2014](#); [Taylor et al., 2019](#); and emotional exhaustion emerged as a common dimension of burnout that affects both students attending higher education courses to become a teacher as well as and teacher educators in the job (e.g., [Taylor et al., 2019](#)). Overall, these findings highlight the importance of addressing burnout not only as a problem that emerges during professional teaching practice but as a phenomenon rooted in the early stages/initial training of future teachers. The interplay between academic pressures, identity formation, and the emotional demands of becoming a teacher may contribute to the development of burnout during initial training.

Given this scenario, it is important to understand the role of academic variables, as well as of other variables such as study cycle and worker-student status, in students attending higher education courses for teacher training' wellbeing. With regard to the study cycle, and specifically for students attending higher education courses for teacher training attending the first year of their initial teacher training courses, the period of adaptation to higher education and the challenges associated with the new environment, new social relationships, and new responsibilities may favor the development of stress, anxiety, depression, and burnout ([Fariborz et al., 2019](#)). Conversely, being a worker-student may be associated with a higher risk of developing burnout, as they may face increased challenges in balancing their work and academic life ([Drághici and Cazan, 2022](#)).

The integration of socioemotional learning in initial teacher training courses will be a crucial factor in enabling future teacher to successfully implement socioemotional learning practices in the classroom ([DePaoli et al., 2017](#)) and to acquire the necessary skills to deal with the challenges of teaching ([Zins and Elias, 2007](#)). Several studies recommend that initial teacher training programs should incorporate training that enhances self-perception of skills and provides strategies to manage stress and burnout ([Rodríguez-Hidalgo et al., 2014](#)). In this context, a survey conducted in Portugal with coordinators of initial teacher training programs from Portuguese institutions concluded that most participants agreed that the inclusion of programmatic content on socioemotional learning for students attending higher education courses for teacher training is important or very important ([Peixoto et al., 2021](#)). However, a recent documentary analysis of the curricula of bachelor's and master's degrees that train early childhood educators and teachers in Portugal concluded that only one institution offered a curricular unit in this area ([Cristóvão et al., 2021](#)).

Overall, it cannot be assumed that all individuals currently in initial teacher training courses, who intend to enter the teaching profession, have the socioemotional competencies to deal with the challenges of teaching, including those associated with mental health. Thus, it is important to better understand how initial courses are contributing to ensure their students are being prepared to deal with professional emotional challenges, by supporting them, for instance, in the emotional regulation knowledge and socioemotional competencies. Note that initial teacher training is the core of teachers' development as professionals ([Jennings and Greenberg, 2009](#)); as such, it should focus on developing socioemotional competencies that may influence teachers' ways of thinking, communicating, and acting ([Schonert-Reichl, 2019](#); [Valente and Almeida, 2020](#)), which in turn may act as factors for protection against the development of burnout ([Jennings, 2011](#); [Jennings and Greenberg, 2009](#)).

## Getting a degree in teaching in Portugal

In Portugal, for example, the legislation ([Decree-Law Nr. 79/2014](#)) that regulates initial teacher training for the early years (i.e., preschool education and the first 6 years of school), stipulates exactly what training components must be included in the study plans, as well as the number of European Credit Transfer System (ECTS) credits associated with them, thus setting strong restrictions to the possibility of taking into account socioemotional learning. The total number of credits required to complete both degrees is typically around 300 ECTS (European Credit Transfer and Accumulation System) credits: 180 ECTS for the bachelor's degree and 120 ECTS for the master's degree. This dual-degree structure ensures that future teachers are prepared for the classroom before entering the profession. Admission to these programs is typically based on students' secondary school performance and national higher education entrance exams. Each university sets specific entry requirements, including minimum grades. It is important to note that teacher training varies from country to country. In Portugal, initial teacher training requires both a bachelor's degree and a master's degree. During the master's degree program, students must complete a combination of coursework and practical teaching experience. This includes both theoretical subjects, such as education theory, curriculum development, and classroom management, as well as supervised internships in schools, where students gain hands-on teaching experience.

In fact, by assigning only 15 credits of the general education component in the 180 credits of the bachelor's degree in basic education and 6 credits of the 120 credits of the master's degree in the professional qualification for teaching, the Portuguese legislation greatly reduces the margin of autonomy of higher education institutions in defining the curricula of initial teacher training programs. As a result, there is little flexibility to integrate additional competencies, such as socioemotional learning, into the study plans, despite their recognized impact on teacher wellbeing and student development.

## Study goals

In recent decades, more importance has been given to teachers' socioemotional learning, underlining that socioemotional competencies may play a protective role against mental health problems (Jennings and Greenberg, 2009), such as burnout. However, there is limited research on the role of socioemotional competencies, particularly emotional regulation, in the wellbeing of students attending higher education courses for teacher training in initial teacher training. Several studies underline that student burnout of students attending higher education courses to become a teacher, can predict later professional burnout (e.g., Goddard and O'Brien, 2006). As such, this study aims to: (a) characterize the frequency of student burnout symptoms of students attending higher education courses for teacher training attending initial training; (b) examine differences in their burnout symptoms according to gender, study cycle, and worker-student status; and (c) analyze the predictive role of emotional regulation in the explanation of burnout symptoms of students attending higher education courses for teacher training attending initial training.

## Method

### Participants

Participants in this study were 157 Portuguese students attending higher education courses for teacher training attending initial teacher training courses. In Portugal, since 2007, following the Bologna Process, initial teacher training for early ages encompasses two sequential cycles: the first cycle of studies corresponds to a bachelor's degree in Basic Education, and the second cycle of studies corresponds to one of the master's degrees that provide professional qualifications for teaching. Of the 157 participants, 121 were enrolled in the first year of a bachelor's degree in Basic Education (77.1%), and 36 were enrolled in the first year of a master's degree that qualifies them to teach (22.9%). Most of them attended a public institution in the polytechnic subsystem (85.4%).

Participants were aged between 18 and 50 years old ( $M = 22.32$ ,  $SD = 6.52$ ) and the majority ( $n = 146$  participants, 93%) were female. Most participants reported being single (90.5%) and not having children (90.4%). Only 20.4% of the participants had worker-student status, 51% had moved away from home to study in another city, and 44.6% had a scholarship. Regarding the educational level of the participants' parents, most of the fathers had concluded the second or third cycle of basic education or secondary education (22.9%, 28.7%, and 21.0%, respectively); only a small percentage had attended higher education (14.7%). As regards the education level of the participants' mothers, a smaller percentage had completed the second cycle (17.8%), while the majority had completed the third cycle of basic education, secondary education, or a higher education course (21.7%, 27.4%, and 20.3% respectively).

## Measures

A *Sociodemographic and Academic* questionnaire (Peixoto et al., 2021) was used to collect information about students attending higher education courses for teacher training and was developed specifically for the research project.

The *Emotional regulation Questionnaire* (ERQ; Gross and John, 2003; translation and adaptation by Vaz et al., 2008), is a self-report measure that was used to assess students attending higher education courses for teacher training' emotional competence. It includes 10 items evaluated on a seven-point Likert scale (1 = *totally disagree* to 7 = *totally agree*) organized in two subscales of (a) cognitive reappraisal (6 items), which concerns the modification of the assessment of a given situation, changing its emotional impact (e.g., "I control my emotions by modifying the way I think about the situation I find myself in"; Gross and John, 2003); and (b) emotional suppression (4 items), which refers to response modulation involving the inhibition of emotionally expressive behavior (e.g., "When I am experiencing negative emotions, I do my best not to express them"; Gross, 1998). The score of each scale is obtained through the average of its items and the higher the score, the greater the use of that strategy (Vaz et al., 2008).

