

# Social Psychology of Education

## Burnout syndrome in secondary school teachers: a systematic review and meta-analysis

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| <b>Abstract:</b>                                     | <p>Secondary school teachers are one of the occupational groups presenting the highest levels of sick leave due to stress in the workplace. This form of stress can cause burnout syndrome, which is characterised by emotional exhaustion, depersonalisation and low levels of personal accomplishment. Secondary education teachers have received relatively little research attention in this respect. This study addresses the prevalence among secondary school teachers of burnout syndrome, in its three dimensions and investigates possible differences in the prevalence determined by different measuring instruments.</p> <p>A systematic review and meta-analysis was conducted of the scientific literature in this field. Using the Proquest and Eric electronic databases, 45 articles and 49 independent samples (N = 14,410) were obtained. Results show that secondary school teachers are at high risk of burnout syndrome. Moreover, there are statistically significant differences between the different measuring instruments used. Pedagogical programmes should be developed to reduce/prevent its impact.</p> |                |

## **Burnout syndrome in secondary school teachers: a systematic review and meta-analysis**

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### **Title page**

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## **Burnout syndrome in secondary school teachers: a systematic review and meta-analysis**

### **Abstract**

Secondary school teachers are one of the occupational groups presenting the highest levels of sick leave due to stress in the workplace. This form of stress can cause burnout syndrome, which is characterised by emotional exhaustion, depersonalisation and low levels of personal accomplishment. Secondary education teachers have received relatively little research attention in this respect. This study addresses the prevalence among secondary school teachers of burnout syndrome, in its three dimensions and investigates possible differences in the prevalence determined by different measuring instruments.

A systematic review and meta-analysis was conducted of the scientific literature in this field. Using the Proquest and Eric electronic databases, 45 articles and 49 independent samples ( $N = 14,410$ ) were obtained. Results show that secondary school teachers are at high risk of burnout syndrome. Moreover, there are statistically significant differences between the different measuring instruments used. Pedagogical programmes should be developed to reduce/prevent its impact.

*Keywords:* Burnout syndrome, Secondary school teacher, prevalence, MBI, meta-analysis.

## **Introduction**

Work-related stress is one of the causes of low job performance, absenteeism and quitting (Martínez 2015; Seth 2016; Skaalvik and Skaalvik 2017). In the educational context, diverse obstacles and risk factors are capable of generating chronic stress among teachers and thus of provoking burnout syndrome. Such risk factors include work overload, complementary administrative work, overcrowded classrooms, role stressors, class discipline problems, conflicts with superiors, co-workers and parents, continual education reforms, deficits in training, promotion and professional development, low wages, disruptive attitudes and behaviour by students, deficient school and classroom facilities, poor timetabling and time pressures (Bacharach, Bamberger and Mitchell 1990; Byrne 1994; Cunningham 1983; Inbar-Furst and Gumpel 2015; Jackson, Schawb and Schuler 1986; Kahn, Jones, and Wieland 2012; Lee and Ashforth 1996; Moreno-Jiménez, Garrosa and González 2000b; Schawb and Iwanicki 1982; Starnaman and Miller 1992).

Maslach and Jackson (1981b) conceptualised burnout syndrome as a response to chronic work stress, and identified three components: high levels of emotional exhaustion and depersonalisation, coupled with low personal accomplishment. Emotional exhaustion refers to a lack of energy and emotional resources with which to cope with work obligations. Depersonalisation, or dehumanisation, is characterised by an absence of empathy with other people. Finally, personal accomplishment is the ability to face new challenges, and to feel fulfilled. In its absence, workers develop negative attitudes towards their own job capabilities and potential.

Various psychological instruments have been proposed with which to evaluate burnout, of which the Maslach Burnout Inventory (MBI; Maslach and Jackson 1981a) is the most widely used (Aguayo, Vargas, De la Fuente and Lozano 2011; Schaufeli and Taris 2013). After a first version of the MBI, designed for healthcare professionals, a second one was published, adapted for the teaching profession, called the MBI-Educators Survey (MBI-ES, Maslach and Jackson 1986). Finally, Schaufeli et al. (1996) developed, from the same theoretical model, a more general questionnaire, appropriate for all fields of work, called the MBI-General Survey (MBI-GS).

Burnout can provoke diverse problems, affecting teachers, students and institutions. The Spanish Institute of Occupational Safety and Health (INSHT 2005) distinguishes various consequences that may arise from burnout, some affecting institutions and others, the individual. The former are related to organisational efficiency and performance, absenteeism, presentism, and job rotation, all of which are directly relevant to teaching quality and to the learning process (Firth and Britton 1989; Golembiewski and Muzenrider 1988; Guerrero 1997). As observed by Prieto and Bermejo (2006), burnout indirectly affects the daily organisation of the school, by requiring teacher substitutions and alterations in the chronological development foreseen in subject programmes. Teachers who suffer from burnout do not provide all the necessary information or the backup

needed by their students; relationships are strained and acceptance of their proposals is likely to be reduced (Kyriacou 1987).

The consequences for teachers can be grouped into three categories: physical, psychological and behavioural. Physical problems related to burnout include general discomfort, headaches, fatigue, sleep disorders, gastrointestinal problems (and even ulcers), hypertension, asthma, cardiovascular disorders, muscle pain, amenorrhoea, loss of appetite and weight loss (Belcastro, Gold and Grant 1982; Freudenberger 1980; Golembiewski, Muzenrider and Stevenson 1986; Kahill 1988; Kahn 1978; Leung, Siu and Spector 2000; Melamed, Shirom, Toker, Berliner and Shapira 2006; Needle, Griffin and Svendsen 1981; Pines 1983, 1993; Sakharov and Farber 1983; Shirom 1986, 1989). Psychological consequences include restlessness, irritability, reluctance, feelings of isolation, malaise, powerlessness and a sense of incompetence (Burke and Greenglass 1993; Cedoline 1982). Finally, behavioural problems that are frequently cited include sloth, hyperactivity, annoyance, mistrust, problems with family, partners or friends, an impaired quality of life and the abuse of alcohol or drugs (Chan 1998; Lazarus and Folkman 1986).

