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REVIEW

Associations between job burnout and self-efficacy: a meta-analysis

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ABSTRACT

Background and Objectives: This study aimed at systematically reviewing and meta-analyzing the strength of associations between self-efficacy and job burnout (the global index and its components). We investigated whether these associations would be moderated by: (a) the type of measurement of burnout and self-efficacy, (b) the type of occupation, (c) the number of years of work experience and age, and (d) culture. **Design and Methods:** We systematically reviewed and analyzed 57 original studies ($N = 22,773$) conducted among teachers ($k = 29$), health-care providers ($k = 17$), and other professionals ($k = 11$). **Results:** The average effect size estimate for the association between self-efficacy and burnout was of medium size ($-.33$). Regarding the three burnout components, the largest estimate of the average effect ($-.49$) was found for the lack of accomplishment. The estimates of the average effect were similar, regardless of the type of measures of burnout and self-efficacy measurement (general vs. context-specific). Significantly larger estimates of the average effects were found among teachers (compared to health-care providers), older workers, and those with longer work experience. **Conclusions:** Significant self-efficacy–burnout relationships were observed across countries, although the strength of associations varied across burnout components, participants' profession, and their age.

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Burnout develops as a result of chronic stress in the work environment, when job requirements and workers' perceived abilities do not match (Brown, 2012; Maslach, Schaufeli, & Leiter, 2001). Burnout is found to be common in a number of human services occupations and it is often used as the indicator of poor well-being or a close correlate of employees' mental and physical health (Maslach et al., 2001). Recent meta-analyses showed that burnout was associated with work-related factors such as work hours or work setting (Lim, Kim, Kim, Yang, & Lee, 2010), and social support from co-workers (Kay-Eccles, 2012). Beyond the environmental contributors to burnout, individual and self-regulatory factors that serve as relevant resources in facilitating coping are also important to consider. These self-regulatory variables include locus of control, optimism, and self-efficacy (cf. Alarcon, Eschelman, & Bowling, 2009). Whereas burnout represents a crucial and one of the most frequently studied outcomes of job stress (Maslach et al., 2001), self-efficacy beliefs represent key modifiable cognitions that may protect workers from negative outcomes of job stress (Brown, 2012). This study provides a synthesis of evidence for the relationships between burnout and self-efficacy perceptions.

Conceptualization and components of burnout

Burnout is most typically conceptualized as a three-component construct including exhaustion, depersonalization, and decreased personal accomplishment (Maslach et al., 2001). Since the three-component concept of burnout emerged, there has been an ongoing discussion on its content and validity (Demerouti, Bakker, Vardakou, & Kantas, 2003; Maslach et al., 2001; Schaufeli, Leiter, & Maslach, 2009). Although the labels of those three components have changed, their meaning remained the same: (1) exhaustion, representing a sense of weariness caused by a job; (2) depersonalization (or cynicism), referring to a detached attitude toward the job or clients; and (3) reduced personal or professional accomplishments, expressed in negative emotions and cognitions about own achievements and capacities to succeed at work or in life in general (Schaufeli et al., 2009). These three components are measured by the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996).

In contrast to the three-component approach by Maslach et al. (2001), others have argued that job burnout might best be reduced to a single common experience, namely exhaustion (cf. Malach-Pines, 2005). In contrast, the compassion fatigue framework defines burnout as a unidimensional construct encompassing a lack of well-being, negative attitudes toward work, or a lack of self-acceptance (Stamm, 2010).

The approach proposed by Maslach et al. (2001) assumes that all three burnout components are of equal importance. Furthermore, this approach assumes no major differences in origins of the three components, or the specificity of the interactions between the three components and other variables. However, recent systematic reviews and meta-analyses propose that some of the burnout components may form different associations with contributing factors of burnout. Significant associations were found more often when the exhaustion–self-efficacy relationship was analyzed than for personal accomplishments and self-efficacy (Brown, 2012). A review of studies conducted among professional athletes suggested that the associations between self-determination theory variables (autonomy, competence, and relatedness) and the three components of burnout were substantially different, with exhaustion forming weaker associations ($-.22$ to $-.26$) compared to the associations found for personal accomplishments ($-.38$ to $-.64$) (Li, Wang, Pyun, & Kee, 2013). In contrast, meta-analyses conducted among employees of different occupations did not show differences in the relationships between the three burnout components and personality characteristics (including core self-evaluations, the five-factor model characteristics, and affectivity variables; Alarcon et al., 2009). In sum, the differences in associations between job burnout and self-regulatory variables require further examination. The differences may result from conceptualization and operationalization of burnout, but also from the characteristics of the studied populations (e.g. the type of occupation).