Regarding the original study, Gross and John (2003) reported adequate values of internal consistency, with Cronbach's alpha values of 0.79 for the cognitive reappraisal subscale and of 0.73 for the emotional suppression subscale. In the adaptation study of the questionnaire for Portugal (Vaz et al., 2008), the internal consistency was  $\alpha = 0.76$  for the cognitive reappraisal subscale and  $\alpha = 0.65$  for the emotional suppression subscale. The present study also found appropriate internal consistency values ( $\alpha = 0.81$  for the cognitive reappraisal subscale and  $\alpha = 0.70$  for the emotional suppression subscale).

The *Maslach Burnout Inventory—Students Survey* (MBI-SS; Schaufeli et al., 2002) is a self-report questionnaire used to measure higher education students' burnout. It includes 15 items evaluated on a seven-point Likert scale (0 = never to 6 = every day), organized in three subscales: (a) emotional exhaustion (5 items), which refers to the excessive use or depletion of emotional, moral, and psychological resources (e.g., "I feel emotionally drained from taking this course"); (b) cynicism or disbelief (4 items), regarding affective detachment or emotional indifference toward others and academic activity (e.g., "I lost enthusiasm for my course"); and (c) professional/academic efficacy (6 items), which refers to feelings of competence and accomplishment regarding academic activity (e.g., "I can effectively solve problems that arise related to my studies"; Marôco and Tecedero, 2009; Maslach, 1993; Schaufeli et al., 2002). The score of each scale is obtained through the sum of its items, and high levels of exhaustion and cynicism (i.e., above the 66 percentile) accompanied by low levels (i.e., below the 33 percentile) of professional/academic efficacy are indicators of the presence of burnout (Schaufeli et al., 2002). The study of the adaptation of the instrument with university students from Portugal, Spain, and the Netherlands revealed adequate internal consistency values, except for the professional efficacy subscale in the Portuguese and Dutch samples, which showed slightly lower levels (Schaufeli et al., 2002). In the study by Marôco and Tecedero (2009),

developed with Portuguese university students, this instrument revealed adequate values of internal consistency for all variables ( $\alpha = 0.84$  in the exhaustion subscale,  $\alpha = 0.88$  in the cynicism subscale, and  $\alpha = 0.79$  on the efficacy subscale). The present study also found appropriate levels of internal consistency ( $\alpha = 0.88$  on the emotional exhaustion subscale,  $\alpha = 0.71$  on the cynicism subscale, and  $\alpha = 0.76$  on the professional efficacy subscale).

## Procedures

### Data collection

Data collection started after the consent of the Ethics Committee (PA16/CE/21) of the Center for Research and Innovation in Education (inED) of the Higher School of Education of the Polytechnic Institute of Porto, between February and June 2022 on an online platform. When accessing the platform, participants were given information regarding the framework of the study and its objectives, participation conditions, ethical issues (e.g., privacy, confidentiality, and anonymity), access and dissemination of results, and a contact to request clarification of doubts and additional information. Participants were then asked to give their informed consent before having access to the questionnaire. Emails requesting cooperation in disseminating the study were sent to coordinators of bachelor's degrees in Basic Education and master courses in professional education at various public and private universities and polytechnic institutions in Portugal. These emails were also sent to academic associations, students' associations, and students' groups that have easy access to this population.

### Data analysis

Quantitative data analysis was performed with the Statistical Package for Social Sciences (SPSS) software (version 28.0). Descriptive statistics were computed, namely means, standard deviations, and minimum and maximum values, to characterize the students attending higher education courses for teacher training' frequency of burnout symptoms. To examine the frequency of burnout symptoms of students attending higher education courses for teacher training according to gender, study cycle, and worker-student status, the non-parametric Mann-Whitney test was used, since the assumptions for using the parametric test were not fulfilled. Effect magnitude indices were calculated by converting the  $z$  values obtained from the Mann-Whitney test into  $r$  values ( $r = z/\sqrt{N}$ ; Rosenthal, 1991 as cited in Field, 2005). The results obtained were interpreted according to the conventions of

Cohen (1992). In addition, Pearson's Product Moment correlation coefficient and hierarchical multiple regression were computed to analyze the associations between emotional regulation and burnout symptoms of students attending higher education courses for teacher training.

## Results

Table 1 presents the descriptive statistics for the three symptoms' dimensions of the MBI: a mean of 11.76 ( $SD = 7.70$ ) was obtained for the emotional exhaustion dimension, a mean of 5.20 ( $SD = 4.77$ ) for the cynicism dimension, and a mean of 26.30 ( $SD = 5.44$ ) for the professional efficacy dimension. These results suggest that students attending higher education courses for teacher training attaining initial training courses experience, on average, a low frequency of emotional exhaustion and depersonalization and a moderate frequency of professional efficacy symptoms. It should be noted, however, that the minimum and maximum values obtained indicate variability among students attending higher education courses for teacher training regarding their perception of these dimensions of burnout.

Considering that a score above the 66 percentile in the emotional exhaustion and cynicism dimensions and, at the same time, a score below the 33 percentile in the professional/academic efficacy dimension is an indicator of burnout (Schaufeli et al., 2002), the results suggest the presence of burnout symptoms in a very low number of the participants (4.5%,  $n = 7$ ).

### Burnout symptoms frequency during initial teacher education: relations with gender, study cycle, and worker-student status

To analyze differences in burnout symptoms as a function of personal (gender) and academic-related (study cycle and worker-student status) variables, the Mann-Whitney test was used (see Table 2). Results did not show statistically significant differences between females and males ( $U = 883.00$ ,  $p = 0.58$ ,  $r = 0.04$ ) regarding the emotional exhaustion dimension. Regarding study cycle, the results revealed statistically significant differences ( $U = 2,776.00$ ,  $p = 0.01$ ,  $r = 0.20$ ), with master's students experiencing a higher frequency of emotional exhaustion ( $M = 2.98$ ,  $SD = 1.62$ ) than bachelor's students. As for the worker-student status, statistically significant differences were also found ( $U = 1,279.00$ ;  $p = 0.01$ ,  $r = -0.25$ ), with those who

TABLE 1 Descriptive statistics of burnout dimensions: emotional exhaustion, cynicism and professional efficacy.

| Burnout symptoms      | Possible range | M     | SD   | Min.—Max.   | Percentile 66 | Percentile 33 |
|-----------------------|----------------|-------|------|-------------|---------------|---------------|
| Emotional exhaustion  | 0–30           | 11.76 | 7.70 | 0.00–28.00  | 15            |               |
| Cynicism              | 0–24           | 5.20  | 4.77 | 0.00–20.00  | 7             |               |
| Professional efficacy | 0–36           | 26.30 | 5.44 | 11.00–36.00 |               | 24            |

TABLE 2 Analysis of frequency differences in emotional exhaustion, cynicism, and professional efficacy according to personal and academic variables.