There exists a great deal of empirical evidence that secondary school teachers are at risk of developing this psychological problem. However, the prevalence of burnout syndrome among this occupational group remains unknown. Therefore, the main aim of this study is to present a systematic review and meta-analytic estimation of the prevalence of teacher burnout syndrome in secondary education.

## **Method**

A systematic review, followed by a meta-analysis, was conducted, taking into account the recommendations of Ato, López and Benavente (2013), Perestelo-Pérez (2013), Botella and Gambará (2006) and Sánchez-Meca, Marín-Martínez and López-López (2011).

### *Data search*

A data search was performed of peer-reviewed scientific articles, using the Proquest and Eric electronic databases. The following search equation was used: “[(Burnout AND teach\*) AND (secondary school OR high school) NOT (college OR university)]”. The whole process was carried out in March 2017.

This search produced 649 records (see Figure 1), of which 288 duplicates and 75 incomplete texts were discarded, leaving 286. Then, after reading the title and abstract of each article, a further 19 were discarded because they were not written in one of the languages stipulated for inclusion (English, Spanish, French and Portuguese), and another 68 because they were not empirical studies; this left 199 records. After reading the remaining full text documents, 141 records were excluded

because they were not related to the study topic and another 13 because they did not contain enough statistical information. Thus, 45 articles ( $n$ ) were finally included in the review, incorporating 14,410 participants ( $N$ ).

INSERT FIGURE 1 HERE

It should be noted that the unit of analysis of a systematic review is not the article, but the sample. Thus, although 45 empirical articles were selected, some of them offered information from several independent samples, and so the total number of samples ( $k$ ) was 49.

#### *Inclusion and exclusion criteria*

The following inclusion and exclusion criteria were applied to the studies considered: a) documents written in English, Spanish, French or Portuguese; b) documents published after 1986 (the year when the teacher-burnout questionnaires were proposed); c) empirical studies that provided numerical information about the research goal (e.g., percentages, means), so theoretical studies and reviews were excluded; d) only studies based on a sample of secondary school teachers were included; e) measurement instruments that embrace a three-dimensional approach of the burnout syndrome.

#### *Study characteristics and data analysis*

The following characteristics were recorded for each of the empirical studies included: the year the article was published, the journal in which it was published, the country where the research was carried out, the language in which the article was written, the sample size, the research design, the response rate, the type of participant, the measurement instrument used to evaluate burnout and, finally, the minimum, median and maximum percentages of emotional exhaustion, depersonalisation and personal accomplishment, together with the mean values and standard deviations.

Tables 1-6 present the descriptive information obtained from the empirical studies, with the corresponding percentages, mean values and standard deviations. The effect size used in the meta-analytic estimation was the percentage obtained for each of the burnout dimensions.

To avoid problems of statistical dependence, separate meta-analytic estimates were obtained for each dimension, calculating the mean effect size, the 95% confidence intervals, and, for homogeneity around the mean effect size,  $Q$  and the  $I^2$  indexes (Higgins and Thompson 2002; Huedo-Medina, Sánchez-Meca, Marín-Martínez and Botella 2006). Due to the number of samples used, a fixed-effect statistical model was assumed ( $k = 7$ ). These statistical analyses were performed using Comprehensive Meta-Analysis 3.0 software (Borenstein, Hedges, Higgins and

Rothstein 2005).

## **Results**

The aim of this study was to perform a systematic review of levels of burnout among secondary school teachers. To do so, a search was made of electronic databases to locate and select relevant scientific articles.

### *Characteristics of the empirical studies included*

Of the 649 articles found, 45 were finally selected, in accordance with the inclusion criteria described above. Table 1 shows the characteristics of the studies included in the review; these were carried out between 1993 and 2017, and in most cases were questionnaire-based (95.1%).

INSERT TABLE 1 HERE

The studies included were divided into four groups, by sample size. Most had a medium-large sample size. Thus, 62.2% had 101-500 participants, 17.8% had 50-100, and 15.5% had over 500. Only two studies had a sample with fewer than 50 participants. Two burnout measurement instruments were used in the primary studies: the MBI, in its three versions, HSS, ES and GS; and the *Cuestionario de Burnout de Profesorado* (CBP; Moreno-Jiménez, Garrosa, and González 2000a). The MBI, in one form or other, was the most commonly used measurement tool (91%). By versions, the most popular was the MBI-ES (64.4%), followed by MBI-HSS (20%) and MBI-GS (6.7%).

By location most of these primary studies were carried out in Europe (57.9%), followed by those in the United States (13.3%), China (11.1%), Colombia (8.9%) and Australia and Italy (4.4% each). Studies were also conducted in other countries, which are not listed in Table 1 because they did not have more than one study each. These were Belgium, Canada, Cyprus, Finland, France, Germany, Greece, Mexico, Norway, Slovenia and UK, which jointly represent 24.6%.

By language, these studies were written only in Spanish and English, mainly in the latter (82.2%). Finally, by response rate, the studies were divided into three groups: 25-49%, 50-75% and 76-100%. Of those providing this information, 24.4% reported an average or high response rate. However, most studies (62.2%) did not report this information.

Finally by year, the majority of the studies were published before 2007 (55%), and only 2% before 2000. Thus, almost half of them were published within last ten years ( $n = 20$ ). According to the search, there were more published studies in the first years of the century than nowadays (see

Figure 2).

INSERT FIGURE 2

#### *Description of levels of burnout*

The first objective of this review was to analyse levels of burnout among secondary school teachers. To do this, information was compiled on the percentage of teachers presenting burnout, in each of its three dimensions, according to the empirical studies included in the review. Of the 45 articles selected, only six included information on burnout levels, although Díaz, López and Varela (2010) reported data for two independent groups of teachers, one in a state-funded school and the other in a private school. It is noteworthy that these six studies were undertaken in a Spanish-speaking country (three in Colombia, two in Spain and 1 in Mexico). Hence, certain homogeneity regarding culture and instrument measurement issues could be assumed.