Self-efficacy and its associations with burnout

Besides demonstrating a wide range of negative consequences of work-related stress, researchers and professionals have begun to advocate for analyzing the role of protective factors (Kay-Eccles, 2012; Voss Horrell, Holohan, Didion, & Vance, 2011). These protective factors may refer to the characteristics of the work environment (e.g. organizational structure, safety standards) or individual variables (e.g. self-efficacy, age, optimism) which have established associations with burnout (Alarcon et al., 2009; Lee, Seo, Hladkyj, Lowell, & Schwartzmann, 2013). Environmental characteristics or individual difference variables (such as organizational structures or age) are difficult to change (cf. Voss Horrell et al., 2011). In contrast, cognitions such as self-efficacy are modifiable protective factors.

According to social cognitive theory self-efficacy refers to individuals' beliefs in their capability to exercise control over challenging demands (Bandura, 1997). In the context of occupational stress, self-efficacy represents the confidence that one can employ the skills necessary to deal with job-specific tasks and cope with job-specific challenges, job-related stress, and its consequences.

Self-efficacy is usually defined and measured as a domain-specific construct but it may be conceptualized and measured in a more general (or global) way, as the belief in one's competence to cope with a broader range of stressful or challenging demands (Luszczynska, Scholz, & Schwarzer, 2005). A general approach to self-efficacy provides an opportunity to assess self-efficacy in a parsimonious way, when researchers investigate general stress adaptation (Luszczynska et al., 2005).

Social cognitive theory assumes that self-efficacy determines various stress-related outcomes (Bandura, 1997) and burnout is an example of such an outcome. Employees with low self-efficacy are likely to harbor pessimistic thoughts about their future accomplishments and personal development (Luszczynska & Schwarzer, 2005). Those assumptions form the theoretical background for the association between self-efficacy and burnout. Self-efficacy and stress outcome indicators, such as personal accomplishment, are conceptually distinct (cf. Luszczynska & Schwarzer, 2005). The construct of personal accomplishment (and its measure) is of retrospective character and it represents the outcomes of actions (e.g. "accomplished many worthwhile things" or "feel exhilarated after work"), whereas self-efficacy beliefs are of prospective and operative character (i.e. refer to potential abilities of an individual and their future actions).

Research conducted in the context of stress shows that self-efficacy may operate as a resource preventing negative consequences of strain (cf. Blecharz et al., 2014). Self-efficacy prompts recovery from job stress (Hahn, Binnewies, Sonnentag, & Mojza, 2011), and efficacy beliefs were found to facilitate employees' adaptation to changes in the organization (Jimmieson, Terry, & Callan, 2004). Experimental studies demonstrated that a self-efficacy-enhancing intervention reduced employees' strain (Unsworth & Mason, 2012).

Two systematic reviews, which employed meta-analysis to analyze the relationship between self-efficacy and burnout components, yielded different results. Alarcon et al. (2009) identified 12 studies and found that the strongest associations were observed for self-efficacy and personal accomplishments among workers of various professions. In contrast, Brown (2012) showed that among teachers the associations between burnout and personal accomplishments emerged less frequently than the associations between self-efficacy and the two other burnout components. The two reviews did not test for the potential moderators (such as the occupation type) of these associations or for the differences in the associations between self-efficacy and burnout components. The differences between these two meta-analyses, in terms of analyzed population, operationalization, and the measurement of self-efficacy and burnout, could affect the obtained results. Brown (2012) focused on teachers and accounted for both general and specific self-efficacy, whereas Alarcon et al. (2009) did not account for the type of profession and included only studies that tested the role of general self-efficacy. Furthermore, the limitation of the two reviews refers to the conceptualization of burnout: both studies excluded data obtained with measures other than MBI; therefore it is hard to evaluate if the operationalization of burnout may affect its relationship with personal resource variables. The purpose of this review is to evaluate this literature by taking into account these previous limitations.

The moderators of burnout–self-efficacy associations

Social cognitive theory assumes that self-efficacy tied to specific aspects of stressful encounters, barriers, and outcomes will demonstrate stronger associations with stress outcomes than self-efficacy that is conceptualized and measured in a general way (Bandura, 1997). Therefore, the overarching synthesis of relationships between self-efficacy and burnout should account for the operationalization of both burnout and self-efficacy. Meta-analyses accounting for burnout showed that there are significant differences in the relationships between burnout and stress-related variables: these differences depend on the operationalization/assessment of burnout (Cieslak et al., 2014).

Social cognitive theory assumes that the associations between self-efficacy and stress outcomes (e.g. burnout) should be similar across populations, regardless of age, gender, or culture (Bandura, 1997), but depend on individual past experiences. For example, the relationship between self-efficacy and stress outcomes would be moderated by whether an individual has had many opportunities to

exercise mastery over stressful workplace challenges. It is possible that age and years of work experience represent proxy indicators of such opportunities to exercise mastery. Therefore, characteristics of employees, such as their age or the number of years of work experience, are potential moderators.