| Variables                    | n   | M (SD)      | Min.–Max. | U        | p    | R     |
|------------------------------|-----|-------------|-----------|----------|------|-------|
| <b>Emotional exhaustion</b>  |     |             |           |          |      |       |
| Gender                       |     |             |           | 883.00   | 0.58 | 0.04  |
| Female                       | 146 | 2.33 (1.55) | 0.00–5.60 |          |      |       |
| Male                         | 11  | 2.65 (1.46) | 0.60–5.60 |          |      |       |
| Study cycle                  |     |             |           | 2,776.00 | 0.01 | 0.20  |
| Bachelor's degree            | 121 | 2.17 (1.47) | 0.00–5.60 |          |      |       |
| Master's degree              | 36  | 2.98 (1.62) | 0.00–5.60 |          |      |       |
| Worker-student status        |     |             |           | 1,279.00 | 0.01 | –0.25 |
| Yes                          | 32  | 1.60 (1.38) | 0.00–4.80 |          |      |       |
| No                           | 125 | 2.54 (1.52) | 0.00–5.60 |          |      |       |
| <b>Cynicism</b>              |     |             |           |          |      |       |
| Gender                       |     |             |           | 994.50   | 0.18 | 0.11  |
| Female                       | 146 | 1.26 (1.17) | 0.00–5.00 |          |      |       |
| Male                         | 11  | 1.82 (1.42) | 0.00–4.75 |          |      |       |
| Study cycle                  |     |             |           | 2,535.00 | 0.13 | 0.12  |
| Bachelor's degree            | 121 | 1.20 (1.12) | 0.00–5.00 |          |      |       |
| Master's degree              | 36  | 1.63 (1.38) | 0.00–4.75 |          |      |       |
| Worker-student status        |     |             |           | 1,482.50 | 0.02 | –0.18 |
| Yes                          | 32  | 0.96 (1.21) | 0.00–3.75 |          |      |       |
| No                           | 125 | 1.39 (1.18) | 0.00–5.00 |          |      |       |
| <b>Professional Efficacy</b> |     |             |           |          |      |       |
| Gender                       |     |             |           | 476.00   | 0.02 | –0.18 |
| Female                       | 146 | 4.44 (0.87) | 1.83–6.00 |          |      |       |
| Male                         | 11  | 3.68 (1.14) | 2.00–5.67 |          |      |       |
| Study cycle                  |     |             |           | 2,763.00 | 0.01 | 0.20  |
| Bachelor's degree            | 121 | 4.29 (0.93) | 1.83–6.00 |          |      |       |
| Master's degree              | 36  | 4.70 (0.75) | 3.33–6.00 |          |      |       |
| Worker-student status        |     |             |           | 2,786.50 | 0.01 | 0.27  |
| Yes                          | 32  | 4.83 (0.88) | 2.17–6.00 |          |      |       |
| No                           | 125 | 4.27 (0.88) | 1.83–6.00 |          |      |       |

were worker-students showing a lower frequency of emotional exhaustion ( $M = 2.54, SD = 1.52$ ).

When analyzing differences in cynicism symptoms, no statistically significant differences were found according to gender ( $U = 994.50, p = 0.18, r = 0.11$ ) or study cycle ( $U = 2,535.00, p = 0.13, r = 0.12$ ), while statistically significant differences were found according to the worker-student status variable ( $U = 1,482.50, p = 0.02, r = 0.18$ ), with participants who were worker-students reporting lower frequency of cynicism symptoms ( $M = 1.39, SD = 1.18$ ).

Finally, the analysis of differences in professional/academic efficacy according to gender revealed statistically significant differences ( $U = 476.00, p = 0.02, r = -0.18$ ), with females reporting higher frequency of professional efficacy ( $M = 4.44, SD = 0.87$ ) compared to males ( $M = 3.68, SD = 1.14$ ). Statistically significant differences were also found between bachelor and master's students ( $U = 2,763.00, p = 0.01, r = 0.20$ ), with master's students reporting significantly higher frequency of professional

efficacy ( $M = 4.70, p = 0.75$ ) than bachelor's students ( $M = 4.29, SD = 0.93$ ). Finally, results revealed statistically significant differences according to worker-student status ( $U = 2,786.50, p = 0.01, r = 0.27$ ), suggesting that worker-student participants experienced a higher frequency of professional efficacy ( $M = 4.83, SD = 0.88$ ).

### The predictive role of emotional regulation in the explanation of burnout symptoms frequency of students attending higher education courses for teacher training attending initial teacher training courses

Associations between the variables were first explored to examine the predictive role of emotional regulation in the explanation of the frequency of burnout symptoms experienced by

students attending higher education courses for teacher training attending initial teacher training. Pearson's product-moment correlation between the predictor variables of interest, namely cognitive reappraisal and emotional suppression, and the criterion variables emotional exhaustion, cynicism, and professional efficacy, were computed (see Table 3).

With regard to cognitive reappraisal, the results revealed a marginally significant, negative, and weak association with emotional exhaustion ( $r = -0.14$ ,  $p < 0.10$ ) and a statistically significant, positive, and weak association with professional efficacy ( $r = 0.27$ ,  $p < 0.01$ ). There was no significant association with cynicism. With regard to emotional suppression, only one statistically significant, positive, and weak association was found with cynicism ( $r = 0.26$ ,  $p < 0.01$ ). It should also be noted that there was a statistically significant correlation between cognitive reappraisal and emotional suppression ( $r = 0.34$ ,  $p < 0.01$ ). This association was moderate, suggesting that although the two variables are connected, they are not redundant.

Finally, to analyze the predictive role of emotional regulation in the explanation of burnout symptoms of students attending higher education courses for teacher training attending initial teacher training, three prediction models were tested through hierarchical multiple regression analyses, one for each criterion variable (see Table 4). The ANOVA results indicated that all three models were statistically significant, suggesting that the predictors explained a meaningful proportion of variance in burnout symptoms. Specifically, the model for emotional exhaustion was significant,  $F_{(5,151)} = 6.373$ ,  $p < 0.001$ , as well as the model for cynicism,  $F_{(5,151)} = 4.914$ ,  $p < 0.001$ , and the model for professional efficacy,  $F_{(5,151)} = 7.164$ ,  $p < 0.001$ . It is notable that after controlling for gender, study cycle, and worker-student status variables, both the cognitive reappraisal ( $b = -0.13$ ,  $p < 0.10$ ) and the emotional suppression ( $b = 0.15$ ,  $p < 0.10$ ) variables were marginally significant predictors of the perception of emotional exhaustion, each explaining an additional 2% of the proportion of variance of this criterion variable. According to these results, the more regular use of cognitive reappraisal as an emotional regulation strategy was associated with a lower frequency of emotional exhaustion, while the more regular use of emotional suppression was related to a higher frequency of emotional exhaustion. With regard to cynicism, the results suggest that only emotional suppression seems to exert a statistically significant influence ( $b = 0.28$ ,  $p = 0.001$ ), explaining 7% of the variance of this dimension of burnout. This result indicates that students who use the emotional suppression strategy more regularly report a higher frequency of cynicism symptoms. As for professional/academic efficacy, only cognitive reappraisal (Block 4) made a statistically significant contribution to this criterion variable ( $b = 0.26$ ,  $p = 0.001$ ), explaining an additional 7% of the proportion of its variance. Thus, it appears that students who more frequently adopt cognitive reappraisal as an emotional regulation strategy tend to perceive professional efficacy more frequently.