INSERT TABLE 2 HERE

As can be seen in Table 2, two empirical studies (Bermejo and Prieto 2005; Gantiva, Jaimes and Villa 2010) indicate worryingly high rates of emotional exhaustion, close to 40%, while other studies reported rates of approximately 20% in this respect (Gracia, Zorrilla, Rangel and Gallegos 2014; Padilla et al. 2009). High levels of depersonalisation are reported to be present in around 20% of teachers, although Martinez recorded 71%. However, Gracia et al. (2014) measured only 9%. Rates of low personal accomplishment exceed 50%, and in some cases reach alarming levels (Díaz, López and Varela 2010a; 2010b). Meta-analytical calculations were applied to the direct percentages of each empirical study, providing average percentages for each dimension – emotional exhaustion, depersonalisation and low personal accomplishment (see Table 3). These results show that a high proportion of secondary school teachers suffer from burnout, especially as regards feelings of low personal accomplishment.

INSERT TABLE 3 HERE

Most of the empirical studies analysed (84.4%) did not provide useful information on the prevalence of burnout. However, many reported descriptive statistics (mean and standard deviation), which were illustrative of moderate burnout levels (see Tables 4, 5 and 6).

Unlike the prevalence data, the descriptive information obtained is grouped according to the measurement instruments used. The reason for this different approach is that, in the first case, the

measurement unit, i.e. the percentage of participants in a given category, is directly comparable among all the studies. By contrast, in the second case, the mean values and standard deviations are obtained from the sums of the direct scores obtained from participants' responses to different questionnaires. These scores are not directly comparable, since both the response alternatives and the range of scores in these questionnaires vary from one to another. Consequently, in order to properly interpret the results obtained from the mean values of the empirical studies, we used the classification proposed by the authors of the MBI (Maslach, Jackson and Leiter 1996).

Most of the studies analysed evaluated burnout syndrome using the MBI-ES, which was specifically designed for teachers. The only study that reported mean values and standard deviations and which is not included in the tables is Saltijeral and Ramos (2015), because in this case the statistical information was obtained using the CBP. The results of this study correspond to intermediate values in the three dimensions of the syndrome: 1.90 (0.47) for emotional exhaustion, 1.58 (0.43) for depersonalisation and 1.83 (0.41) for low personal accomplishment. Table 4 shows the mean values and standard deviations reported by the 28 articles that used the MBI-ES. Some authors conducted various studies, in different years, while others performed different investigations in the same year. Covell, McNeil, and Howe (2009) examined different schools, using one as a control group, while a values-oriented programme was implemented in the other. In a different approach, Millicent and Sewell (1999) addressed two different groups of teachers, one working in a rural area and the other in urban surroundings.

INSERT TABLE 4 HERE

In these studies, over 70% of the participants reported intermediate or high values of emotional exhaustion (e.g., Anderson 1999; Covell 2009b; Embich 2001), and about 60% indicated intermediate or high levels of depersonalisation (e.g., Andersson, Levinson, Barker and Kiewra 1999; Covell 2009a; Lau, Yuen and Chan 2005). However, none reported a high prevalence of problems regarding personal accomplishment, and most values reported in this respect were low (e.g., Chan 2010; Kokkinos 2006; Pomaki and Anagnostopoulou 2003).

The MBI-HSS, the original version of the instrument, which was created to assess the presence of burnout syndrome in the healthcare setting, was used in seven of the studies analysed (see Table 5). Pedrabissi, Rolland and Santinello (1993) studied two groups of teachers in different geographic locations, in Italy and in France.

INSERT TABLE 5 HERE

Most of the primary studies reported intermediate values for emotional exhaustion, although in three cases the mean values were low (Gursel, Sunbul and Sari 2002; McCormick and Barnett 2011; Unterbrink et al. 2007). For depersonalisation, most of the studies reported intermediate values, although again, three measured low mean values (McCormick and Barnett 2011; Pedrabissi, Rolland and Santinello 1993; Unterbrink et al. 2007) and one recorded high values (Gursel, Sunbul and Sari 2002). For personal accomplishment, virtually all of the primary studies reported low mean values, with only Gursel (2002) and Pedrabissi, Rolland and Santinello (1993) finding intermediate values. Finally, only three studies used the MBI-GS, which was designed to evaluate burnout in any occupational context. Table 6 shows the mean values and standard deviations obtained using this instrument. For emotional exhaustion, all three studies reported an intermediate level of burnout. For depersonalisation, all three articles reported low mean values. Two reported low mean values for problems in personal accomplishment, while Vera, Salanova and Lorente (2012) provided no information in this respect.

INSERT TABLE 6 HERE

## **Discussion**

The aim of this systematic review is to shed light on the prevalence of burnout syndrome in secondary school teachers, in three dimensions: emotional exhaustion, depersonalisation and personal accomplishment. Besides, information was collected on the methodological characteristics of the empirical studies examined, namely, the research design, the sample size and the response rate.

Analysis of these characteristics revealed some methodological problems: the vast majority used a questionnaire-based design, had a moderate sample size and reported a response rate of less than 75%. Strikingly, only 36.6% of the studies even reported a response rate. These data, and especially the latter, reflect poor-quality studies. However, this does not mean that their results are invalid, but more prone to bias. Therefore, we recommend that future scientific research in this field should be carefully designed, taking into account the study goals, the practical limitations that may be encountered, the data analysis to be applied and the population to which the results are to be generalised.

There were two other relevant issues regarding characteristics of the empirical studies. First, the Maslach Burnout Inventory is the most used measurement instrument in education. Of the 45 studies included, only four used the Teacher Burnout Questionnaire. The vast majority of

researchers used the MBI, which underscores its predominant influence in the field, as reported also in previous reviews (Aguayo 2013; Moreno-Jiménez 2003, 2007; Schaufeli and Enzman 1998; Schaufeli and Taris 2013).

Second, the results show a decreasing trend to publish teaching burnout studies. Of the 45 studies included only 20 were published within the last ten years. Even though the search conditions were not very restrictive (e.g., two standard electronic databases, broad natural terms, and no year restriction), we only found 361 (that is, 649 primary records minus 288 duplicates) studies that fulfilled the inclusion/exclusion criteria. Besides, the majority were published between 2001 and 2012 and the median year was 2006. Hence, these results appear to contradict common statement of growing interest in burnout, at least in the field of education.