## Discussion

Previous research suggests that the presence of burnout symptoms in initial teacher training can be a predictor of burnout

in the early years of the profession (Goddard and O'Brien, 2006), so it is important to know the frequency of burnout symptoms in students attending higher education courses for teacher training and the potential predictors that can be intervened early on in the initial teacher training, to prevent or reduce the risk of burnout in the profession. Thus, this research aimed to characterize the frequency of student burnout symptoms of students attending higher education courses for teacher training attending initial training courses, examine differences in their burnout symptoms according to gender, study cycle, and worker-student status, and to analyze the predictive role of emotional regulation in the explanation of those burnout symptoms. According to the results, students attending higher education courses for teacher training in initial teacher education seem to perceive, on average, a low frequency of emotional exhaustion and cynicism, as well as a moderate frequency of professional/academic efficacy. These findings are somewhat consistent with those of Schorn and Buchwald (2007), who reported that students attending higher education courses for teacher training may have low emotional exhaustion and cynicism because they have not yet had contact with the daily challenges of being a teacher. Nevertheless, the results of our study suggest the presence of burnout in about 4.5% of the participants, in line with other studies with this population (e.g., Das and Pallai, 2019; Engin, 2019; Rodríguez-Hidalgo et al., 2014; Schorn and Buchwald, 2007). These findings are particularly worrying, as experiencing burnout during university can be associated with numerous negative consequences for students (Marôco and Assunção, 2020), affecting their physical and psychological wellbeing (Watson et al., 2008) and, in extreme cases, leading to dropping out of school (Koeske and Koeske, 1991). Moreover, the fact that students attending higher education courses for teacher training are already experiencing burnout during their training, a period when they have not yet been confronted with the challenges of the teaching profession, is even more worrying (Nadon et al., 2020). Therefore, there is an urgent need to review the academic path of students attending higher education courses for teacher training and create the necessary conditions for them to develop fundamental skills, critical thinking, and positive attitudes that allow them to grow as professionals and human beings (Das and Pallai, 2019).

With regard to the analysis of burnout symptoms according to gender, no statistically significant differences were found for emotional exhaustion, in line with some studies in this area (e.g., Lopes and Guimarães, 2016; Okeke et al., 2020; Salgado and Au-Yong-Oliveira, 2021) or for cynicism. However, it should be noted that some other studies point to higher emotional exhaustion in women (e.g., Caballero, 2012; Marôco and Assunção, 2020; Shankland et al., 2019) and to higher cynicism in men (e.g., Caballero, 2012; Ilic and Ilic, 2021; Pamungkas and Nurlaili, 2021). This inconsistency in the literature suggests the need for further research on gender differences in these dimensions of burnout, ideally with more gender-equivalent samples. Finally, when analyzing professional efficacy by gender, statistically significant differences were found between females and males, with females showing higher perceived professional efficacy, in line with the findings of other research in this area (e.g., Shankland et al., 2019).

The results of the present study regarding differences in burnout symptoms according to the study cycle are particularly



TABLE 3 Descriptive statistics and Pearson correlations between emotional regulation strategies and burnout dimensions.

| Variables                | M    | SD   | 1      | 2      | 3      | 4       |
|--------------------------|------|------|--------|--------|--------|---------|
| 1. Cognitive reappraisal | 4.65 | 1.21 |        |        |        |         |
| 2. Emotion suppression   | 4.06 | 1.29 | 0.34** |        |        |         |
| 3. Emotional exhaustion  |      |      | -0.14† | 0.10   |        |         |
| 4. Cynicism              |      |      | 0.01   | 0.26** | 0.59** |         |
| 5. Professional efficacy |      |      | 0.27** | -0.00  | -0.16† | -0.23** |

†  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ ; ERQ, Emotional Regulation Questionnaire; MBI-SS, Maslach Burnout Inventory-Student Survey.

TABLE 4 Hierarchical multiple regression analysis between sociodemographic and academic variables and the ERQ scales.

| Predictors                         | Emotional exhaustion             |      |          | Cynicism                         |      |         | Professional efficacy            |      |         |
|------------------------------------|----------------------------------|------|----------|----------------------------------|------|---------|----------------------------------|------|---------|
|                                    | B                                | SE B | $\beta$  | B                                | SE B | $\beta$ | B                                | SE B | $\beta$ |
| <b>Block 1</b>                     | $R^2 = 0.003$                    |      |          | $R^2 = 0.014$                    |      |         | $R^2 = 0.045^{**}$               |      |         |
| Constant                           | 2.00                             | 0.53 |          | 0.71                             | 0.41 |         | 5.19                             | 0.31 |         |
| Gender <sup>a</sup>                | 0.33                             | 0.48 | 0.05     | 0.56                             | 0.37 | 0.12    | -0.75                            | 0.28 | -0.21** |
| <b>Block 2</b>                     | $\Delta R^2 = 0.052^{**}$        |      |          | $\Delta R^2 = 0.027^*$           |      |         | $\Delta R^2 = 0.031^*$           |      |         |
| Constant                           | 0.84                             | 0.65 |          | 0.06                             | 0.51 |         | 4.67                             | 0.38 |         |
| Gender <sup>a</sup>                | 0.45                             | 0.47 | 0.08     | 0.63                             | 0.37 | 0.13†   | -0.70                            | 0.28 | -0.20*  |
| Study cycle <sup>b</sup>           | 0.84                             | 0.29 | 0.23**   | 0.46                             | 0.22 | 0.16*   | 0.38                             | 0.17 | 0.18*   |
| <b>Block 3</b>                     | $\Delta R^2 = 0.085^{***}$       |      |          | $\Delta R^2 = 0.030^*$           |      |         | $\Delta R^2 = 0.049^{**}$        |      |         |
| Constant                           | 1.96                             | 0.69 |          | 0.58                             | 0.56 |         | 4.16                             | 0.41 |         |
| Gender <sup>a</sup>                | 0.45                             | 0.45 | 0.08     | 0.63                             | 0.37 | 0.13†   | -0.70                            | 0.27 | -0.20** |
| Study cycle <sup>b</sup>           | 1.03                             | 0.28 | 0.28***  | 0.55                             | 0.23 | 0.20*   | 0.29                             | 0.17 | 0.14†   |
| Worker-student status <sup>c</sup> | -1.13                            | 0.29 | -0.30*** | -0.52                            | 0.23 | -0.18*  | 0.51                             | 0.17 | 0.23**  |
| <b>Block 4</b>                     | $\Delta R^2 = 0.016†$            |      |          | $\Delta R^2 = 0.001$             |      |         | $\Delta R^2 = 0.066^{***}$       |      |         |
| Constant                           | 2.77                             | 0.84 |          | 0.47                             | 0.68 |         | 3.19                             | 0.48 |         |
| Gender <sup>a</sup>                | 0.39                             | 0.45 | 0.07     | 0.64                             | 0.37 | 0.14†   | -0.63                            | 0.26 | -0.18*  |
| Study cycle <sup>b</sup>           | 1.02                             | 0.28 | 0.28***  | 0.55                             | 0.23 | 0.20*   | 0.30                             | 0.16 | 0.14†   |
| Worker-student status <sup>c</sup> | -1.12                            | 0.29 | -0.29*** | -0.52                            | 0.23 | -0.18*  | 0.50                             | 0.17 | 0.22**  |
| Cognitive reappraisal              | -0.16                            | 0.10 | -0.13†   | 0.02                             | 0.08 | 0.02    | 0.19                             | 0.06 | 0.26*** |
| <b>Block 5</b>                     | $\Delta R^2 = 0.018†$            |      |          | $\Delta R^2 = 0.068^{***}$       |      |         | $\Delta R^2 = 0.001$             |      |         |
| Constant                           | 2.26                             | 0.88 |          | -0.30                            | 0.69 |         | 3.26                             | 0.51 |         |
| Gender <sup>a</sup>                | 0.34                             | 0.45 | 0.06     | 0.55                             | 0.36 | 0.12    | -0.62                            | 0.26 | -0.18*  |
| Study cycle <sup>b</sup>           | 1.06                             | 0.28 | 0.29***  | 0.62                             | 0.22 | 0.22**  | 0.30                             | 0.16 | 0.14†   |
| Worker-student status <sup>c</sup> | -1.04                            | 0.29 | -0.27*** | -0.40                            | 0.23 | -0.14†  | 0.48                             | 0.17 | 0.22**  |
| Cognitive reappraisal              | -0.22                            | 0.10 | -0.18*   | -0.07                            | 0.08 | -0.08   | 0.20                             | 0.06 | 0.27*** |
| Emotional suppression              | 0.18                             | 0.10 | 0.15†    | 0.26                             | 0.08 | 0.28*** | -0.02                            | 0.06 | -0.03   |
| <b>Total model</b>                 | $R^2 \text{ Total} = 0.17^{***}$ |      |          | $R^2 \text{ Total} = 0.14^{***}$ |      |         | $R^2 \text{ Total} = 0.19^{***}$ |      |         |