#### *Prevalence of burnout syndrome in secondary school teachers*

The first noteworthy result observed is the (limited) amount of information provided in these papers on the prevalence of burnout syndrome. Of the 45 empirical studies selected, only 15.6% showed data on burnout levels. This is surprising and perhaps explains why the prevalence figures for burnout syndrome have, to date, been so unclear. This result also shows that the main interest of researchers in this field does not lie in the prevalence of burnout, despite the large volume of work published in this area.

In our opinion, it is of fundamental importance, once burnout syndrome has been identified and defined (Maslach and Jackson 1981b) and valid and reliable evaluation instruments developed (Schaufeli, Van Dierendonck and Van Gorp 1996), to employ these tools to obtain an accurate estimate of the prevalence of the syndrome in each of the professional groups that are at risk of developing it. It is therefore recommended that researchers should conduct studies in which the sole aim (or at least one of the main aims) is to estimate the prevalence of the three dimensions of burnout syndrome in secondary school teachers.

The results of our review indicate that a large proportion of secondary school teachers present high levels of burnout. Specifically, 28.1% suffer from severe emotional exhaustion, 37.9% have high levels of depersonalisation and 40.3% have low levels of personal accomplishment. The latter values, which are much higher than those found for other professional groups, are particularly worrying. Thus, among members of local police forces, the prevalence of low personal accomplishment is reported to be 15% (Blasco, Llor, García, Sáez and Sánchez 2002). According to Lozano et al. (2007), in a study of levels of burnout in different professional groups, both police officers and the general population present higher rates of personal accomplishment in their work than teachers. In another study specifically focusing on the police, the prevalence of low personal accomplishment was reported to be 32.2% (De La Fuente et al. 2013). In a study conducted with a

mixed sample of kindergarten, elementary, and middle school teachers (Hinds, Backen, Gau, Forrester, and Biglan 2015), the results differed in some degree, since the prevalence of emotional exhaustion was higher (45%) and of low personal accomplishment was lower (less than 6%). The comparison between our study and Hinds et al.'s results highlights the importance of analysing burnout in specific populations in order to avoid confounding factors. In the present study, the results show particularly high levels of depersonalization and low levels of personal accomplishment. In this line, some variables have shown to correlate positively with the first and negatively with latter, for example, role stress (Díaz et al. 2010), certain types of coping styles like emotional avoidance, waiting or complaining (Gantiva et al. 2010) and difficulties in the teacher-student relationship (Padilla et al. 2009).

### *Limitations and prospects of the study*

The results obtained in our review of primary studies reflect a wide range of variability in the prevalence of burnout syndrome in its three dimensions: EE ( $Q_8 = 251.9; p < .001; I^2 = 96.8$ ), D ( $Q_8 = 176.9; p < .001; I^2 = 95.4$ ), and RP ( $Q_8 = 261.9; p < .001; I^2 = 96.9$ ). For this reason, and in particular because so little information is available in the empirical studies considered, these results cannot be generalised to studies other than those included in this review (Card 2012). To overcome this problem, it is recommended that, in addition to focusing more specifically on determining the prevalence of burnout syndrome, future studies in this field should state this information even when it does not constitute their main objective.

In the present review, we sought to minimise the above-mentioned limitation by making use of complementary information, i.e. the mean values and standard deviations for each dimension of burnout. According to the standards (Maslach and Jackson 1986), analysis of these data showed that secondary school teachers have intermediate levels of emotional exhaustion and depersonalisation and low levels of personal accomplishment.

~~Therefore, on the basis of all the information obtained, The present work shows-conclude~~ that there is evidence that secondary school teachers are at risk of presenting burnout syndrome. Accordingly, further study is needed of the factors that may generate this malaise and of appropriate prevention and intervention strategies. Some of these factors have been studied by Kokkinos, Panayiotou, and Davazoglou (2005), among others, who emphasised the need to improve teacher-student relationships, a factor that can decisively influence the development of depersonalisation, emotional exhaustion and limited personal accomplishment. Similarly, it is recommended that prevention programmes should be implemented to improve relations between teachers and students, and between teachers and the rest of the educational community, in the view that if levels of depersonalisation and exhaustion can be significantly reduced, this will enhance feelings of

personal accomplishment (Rodríguez 2011) and create a more positive working environment. Furthermore, teachers should be provided with new motivational tools, by means such as ongoing teacher training, to facilitate the performance of their tasks and to help create a better classroom climate, which would have positive repercussions on their professional and personal lives.

### Conclusions

Our systematic review and meta-analysis about burnout syndrome in secondary school teachers reveals some methodological problems related to the overuse of a questionnaire-based design, a moderate sample size and low response rate. Other two relevant issues regarding characteristics of the empirical studies are the predominance of use of the Maslach Burnout Inventory over the rest of the questionnaires and a decreasing trend to publish teaching burnout studies.

Regarding the prevalence of burnout syndrome in secondary school teachers, our study indicates that a large proportion of secondary school teachers present high levels of burnout (particularly high depersonalisation and low personal accomplishment). This issue should be taken into account in order to implement pedagogical programmes to reduce/prevent its impact.

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The articles included in the systematic review and meta-analysis are marked with an asterisk.