†  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

<sup>a</sup> Gender: 1 = female, 2 = male; <sup>b</sup> Study cycle: 1 = bachelor's degree; 2 = master's degree; <sup>c</sup> Worker-student status: 1 = no, 2 = yes.

interesting. Statistically significant differences were found in emotional exhaustion, with students attending higher education courses for teacher training attending a master's degree having a higher frequency of emotional exhaustion symptoms than those attending a bachelor's degree. These results can be explained by the advanced stage of academic education, which master's students inevitably find more demanding and challenging, as well as by a greater confrontation with the reality of their future profession, namely through supervised teaching practice internship experiences. These factors may increase the pressure they put on themselves, increase their stress levels, and consequently increase the risk of experiencing burnout (Fogaça et al., 2012; Salgado and Au-Yong-Oliveira, 2021). Therefore, the findings of this study do not support the idea that undergrads experience higher symptoms of burnout during the initial period of adaptation to higher education (Fariborz et al., 2019). On the other hand, the present study found that master's degree participants had higher levels of professional efficacy than bachelor's participants. It is possible that as they progress in their academic careers, receive more specialized training, and acquire new knowledge and skills, they perceive themselves as more competent.

In turn, analyzing burnout levels according to worker-student status, it was found that those who were worker-students had significantly lower symptoms of emotional exhaustion and cynicism and significantly higher symptoms of professional/academic efficacy. Although it could be expected that worker-students experience higher symptoms of burnout because they must reconcile their academic and professional lives (Drăghici and Cazan, 2022), some studies with university students have concluded, similarly to the present study, that working students have lower burnout symptoms than non-worker students. It has been suggested that worker-students may have better-developed mechanisms to manage their stress than those who face fewer challenges managing work and academic life (Drăghici and Cazan, 2022; Salgado and Au-Yong-Oliveira, 2021).

Finally, results regarding the role of emotional regulation as a potential strategy for preventing students' burnout symptoms showed that, after controlling for gender, study cycle, and worker-student status, cognitive reappraisal and emotional suppression were marginally predictive of perceived emotional exhaustion. Specifically, more frequent use of cognitive reappraisal as an emotional regulation strategy was associated with lower perceived emotional exhaustion, and conversely, more frequent use of the emotional suppression strategy was associated with greater perceived emotional exhaustion. In addition, results also revealed that emotional suppression was the only statistically significant predictor of cynicism, suggesting that students attending higher education courses for teacher training who regularly use this strategy tend to experience more frequent symptoms of cynicism. On the other hand, cognitive reappraisal was the only statistically significant predictor of professional efficacy, suggesting that students attending higher education courses for teacher training who more frequently use this emotional regulation strategy tend to perceive professional/academic efficacy more frequently. In summary, the results confirm that the more regular use of cognitive reappraisal is associated with lower perceived emotional

exhaustion and increased perceived professional efficacy. Inversely, the more frequent use of emotional suppression is associated with increased perceptions of emotional exhaustion and cynicism symptoms. This finding is congruent with research showing that the use of the cognitive reappraisal strategy is associated with increased favorable emotional experiences, and that emotional suppression is associated with increased unfavorable emotional experiences (Gross, 1998; Gross and John, 2003; Yin et al., 2016).

## Limitations

Despite the important contributions provided by this study in an area with limited research, some limitations must be recognized and taken into consideration when interpreting its results. Firstly, it is important to mention that the sample size is small, thus caution is advised in the interpretation and generalization of results for students attending initial teacher training in Portugal. Furthermore, the imbalance in the number of participants in some study variables, namely gender (although in this specific case, it is consistent with the existing distribution in the population) and study cycle, recommend caution regarding the interpretation of their results. In addition, the use of self-report questionnaires for data collection may be a limitation, because although they are quick to apply, or they are susceptible to social desirability, which may bias the results.

## Conclusion

The present study found that students attending higher education courses for teacher training in initial teacher training appear to perceive low symptoms of emotional exhaustion and cynicism, as well as moderate symptoms of professional efficacy. However, a relevant and worrying percentage of the participants in the present study met the criteria for student burnout. Note that even before our participants begin their professional activity, they are experiencing burnout, thus setting the stage for preventive interventions in initial teacher training courses that can prevent student burnout to become teacher burnout. Once again, we understand that being a teacher is an emotionally challenging profession, and the levels of teacher burnout are increasing. Thus, it is relevant to pay attention to higher education students attending courses to become teacher emotional regulation strategies, and levels of burnout as students, to conduct timely intervention to prevent professional burnout in teachers. In this regard, this study's results highlighted the role of personal and academic variables and, most importantly, of emotional regulation variables in explaining the variability in students' burnout symptoms. Results showed that emotional regulation is a variable of particular interest for the prevention of students attending higher education courses for becoming a teacher levels of burnout, given its main influence on this phenomenon after controlling for sociodemographic and academic variables.

Identifying that the initial teacher training years are fundamental to promoting the wellbeing of students attending higher education courses for teacher training, the present study results may inform the reflection of initial teacher training schools about the need to design and implement socioemotional learning programs, which integrate the promotion of effective emotional regulation skills during the students' academic training. These emotional regulation skills may have a protective effect against the stress responsible for the development of burnout, and their development during initial training courses can protect both current and students attending higher education courses for teacher training from burnout in their teaching careers, thus bringing benefits to their wellbeing and the students, as well as to the quality of the educational experiences (e.g., Jennings and Greenberg, 2009; Jones et al., 2013; Zins and Elias, 2007). Previous studies have shown that the implementation of programs with a focus on socioemotional competencies, particularly those aimed at emotional regulation/management, in initial teacher training have an impact on the effective development of these competencies (e.g., Aspelin, 2019; Tuyakova et al., 2022; Zych and Llorent, 2020). Therefore, the necessary measures must be taken to secure the reformulation of teachers' initial training, to ensure that they develop the socioemotional competencies that are fundamental to their wellbeing and success in developing appropriate educational environments and in promoting their students' socioemotional learning (Zych and Llorent, 2020).

## Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: there is no authorization to share the dataset. Reviewers can ask for the public dataset. Requests to access these datasets should be directed to [jfm.ferreira@outlook.com](mailto:jfm.ferreira@outlook.com).