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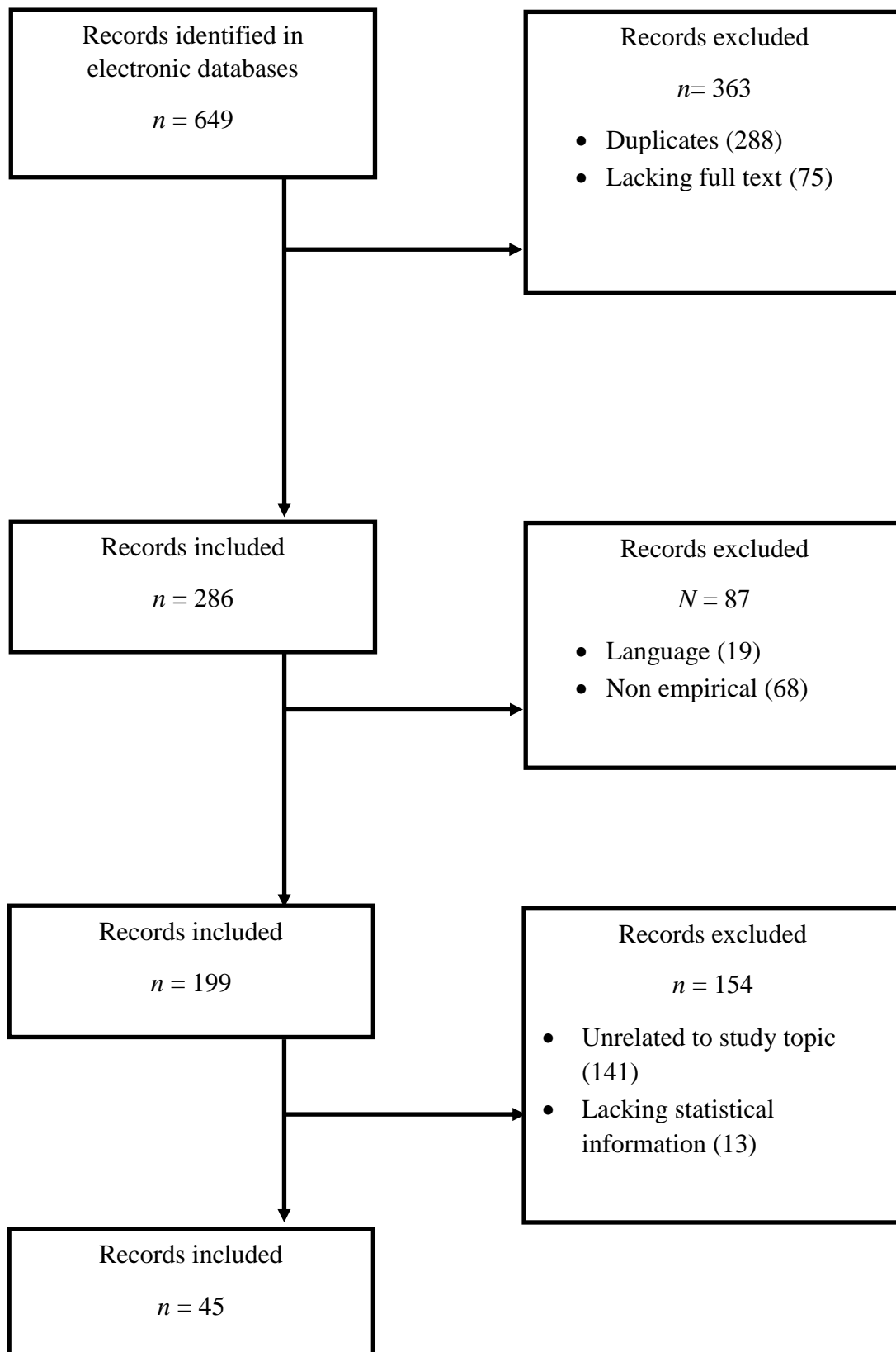


Figure 1. Flow diagram of the empirical studies included in the review.

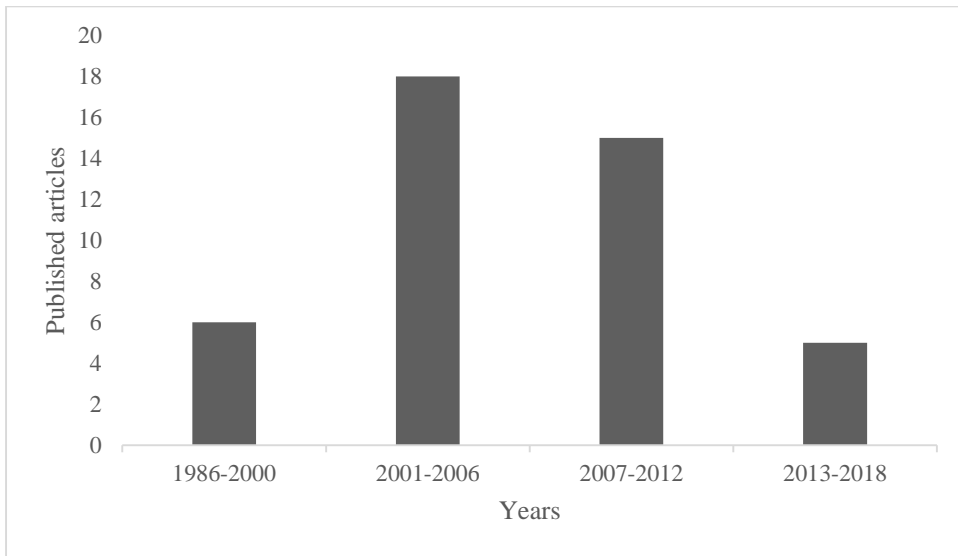


Figure 2. Evolution of teaching burnout publications

Table 1. Characteristics of the studies included ( $n = 45$ )

| Characteristics        |                     | <i>n</i>  | %           |
|------------------------|---------------------|-----------|-------------|
| Design                 | Questionnaire       | 39        | 86.7        |
|                        | Correlational       | 6         | 13.3        |
|                        | <b>Total</b>        | <b>45</b> | <b>100</b>  |
| Sample size            | <50                 | 2         | 4.4         |
|                        | 50-100              | 8         | 17.8        |
|                        | 101-500             | 28        | 62.3        |
|                        | >500                | 7         | 15.5        |
|                        | <b>Total</b>        | <b>45</b> | <b>100</b>  |
| Measurement instrument | MBI-GS              | 3         | 6.7         |
|                        | MBI-ES              | 29        | 64.4        |
|                        | MBI-HSS             | 9         | 20          |
|                        | CBP                 | 4         | 8.9         |
|                        | <b>Total</b>        | <b>45</b> | <b>100</b>  |
| Country                | Australia           | 2         | 4.4         |
|                        | China               | 5         | 11.1        |
|                        | Colombia            | 3         | 6.7         |
|                        | Spain               | 8         | 17.9        |
|                        | USA                 | 7         | 15.6        |
|                        | Italy               | 3         | 6.7         |
|                        | Netherlands         | 6         | 13.3        |
|                        | Belgium             | 1         | 2.2         |
|                        | Germany             | 1         | 2.2         |
|                        | Cyprus              | 1         | 2.2         |
|                        | Slovakia            | 1         | 2.2         |
|                        | Finland             | 1         | 2.2         |
|                        | Mexico              | 1         | 2.2         |
|                        | Norway              | 1         | 2.2         |
|                        | Turkey              | 1         | 2.2         |
|                        | <b>Not reported</b> | <b>3</b>  | <b>6.7</b>  |
|                        | <b>Total</b>        | <b>45</b> | <b>100</b>  |
| Response rate          | 25-49%              | 6         | 13.3        |
|                        | 50-75%              | 6         | 13.3        |
|                        | 76-100%             | 5         | 11.1        |
|                        | <b>Not reported</b> | <b>28</b> | <b>62.3</b> |
|                        | <b>Total</b>        | <b>45</b> | <b>100</b>  |

Table 2. Levels of burnout ( $n = 6, k = 7$ )

| Study          | Emotional exhaustion |              |          | Depersonalisation |              |          | Personal accomplishment |              |          |
|----------------|----------------------|--------------|----------|-------------------|--------------|----------|-------------------------|--------------|----------|
|                | Low (%)              | Moderate (%) | High (%) | Low (%)           | Moderate (%) | High (%) | Low (%)                 | Moderate (%) | High (%) |
| Bermejo, 2005  | 27.9                 | 32.4         | 39.7     | 29.6              | 47.9         | 22.5     | 51.5                    | 32.4         | 16.2     |
| Díaz, 2010a    | 57.0                 | 43.0         | 0.0      | 98.0              | 2.0          | 0.0      | 79.0                    | 21.0         | 0.0      |
| Díaz, 2010b    | 68.0                 | 32.0         | 0.0      | 89.0              | 11.0         | 0.0      | 67.0                    | 33.0         | 0.0      |
| Gantiva, 2010  | 12.0                 | 22.5         | 39.0     | 5.0               | 9.5          | 20.0     | 17.0                    | 31.8         | 40.0     |
| Gracia, 2014   | 50.0                 | 35.0         | 15.0     | 59.0              | 32.0         | 9.0      | 55.0                    | 32.0         | 14.0     |
| Martínez, 2015 | 57.0                 | 10.4         | 32.6     | 8.1               | 20.8         | 71.0     | 33.2                    | 27.7         | 39.1     |
| Padilla, 2009  | -                    | -            | 25.3     | -                 | -            | 29.7     | 25.3                    | -            | -        |

Table 3. Summary of burnout levels by point estimates and by intervals

| Dimension | <i>k</i> | <i>P</i> | <i>Li</i> | <i>Ls</i> | <i>z</i> | <i>p</i> |
|-----------|----------|----------|-----------|-----------|----------|----------|
| High EE   | 7        | 28.1     | 25.1      | 31.4      | -11.73   | < 0.001  |
| High DP   | 7        | 37.9     | 34.2      | 41.8      | -6.68    | < 0.001  |
| Low PA    | 7        | 40.3     | 37.0      | 43.7      | -6.17    | < 0.001  |

*Note.* *k* = Number of independent samples; *P* = Point estimate of sample percentages; *Li* = Lower limit; *Ls* = Upper limit; *z* = Statistic associated with the hypothesis test; *p* = Probability value associated with the *z* statistic; EE = Emotional exhaustion; DP = Depersonalisation; PA = Personal accomplishment

Table 4. Mean values and SDs for burnout, obtained by MBI-ES ( $n = 28, k = 30$ ).

| Study                | Emotional exhaustion | Depersonalisation | Personal accomplishment |
|----------------------|----------------------|-------------------|-------------------------|
|                      | $\bar{x}$ (DT)       | $\bar{x}$ (DT)    | $\bar{x}$ (DT)          |
| Anderson, 1999       | 27.20 (11.50)        | 8.07(6.40)        | 36.60(6.90)             |
| Bernhard, 2016       | 19.02 (12.78)        | 4.97(5.41)        | 39.60(7.40)             |
| Boles, 2000          | 3.08(1.10)           | 2.27(1.07)        | 5.36(0.73)              |
| Brenninkmeijer, 2000 | 0.89(-)              | 0.67(-)           | 0.81(-)                 |
| Brouwers, 2000       | 16.30 (9.43)         | 5.71(4.18)        | 27.01(6.64)             |
| Brown, 2011          | 4.31(1.47)           | 2.59(1.16)        | 2.19(0.88)              |
| Chan, 2006           | 10.81(4.15)          | 5.49(3.78)        | 13.13(3.03)             |
| Chan, 2010           | 18.02(9.17)          | 3.77(3.07)        | 35.6(5.86)              |
| Chan, 2011           | 20.57(10.48)         | 4.84(4.4)         | 35.19(7.53)             |
| Covell, 2009a        | 20.67(-)             | 6.06(-)           | 34.00(-)                |
| Covell, 2009b        | 24.38(-)             | 5.00(-)           | 33.46(-)                |
| Doménech, 2009       | 2.03 (0.62)          | 1.31 (0.44)       | 2.04 (0.43)             |
| Embich, 2001         | 28.03(10.8)          | 6.33(5.48)        | 34.22(5.15)             |
| Evers, 2002          | 18.41(9.38)          | 6.44(4.12)        | 25.98(6.11)             |
| Fernet, 2012         | 3.10(1.34)           | 1.48(0.91)        | 4.88(0.3)               |
| Goddard, 2006        | 24.09(10.57)         | 6.64(5.61)        | 38.71(5.65)             |
| Kittel, 2003         | 20.40(13.3)          | 4.20(4.10)        | 31.30(9.20)             |
| Kokkinos, 2006       | 27.37(10.91)         | 4.42(4.23)        | 38.13(6.94)             |
| Lau, 2005            | 22.41(10.18)         | 6.55(5.46)        | 33.26(8.24)             |
| Loonstra, 2009       | 2.03(1.24)           | 1.08(0.82)        | 4.20(0.83)              |
| Mearns, 2003         | 19.34(10.54)         | 5.00(4.93)        | 9.79(7.53)              |
| Millicent, 1999a     | 47.00(-)             | 33.00(-)          | 16.00(-)                |
| Millicent, 1999b     | 20.00(-)             | 20.00(-)          | 32.00(-)                |
| Otero, 2008          | 25.06(8.64)          | 7.13(4.71)        | 28.72(6.39)             |
| Pisanti, 2003        | 20.00(13.2)          | 2.40(3.80)        | 35.80(8.00)             |
| Pomaki, 2003         | 14.50(0.85)          | 2.90(0.69)        | 37.40(0.78)             |
| Rasku, 2003          | 19.50(10.60)         | 3.60(3.90)        | 32.80(8.00)             |
| Skaalvik, 2017       | 24.3(3.5)            | 17.2(7.1)         | -(-)                    |
| Tang, 1996           | 2.52(1.27)           | 1.29(1.16)        | 2.27(1.09)              |
| Verhoeven, 2003      | 18.23(1.24)          | 5.63(5.43)        | 34.73(7.43)             |