## Ethics statement

The studies involving humans were approved by Comissão de Ética do Centro de Investigação and Inovação em Educação (inED) da Escola Superior de Educação do Instituto Politécnico do Porto. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## References

- Arvidsson, I., Leo, U., Larsson, A., Håkansson, C., Persson, R., and Björk, J. (2019). Burnout among school teachers: quantitative and qualitative results from a follow-up study in southern Sweden. *BMC Public Health* 19, 1–13. doi: 10.1186/s12889-019-6972-1
- Aspelin, J. (2019). Enhancing pre-service teachers' socio-emotional competence. *Int. J. Emot. Educ.* 11, 153–168. Available online at: <https://eric.ed.gov/?id=EJ1213620>
- Benevides-Pereira, A. M. T., and Yaegashi, S. F. R. (2009). *O CBP-R em professores do ensino fundamental [The CBP-R in elementary school teachers]*. Communication presented at IX Congresso Nacional de Educação - EDUCARE, III Encontro Sul Brasileiro de Psicopedagogia, Curitiba, Brasil.
- Bozkus, Z. (2018). The level of burnout experienced by teachers. *Int. J. Soc. Sci. Educ. Res.* 4, 61–67. doi: 10.24289/ijsser.341790
- Brackett, M., Palomera, R., Mojsa-Kaia, J., and Salovey, M. (2010). Emotion-regulation ability, burnout, and job satisfaction among British secondary-school teachers. *Psychol. Sch.* 47, 406–417. doi: 10.1002/pits.20478
- Caballero, C. (2012). *El burnout académico: Prevalencia y factores asociados en estudiantes universitarios del área de la salud de la ciudad de Barranquilla*. [Doctoral Thesis]. [Colombia]: Universidad del Norte.

## Author contributions

JF: Writing – original draft, Writing – review & editing, Formal analysis, Methodology. CP: Writing – original draft, Writing – review & editing, Conceptualization, Formal analysis, Funding acquisition, Methodology. VC: Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. SB: Conceptualization, Writing – review & editing. FS-P: Conceptualization, Writing – review & editing. FM: Conceptualization, Writing – review & editing. AM-P: Conceptualization, Writing – review & editing.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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- Candeias, A. A., Galindo, E., Calisto, I., Borralho, L., and Reschke, K. (2021). Stress and burnout in teaching: study in an inclusive school workplace. *Health Psychol. Rep.* 9, 63–75. doi: 10.5114/hpr.2020.100786
- Carlotto, M. S. (2002). A síndrome de burnout e o trabalho docente [Burnout syndrome and teaching work]. *Psicol. Estud.* 7, 21–29. doi: 10.1590/S1413-73722002000100005
- Carlotto, M. S., and Palazzo, L. S. (2006). Síndrome de burnout e fatores associados: um estudo epidemiológico com professores [burnout syndrome and associated factors: an epidemiological study with teachers]. *Cad. Saúde Pública* 22, 1017–1026. doi: 10.1590/S0102-311X2006000500014
- Carroll, A., Forrest, K., Sanders-O'Connor, E., Flynn, L., Bower, J. M., Fynes-Clinton, S., et al. (2022). Teacher stress and burnout in Australia: examining the role of intrapersonal and environmental factors. *Soc. Psychol. Educ.* 25, 441–469. doi: 10.1007/s11218-022-09686-7
- Cohen, J. (1992). A power primer. *Psychol. Bull.* 112, 155–159. doi: 10.1037/0033-2909.112.1.155
- Cristóvão, A. M., Rebelo, H., and Valente, S. (2021). *Educação emocional na formação de educadores de infância e professores de 1.º ciclo do ensino básico em Portugal: Uma análise curricular [Emotional education in the training of early childhood educators and primary school teachers in Portugal: A curricular analysis]*. Communication presented at XVI Congresso Internacional Galego-Português de Psicopedagogia, Braga, Portugal.
- Cristóvão, A. M., Valente, S., Rebelo, H., and Ruivo, A. F. (2023). Emotional education for sustainable development: a curriculum analysis of teacher training in Portugal and Spain. *Front. Educ.* 8:1165319. doi: 10.3389/feduc.2023.1165319
- Das, R., and Pallai, P. (2019). A study on burnout among prospective student-teachers of the B.Ed programme in Tezpur university. *Think India J.* 22, 5306–5312. Available online at: <https://thinkindiaquarterly.org/index.php/think-india/article/view/13943>
- Decree-Law Nr. 79/2014 of 14th May. Republic Diary nr. 92/2014 – Série I.
- Decree-Law Nr. 79/2014 of 14th May. Republic Diary nr. 92/2014 – Série I. Available online at: <https://diariodarepublica.pt/dr/detalhe/decreto-lei/79-2014-25344769>
- DePaoli, J. L., Atwell, M. N., and Bridgeland, J. (2017). *Ready to lead: A national principal survey on how social and emotional learning can prepare children and transform schools*. Civic Enterprises e Hart Research Associates. Available online at: <https://files.eric.ed.gov/fulltext/ED579088.pdf> (accessed June 1, 2022).
- Drăghici, G. L., and Cazan, A. M. (2022). Burnout and maladjustment among employed students. *Front. Psychol.* 13, 1–10. doi: 10.3389/fpsyg.2022.825588
- Dung, D. T., and Zsolnai, A. (2022). Teachers' social and emotional competence: a new approach of teacher education in Vietnam. *Hung. Educ. Res. J.* 12, 131–144. doi: 10.1556/063.2021.00050
- Engin, G. (2019). Determine pre-service teachers' burnout levels and anxiety of not to be appointed to teacher profession. *Educ. Policy Anal. Strat. Res.* 14, 29–44. doi: 10.29329/epasr.2019.201.2
- European Commission. (2021). *Teachers in Europe: Careers, Development and Well-being. Eurydice Report*. Publications Office of the European Union. Available online at: [https://eacea.ec.europa.eu/national-policies/eurydice/sites/eurydice/files/teachers\\_in\\_europe\\_2020\\_1.pdf](https://eacea.ec.europa.eu/national-policies/eurydice/sites/eurydice/files/teachers_in_europe_2020_1.pdf) (accessed June 1, 2022).
- Fariborz, N., Hadi, J., and Ali, T. N. (2019). Students' academic stress, stress response and academic burnout: mediating role of self-efficacy. *Pertanika J. Soc. Sci. Humanit.* 27, 2441–2454.
- Field, A. (2005). "Non-parametric tests," in *Discovering Statistics Using SPSS* (2nd ed), ed. A. Field (London: SAGE Publications), 521–570.
- Fogaça, M. C., Hamasaki, E. I. M., Barbieri, C. A. P., Borsetti, J., Martins, R. Z., Silva, I. G., et al. (2012). Burnout em estudantes de psicologia: Diferenças entre alunos iniciantes e concluintes [Burnout in psychology students: differences between beginning and graduating students]. *Aletheia* 38–39, 124–131. Available online at: [https://pepsic.bvsalud.org/scielo.php?script=sci\\_arttext&pid=S1413-03942012000200010](https://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1413-03942012000200010)
- Frenzel, A. C., Daniels, L., and Burić, I. (2021). Teacher emotions in the classroom and their implications for students. *Educ. Psychol.* 56, 250–264. doi: 10.1080/00461520.2021.1985501
- García-Carmona, M., Marín, M. D., and Aguayo, R. (2019). Burnout syndrome in secondary school teachers: a systematic review and meta-analysis. *Soc. Psychol. Educ.* 22, 189–208. doi: 10.1007/s11218-018-9471-9
- Goddard, R., and O'Brien, P. (2006). *Pre-service Teacher Education and Beginning Teacher Burnout*. Communication presented at Australian Research Association Annual Education Conference, Adelaide, South Australia.
- Goegan, L. D., Wagner, A. K., and Daniels, L. M. (2017). Pre-service and practicing teachers' commitment to and comfort with social-emotional learning. *Alta. J. Educ. Res.* 63, 267–285. doi: 10.55016/ojs/ajer.v6i3i.56284
- Gomes, A., Silva, M., Mourisco, S., Silva, S., Mota, A., and Montenegro, N. (2006). Problemas e desafios no exercício da actividade docente: Um estudo sobre o stress, "burnout", saúde física e satisfação profissional em professores do 3º ciclo e ensino secundário [Problems and challenges in teaching: A study on stress, burnout, physical health and professional satisfaction in 3rd cycle and secondary school teachers]. *Rev. Port. Educ.* 19, 67–93. Available online at: <https://www.redalyc.org/articulo.oa?id=37419104>
- Gomes, A. R., Montenegro, N., Peixoto, A. M. B. C., and Peixoto, A. R. B. C. (2010). Stress ocupacional no ensino: um estudo com professores dos 3º ciclo e ensino secundário [Occupational stress in teaching: a study with 3rd cycle and secondary school teachers]. *Psicol. Soc.* 22, 587–597. doi: 10.1590/S0102-71822010000300019
- Greenberg, M. T., Brown, J. L., and Abenavoli, R. M. (2016). *Teacher Stress and Health: Effects on Teachers, Students, and Schools*. The Pennsylvania State University. Available online at: <https://www.prevention.psu.edu/uploads/files/rwjf430428-TeacherStress.pdf> (accessed June 1, 2022).
- Gross, J. J. (1998). The emerging field of emotional regulation: an integrative review. *Rev. Gen. Psychol.* 2, 271–299. doi: 10.1037/1089-2680.2.3.271
- Gross, J. J. (1999). Emotional regulation: past, present, future. *Cogn. Emot.* 13, 551–573. doi: 10.1080/026999399379186
- Gross, J. J. (2002). Emotional regulation: affective, cognitive, and social consequences. *Psychophysiology* 39, 281–291. doi: 10.1017/S0048577201393198
- Gross, J. J. (2014). "Emotional regulation: conceptual and empirical found," in *Handbook of Emotional Regulation*, ed. J. J. Gross (New York, NY: The Guildford Press), 3–20.
- Gross, J. J., and John, O. P. (2003). Individual differences in two emotional regulation processes: implications for affect, relationships, and well-being. *J. Pers. Soc. Psychol.* 85, 348–362. doi: 10.1037/0022-3514.85.2.348
- Hagenauer, G., and Volet, S. (2014). I don't think I could, you know, just teach without any emotion: exploring the nature and origin of university teachers' emotions. *Res. Pap. Educ.* 29, 240–262. doi: 10.1080/02671522.2012.754929
- Ilic, I., and Ilic, M. (2021). Burnout syndrome and associated sociodemographic factors in medical students: a cross-sectional study. *Biol. Life Sci. Forum* 9:1. doi: 10.3390/ECCM-10869
- Jennings, P., Frank, J., and Montgomery, M. (2020). "Social and emotional learning for educators," in *Rethinking Learning: A Review of Social and Emotional for Education Systems*, eds. N. Singh and A. Duraiappah (New Delhi: Mahatma Gandhi Institute of Education for Peace and Sustainable Development), 127–146.
- Jennings, P. A. (2011). "Promoting teachers' social and emotional competencies to support performance and reduce burnout," in *Breaking the Mold of Preservice and In-service Teacher Education: Innovative and Successful Practices for the Twenty-First Century*, eds. A. Cohan and A. Honigsfeld (New York, NY: Rowman and Littlefield Education), 133–143.
- Jennings, P. A., and Greenberg, M. T. (2009). The prosocial classroom: teacher social and emotional competence in relation to student and classroom outcomes. *Rev. Educ. Res.* 79, 491–525. doi: 10.3102/0034654308325693
- Jones, S. M., Bouffard, S. M., and Weissbourd, R. (2013). Educators' social and emotional skills are vital to learning. *Phi Delta Kappan* 94, 62–65. doi: 10.1177/003172171309400815
- Koeske, G. F., and Koeske, R. D. (1991). Student "burnout" as a mediator of the stress-outcome relationship. *Res. High. Educ.* 32, 415–431. doi: 10.1007/BF00992184
- Larrievé, B. (2012). *Cultivating Teacher Renewal: Guarding Against Stress and Burnout*. Lanham, MD: RandL Education.
- Lee, Y. H. (2019). Emotional labor, teacher burnout, and turnover intention in high-school physical education teaching. *Eur. Phys. Educ. Rev.* 25, 236–253. doi: 10.1177/1356336X17719559
- Lopes, F. L., and Guimarães, G. S. (2016). Estudo da síndrome de burnout em estudantes de psicologia [Study of burnout syndrome in psychology students]. *Psicologia Ensino e Formação* 7, 40–58. doi: 10.21826/2179-58002016714058
- Madigan, D. J., Kim, L. E., Glandorf, H. L., and Kavanagh, O. (2023). Teacher burnout and physical health: a systematic review. *Int. J. Educ. Res.* 119:102173. doi: 10.1016/j.ijer.2023.102173
- Marić, N., Mandić-Rajčević, S., Maksimović, N., and Bulat, P. (2020). Factors associated with burnout syndrome in primary and secondary school teachers in the Republic of Srpska (Bosnia and Herzegovina). *Int. J. Environ. Res. Public Health* 17, 1–13. doi: 10.3390/ijerph17103595
- Marôco, J., and Assunção, H. (2020). *Envolvimento e Burnout no Ensino Superior em Portugal [Involvement and Burnout in Higher Education in Portugal]*. Communication presented at 13. Congresso Nacional de Psicologia da Saúde.
- Marôco, J., and Tecedreiro, M. (2009). Inventário de burnout de Maslach para estudantes portugueses [Maslach Burnout Inventory for Portuguese students]. *Psicologia Saúde Doenças* 10, 227–235. Available online at: <http://hdl.handle.net/10400.12/1090>
- Marques-Pinto, A., Lima, M., and Silva, A. (2003). Stress profissional em professores portugueses: Incidência, preditores e reação de burnout [Professional stress in portuguese teachers: Incidence, predictors and burnout reaction]. *In Psychologica* 33, 181–194. Available online at: [https://www.researchgate.net/publication/337568114\\_Stress\\_profissional\\_em\\_professores\\_portugueses\\_Incidencia\\_preditores\\_e\\_reacao\\_de\\_burnout\\_In\\_Psychologica](https://www.researchgate.net/publication/337568114_Stress_profissional_em_professores_portugueses_Incidencia_preditores_e_reacao_de_burnout_In_Psychologica)