Table 5. Mean values and SDs for burnout, obtained by MBI-HSS ( $n = 7, k = 8$ ).

| Study             | Emotional exhaustion | Depersonalisation | Personal accomplishment |
|-------------------|----------------------|-------------------|-------------------------|
|                   | $\bar{x}$ (DT)       | $\bar{x}$ (DT)    | $\bar{x}$ (DT)          |
| Bakker, 2000      | 17.84 (11.24)        | 5.97 (4.74)       | 27.37 (7.06)            |
| Brouwers, 2001    | 17.88 (8.88)         | 6.94 (4.24)       | 26.09 (6.23)            |
| Daniel, 2000      | 19.60 (10.50)        | 4.90 (4.20)       | 27.90 (8.30)            |
| Gursel, 2002      | 10.56 (5.44)         | 41.06 (2.93)      | 35.08 (15.23)           |
| McCormik, 2011    | 3.62 (1.35)          | 2.09 (1.41)       | 4.71 (1.01)             |
| Pedrabissi, 1993a | 18.54 (-)            | 3.10 (-)          | 33.94 (-)               |
| Pedrabissi, 1993b | 14.98 (-)            | 4.46 (-)          | 30.60 (-)               |
| Unterbrink, 2007  | 2.39 (0.84)          | 1.49 (0.81)       | 3.52 (0.49)             |

Table 6. Mean values and SDs for burnout, obtained by MBI-GS ( $n = 3; k = 3$ ).

| Study          | Emotional exhaustion | Depersonalisation | Personal accomplishment |
|----------------|----------------------|-------------------|-------------------------|
|                | $\bar{x}$ (DT)       | $\bar{x}$ (DT)    | $\bar{x}$ (DT)          |
| Llorens, 2005  | 2.11 (1.06)          | 1.07 (0.82)       | 1.79 (0.77)             |
| Salanova, 2005 | 2.14 (1.07)          | 1.10 (0.83)       | 1.74 (1.18)             |
| Vera, 2012     | 2.11 (1.06)          | 1.07 (0.82)       | -(-)                    |

**UNIVERSIDAD  
DE GRANADA**

FACULTAD DE EDUCACIÓN Y HUMANIDADES DE MELILLA  
DEPARTAMENTO DE DIDÁCTICA Y ORGANIZACIÓN ESCOLAR  
C/ SANTANDER, 1, 52071,  
MELILLA (SPAIN)

Melilla, 9/03/18

Dear editor,

I wish to submit an original research article entitled “Burnout syndrome in secondary school teachers: a systematic review and meta-analysis”, (jointly with María Dolores Marín Becerra and Raimundo Aguayo Estremera) for consideration by *Social Psychology of Education*. We confirm that this work is original and is not under consideration for publication elsewhere.

In this article, we conduct a systematic review and meta-analysis of the scientific literature in the field of burnout syndrome among secondary school teachers in different countries. The paper explores the prevalence of burnout syndrome in its three dimensions (emotional exhaustion, depersonalisation and personal accomplishment) and investigates possible differences in the prevalence determined by different measuring instruments used for this purpose. Results show that secondary school teachers are at high risk of burnout syndrome and that there are statistically significant differences between the different measuring instruments used. This is significant because focusing on these aspects, and evaluating the prevalence of burnout in teachers selecting appropriate instruments, we can develop different pedagogical programs that help us to prevent it in the classroom and, therefore, it would not have further implications for students and the educational community.

We believe that this manuscript is appropriate for publication by *Social Psychology of Education* because it is research-based and it is related to an important topic in Education and describes implications for the practitioners in the schools. We present a multi-disciplinary perspective (Education and Psychology) that seeks to enhance understanding of secondary school teaching. Furthermore the paper analyses results of several countries giving an international perspective of the topic. We believe our manuscript offers new insights to the academic debate about current approaches in Education.

We have no conflicts of interest to disclose. Please address all correspondence concerning this manuscript to me at [marinagc@ugr.es](mailto:marinagc@ugr.es)

If you feel that the manuscript is appropriate for your journal, we suggest the following reviewers:

\*Cristina Vargas Pecino, Universidad de Valencia (Spain), [cristina.vargas@uv.es](mailto:cristina.vargas@uv.es)

\*Pablo Vallejo Medina, Fundación Universitaria Konrad Lorenz (Colombia), [pablo.vallejom@konradlorenz.edu.co](mailto:pablo.vallejom@konradlorenz.edu.co)

Thank you for your consideration of this manuscript.

Sincerely,

Marina García-Carmona

Marina García Carmona  
University of Granada  
Faculty of Education and Humanities

### **Letter for the Editor**

Dear Editor,

Let me first and foremost thank you for giving us the opportunity to resubmit a revised version with minor comments of our manuscript. My co-authors and I greatly appreciate the constructive comments and suggestions from the referees that have contributed to improving our work.

I attach the revised version of the manuscript by using the track changes mode in MS Word, in addition to separate notes to the two referees that provide details on how the comments and suggestions have been addressed. We have tried to incorporate all the amendments suggested, as they were all appropriate.

They have resulted in a reworking of the manuscript that, in our opinion, has enhanced its quality. The most significant changes are related to improving the organization of the article, and clarifying some concepts. The review has also helped us to think critically about our conclusions.

Finally, we want to mention that the new fragments of the paper have been proof-reading by a Native English Science Editor following the changes made.

I hope the new version of the manuscript answers your concerns and those expressed by the referees.

I look forward to hearing from you.

Yours faithfully,

Marina García Carmona

## COMMENTS AND SUGGESTIONS

Thank you for your comments and suggestions, in light of which we have made changes that, in our opinion, have contributed to an improved manuscript. Below, we aim to respond to all your comments and indicate how they have been addressed in the paper.

### RESPONSE TO THE FIRST REVIEWER

#### Comments to the authors (1):

*Running head: Please provide a short running head for the top of the page. Otherwise the printer will make one.*

Thank you for the suggestion. The short running head is: Burnout in secondary school teachers.

#### Comments to the authors (2):

*There should be a subheading on the limitations (and perhaps strengths) of study. It should be the next to last section.*

We agree with the reviewer that this was necessary. We have add a new subheading entitled “Limitations and prospects of the study”. It has been placed before the conclusions.

#### Comments to the authors (3):

*There should be a final section to the paper giving the final conclusion, which should indicate the major contribution of this study to the teacher burnout literature. A short paragraph should be sufficient.*

Following the above comment, a final section entitled “Conclusions” has been added. In this section we resume the main conclusions of our study.

#### Comments to the authors (4):

*Table 1: The percentages for each category should add up to 100%. This should be indicated in the table for each of the five characteristics. For any of the characteristics with missing data, or “other”, this should be indicated. For example, for characteristic five “response rate” there should be a row labeled “Missing” or “Not reported”, which should account for the remaining 100% of the total. The addition of a 100% total row for each characteristic might seem cumbersome, but it would add clarity to the table.*

The table has been amended and we now think it is clearer. We have added one or two rows

for each of the five characteristics (“not reported” and “total”).

## RESPONSE TO THE SECOND REVIEWER

### *Comments to the author (1):*

*At page 3 the authors claim that 68 studies were excluded from the analysis because they were not empirical studies, and on page 4 that other 13 studies were discarded because they did not contain enough statistical information. I ask the author(s) to provide an epistemological foundation to justify the exclusion of these researches. Why is a non-empirical work excluded?*

Thank you very much for your suggestions. Our research problem was to estimate the average prevalence of burnout syndrome in secondary school teachers, so we decided to select a meta-analytic strategy to cope with this research question. To accomplish our goal we needed research articles that show numerical information (e.g., percentages) about burnout prevalence. By definition, this kind of information is only provided in quantitative empirical research. For this reason, other kind of research designs (e.g., qualitative interviews, focus group or quantitative studies without statistical information), even though they are valuable, were excluded.

We follow the procedure as suggested by the most recent research practice standards (see the following articles cited in the manuscript: Ato, López and Benavente (2013), Perestelo-Pérez (2013), Botella and Gambará (2006) and Sánchez-Meca, Marín-Martínez and López-López (2011)), which are based in the PRISMA Statement (Liberati et al., 2009; Moher et al., 2015). Thus, our results and conclusions are restricted to the strengths and weaknesses of the selected design, in this case, meta-analysis.

However, in pursuit of precision, we introduced a clarifying statement in the inclusion and exclusion criteria section.

### *Comments to the author (2):*

*On page 5 the author claims that “almost half of them were published within the last ten years (n = 20). According to the search, there were more published studies in the first years of the century than nowadays”, but no explanation for that has been provided to the reader.*

We thank the referee to take into account this issue. According to history of burnout research, it seems that focus of attention have varied arbitrarily over time. In 1974, H. Freudenberger first coined the term burnout to refer a state of lack of energy and motivation that he observed

in a sample of volunteers working in a health clinic. Few years later, C. Maslach used the same term to describe a similar state in a sample of health workers. This early works determined the nature of initial burnout research in regards to population and methods (Maslach, Schaufeli and Leiter 2001). In 1981, Maslach and Jackson published the first version of the MBI, whose goal was to assess burnout in health professionals. Therefore, many studies in this population were published. When a new version of the MBI aiming to assess burnout in teachers came out in 1986, many researchers started to study burnout in this population. Later, Maslach and colleagues stated that not only helping workers but also any kind of worker could suffer the burnout syndrome, so they developed the general version of the MBI in 1996. Hence, empirical studies of burnout in several professions (from computer engineers or priests to housewives) were published at that time. The last focus of attention, as far as we know, happened in the beginning of the 21st century when the term “academic burnout” was popularized, referring to the burnout syndrome in school and college students. In 2002, Schaufeli and colleagues published a specific population version of the MBI and there is a growing literature going on this topic nowadays.

As shown above, the publication frequency distribution may be partially determined by the developments of burnout theory and measurement instruments. For the purposes of our research, we did not state any hypothesis regarding the frequency distribution of burnout publications in secondary teachers, since it was not our goal. We think that this result can be interpreted merely in a descriptive way and only point out that, as it shows the manuscript, it is a surprising trend. We take into account this suggestion for future studies where we will investigate reasons and variables that might influence this trend.

*Comments to the author (3):*

*On page 6 no explanation has been offered for the following kind of result: “These results show that a high proportion of secondary school teachers suffer from burnout, especially as regards feelings of low personal accomplishment.”*

We are particularly grateful for this comment which has helped us to clarify our objective. Following this suggestion, we have worked through the manuscript to understand this result. We have reviewed the literature in search of causal variables of high depersonalization and low personal accomplishment. We have only found variables that correlate with them (e.g. role stress, coping styles, difficulties in the teacher-student relationship), but we did not find any causal variable. Our conclusions in the present study are descriptive, since we did not aim

to test any hypothesis and, therefore, we did not plan the study design to draw explanatory conclusions. We think that stating a strong explanation of our results could mislead the reader's interpretation and researcher's future work. However, we introduced a statement about some variables that correlates with high depersonalization and low personal accomplishment in the discussion section.

Finally we have also changed figure 2 as we have found a mistake (year 2006 instead of 20006).

Thank you very much again for the useful suggestions and the good comments.