- Maslach, C. (1993). *Burnout: A Multidimensional Perspective*, eds. W. B. Schaufeli, C. Maslach and T. Marek (Philadelphia, PA: Professional Burnout. Taylor and Francis).
- Maslach, C., and Leiter, M. (2016). Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry* 15, 103–111. doi: 10.1002/wps.20311
- Maslach, C., Schaufeli, W., and Leiter, M. (2001). Job burnout. *Annu. Rev. Psychol.* 52, 397–422. doi: 10.1146/annurev.psych.52.1.397
- Mesquita, A., Gomes, D., Lobato, J., Gondim, L., and Souza, S. (2013). Estresse e síndrome de burnout em professores: prevalências e causas [stress and burnout syndrome in teachers: prevalence and causes]. *Psicologia Argumento* 31, 627–695. doi: 10.7213/psicol.argumento.31.075.DS05
- Mota, A. I., Lopes, J., and Oliveira, C. (2021). Burnout in Portuguese teachers: a systematic review. *Eur. J. Educ. Res.* 10, 693–703. doi: 10.12973/eu-jer.10.2.693
- Mota, A. I., Lopes, J., and Oliveira, C. (2023). The burnout experience among teachers: a profile analysis. *Psychol. Sch.* 60, 3979–3994. doi: 10.1002/pits.22956
- Nadon, L., Babenko, O., Chazan, D., and Daniels, L. M. (2020). Burning out before they start? An achievement goal theory perspective on medical and education students. *Soc. Psychol. Educ.* 23, 1055–1071. doi: 10.1007/s11218-020-09572-0
- Okeke, F. C., Aneke, A. O., Ifelunni, C. O., Onuorah, A., Okpala, E., Ngwoke, A. N., et al. (2020). Gender differences in academic burnout among childhood education students. *Glob. J. Health Sci.* 12, 57–60. doi: 10.5539/gjhs.v12n5p57
- Oliveira, S., Cardoso, A., Silva-Moreira, J., Marques-Pinto, A., and Veiga-Simão, A. M. (2021). *O Papel Do Clima Organizacional No Desenvolvimento De Burnout Em Professores Do 1.º Ciclo [The Role of Organizational Climate in the Development of Burnout in 1st Cycle Teachers]*. Communication presented at XXVIII Colóquio da AFIRSE Portugal.
- Otero-López, J. M., Santiago, M. J., Godás, A., Castro, C., Villardefrancos, E., and Ponte, D. (2008). An integrative approach to burnout in secondary school teachers: examining the role of student disruptive behaviour and disciplinary issues. *Int. J. Psychol. Psychol. Ther.* 8, 259–270. Available online at: <https://www.ijpsy.com/volumen8/num2/201/an-integrative-approach-to-burnout-in-secondary-EN.pdf>
- Pamungkas, H. P., and Nurlaili, E. I. (2021). Academic burnout among university students during covid-19 outbreak. *Adv. Soc. Sci. Educ. Humanit. Res.* 618, 1163–1169. doi: 10.2991/assehr.k.211223.204
- Peixoto, C., Barros, S., Coelho, V., Sousa-Pereira, F., Machado, F., and Marques-Pinto, A. (2021). *Is Social and Emotional Learning Included in Portuguese Initial Teacher Training?* Communication presented at XVI Congresso Internacional Galego-Português de Psicopedagogia, Braga, Portugal.
- Peixoto, F., Wosnitza, M., Pipa, J., Morgan, M., and Cefai, C. (2018). “A multidimensional view on pre-service teacher resilience in Germany, Ireland, Malta and Portugal,” in *Resilience in Education: Concepts, Contexts and Connections*, eds. M. Wosnitza, F. Peixoto, S. Beltman and C. Mansfield (Springer: New York), 73–89. doi: 10.1007/978-3-319-76690-4\_5
- Peláez-Fernández, M. A., Mérida-Lopez, S., Rey, L., and Extremera, N. (2022). Burnout, work engagement and life satisfaction among Spanish teachers: the unique contribution of core self-evaluations. *Pers. Individ. Differ.* 196, 1–6. doi: 10.1016/j.paid.2022.111727
- Rodríguez-Hidalgo, A., Calmaestra, J., and Dios, I. (2014). Burnout and competency development in pre-service teacher training. *Electron. J. Res. Educ. Psychol.* 12, 649–670. doi: 10.25115/ejrep.34.14048
- Rosenthal, R. (1991). *Meta-Analytic Procedures for Social Research (Rev. Edn.)*. Sage Publications. doi: 10.4135/9781412984997
- Salgado, S., and Au-Yong-Oliveira, M. (2021). Student burnout: a case study about a Portuguese public university. *Educ. Sci.* 11, 1–35. doi: 10.3390/educsci11010031
- Schaufeli, W. B., Martinez, I. M., Marques-Pinto, A., Salanova, M., and Bakker, A. B. (2002). Burnout and engagement in university students: a cross national study. *J. Cross-Cult. Psychol.* 33, 464–481. doi: 10.1177/0022022102033005003
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *Future Child.* 27, 137–155. doi: 10.1353/foc.2017.0007
- Schonert-Reichl, K. A. (2019). Advancements in the landscape of social and emotional learning and emerging topics on the horizon. *Educ. Psychol.* 54, 222–232. doi: 10.1080/00461520.2019.1633925
- Schorn, N. K., and Buchwald, P. (2007). “Burnout in student teachers,” in *Electronic Proceedings of the 27th Conference of the STAR Society*, eds. P. Roussi, E. Vasilaki, K. Kaniasty and J. D. Barker (University of Crete), 150–159.
- Shankland, R., Kotsou, I., Vallet, F., Bouteyre, E., Dantzer, C., and Leys, C. (2019). Burnout in university students: the mediating role of sense of coherence on the relationship between daily hassles and burnout. *High. Educ.* 78, 91–113. doi: 10.1007/s10734-018-0332-4
- Taylor, M., McLean, L., Bryce, C. I., Abry, T., and Granger, K. L. (2019). The influence of multiple life stressors during student teachers on burnout and career optimism in the first year of teaching. *Teach. Teach. Educ.* 86:102910. doi: 10.1016/j.tate.2019.102910
- Tuyakova, U., Baizhumanova, B., Mustapaeva, T., Alekshova, L., and Otarbaeva, Z. (2022). Burnout in student teachers in universities. *Hum. Soc. Sci. Commun.* 9, 1–6. doi: 10.1057/s41599-022-01173-w
- Valente, S., and Almeida, L. S. (2020). Educação emocional no ensino superior: alguns elementos de reflexão sobre a sua pertinência na capacitação de futuros professores [emotional education in higher education: some elements of reflection on its relevance in the training of students attending higher education courses for teacher training]. *Revista E-Psi* 9, 152–164. Available online at: <https://revistaepsi.com/artigo/2020-ano9-volume1-artigo10/>
- Varela, R., della Santa, R., Silveira Oliveira, H., Coimbra de Matos, A., Rolo, D., Areosa, J., et al. (2018). *National Survey on Living and Working Conditions in Education in Portugal (INCVTE)*. Fenprof. Available online at: <https://novaresearch.unl.pt/en/publications/as-condiçoes-de-trabalho-e-vida-na-profissao-docente-em-portugal>
- Vaz, F., Martins, C., and Martins, E. (2008). Diferenciação emocional e regulação emocional em adultos portugueses [emotional differentiation and emotional regulation in portuguese adults]. *Psicologia* 12, 123–135. doi: 10.17575/rpsicol.v22i2.350
- Watson, R., Deary, I., Thompson, D., and Li, G. (2008). A study of stress and burnout in nursing students in Hong Kong: a questionnaire survey. *Int. J. Nurs. Stud.* 45, 1534–1542. doi: 10.1016/j.ijnurstu.2007.11.003
- Yin, H., Huang, S., and Wang, W. (2016). Work environment characteristics and teacher well-being: the mediation of emotional regulation strategies. *Int. J. Environ. Res. Public Health* 13, 1–16. doi: 10.3390/ijerph13090907
- Zaretsky, R., and Katz, Y. (2019). The relationship between teachers’ perceptions of emotional labor and teacher burnout and teachers’ educational level. *Athens J. Educ.* 6, 127–144. doi: 10.30958/aje.6-2-3
- Zins, J. E., and Elias, M. J. (2007). Social and emotional learning: promoting the development of all students. *J. Educ. Psychol. Consult.* 17, 233–255. doi: 10.1080/10474410701413152
- Zych, I., and Llorent, V. J. (2020). An intervention program to enhance social and emotional competencies in pre-service early childhood education teachers. *Psychol. Soc. Educ.* 12, 17–30. doi: 10.25115/psye.v0i0.2374