Several systematic reviews and meta-analytical studies investigating determinants of burnout highlighted the role of other individual characteristics or contextual factors, such as type of occupation or culture/countries of data collection. For example, the type of profession and country/culture significantly moderated the associations between burnout and work-related or individual risk factors (Lee et al., 2013) and the associations between burnout and other mental health outcomes (for systematic review, see Cieslak et al., 2014). Meta-analyses conducted for data obtained among teachers yielded stronger burnout–personal accomplishment associations (Brown, 2012) than analyses conducted among workers with other occupations (Alarcon et al., 2009). Therefore, the effect of the type of occupation on the burnout–self-efficacy association needs to be clarified.

The concepts of burnout and self-efficacy were developed in the USA, and a large proportion of studies investigating the associations between these constructs were conducted in North America. However, it is often indicated that research should provide more in-depth analysis on cross-national differences of the effects of job stress (such as burnout) and its determinants: the assumption that Western concepts and theories transcend cultural and national boundaries may be not valid (cf. Perrewé et al., 2002). Furthermore, critical determinants of negative outcomes of job stress (such as burnout) include existing work-related policies, social resources at work, and organizational characteristics (Voss Horrell et al., 2011). These critical determinants are likely to vary across countries and occupations.

In sum, the operationalizations of the self-efficacy and burnout constructs as well as individual variables (the number of years of work experience, age, culture/the country of origin, and occupation) may affect self-efficacy–burnout associations. The present study extends the existing literature by evaluating the burnout–self-efficacy relationship in the context of socio-demographic and operationalization-related moderators.

Aims of the study

Although evidence for the relationships between job burnout and workers' self-efficacy is accumulating, there is no overarching synthesis of these relationships, accounting for different professions and different operationalizations of the two related constructs. Whereas burnout is one of the key outcomes in occupational stress research, self-efficacy represents a crucial personal resource. Therefore, this study aimed at systematically reviewing and meta-analyzing the strength of associations between self-efficacy and job burnout (the global index and its components). We investigated if these associations would be moderated by: (a) the type of measurement of job burnout and self-efficacy, (b) the type of occupation, (c) the number of years of work experience and age, and (d) employees' culture or country.

Method

Literature search

We conducted a database search of independent studies examining self-efficacy and job burnout that were available before 2013 using Search Complete, Agricola, Business Source Complete, ERIC, Medline, PsychARTICLES, PsychINFO, Science Direct, SocINDEX, and Web of Knowledge. Combinations of the keywords that were used in this search were terms related to self-efficacy ("self-efficac*") and job burnout ("burnout", "burn out", and "burn-out"). Authors of original studies were asked to provide statistical information when the articles did not provide necessary information (e.g. Pearson's coefficient, Cronbach's α) to be included in this study. In addition, manual reviews of

article references were conducted. We used the Cochrane systematic review methods (Higgins & Green, 2008).

Inclusion criteria, exclusion criteria, and data extraction

The inclusion criteria were: (a) self-efficacy and job burnout were measured; (b) the relationship between self-efficacy and burnout was assessed, or authors provided appropriate statistics upon request; (c) articles reported statistics that could be converted into Pearson's coefficient (e.g. *t*-test, *F*-test, χ^2 , Cohen's *d*); and (d) participants of original studies were employees (research conducted among students were not included). We included only studies reported in English, although the measurement used in studies could be in non-English languages. Studies applying qualitative methods, reviews, research on non-workers (e.g. student samples), dissertations, and book chapters were excluded.

When two or more studies used the same sample, only one study with the larger sample size was included (Schwarzer & Hallum, 2008). Therefore, to avoid dependence of effect sizes, one study was excluded because it shared the same sample as another study. When multiple studies using different samples were reported in a paper, each study was included as an independent study.

If the individual studies are of low quality and the synthesis is conducted without any consideration of quality then the results of the review and meta-analysis may be biased (Glasziou, Irwig, Bain, & Colditz, 2001). The low scoring obtained in quality tools is often used as the exclusion criterion in systematic reviews (Glasziou et al., 2001). Therefore, we applied the quality criteria based on a quality measure proposed by Kmet, Lee, and Cook (2004). Five quality criteria were used (Kmet et al., 2004): (a) measurement reliability (whether internal reliability of measurements was reported or the applied measures of burnout and self-efficacy had good reliability established in earlier research on psychometric properties of respective scales); (b) potential confounders were considered and addressed in the study; (c) a clear description of participants' selection procedures was provided; (d) basic demographics of a sample (age and gender) were reported; and (e) the objectives of a study were sufficiently described. Only studies representing at least moderate quality (i.e. meeting at least 60% of the criteria; Kmet et al., 2004) were included. As a result, four studies were excluded.

Figure 1 displays the selection process. The initial search resulted in 214 studies. A total of 60 studies meeting all inclusion and quality criteria were identified. In the next step, we excluded studies yielding extreme effect sizes, which are likely to produce a radical increase in a standard deviation that results in an inaccurate estimate of a cumulative effect size (Hunter & Schmidt, 2004). Removing extreme effect sizes can increase the accuracy of the estimate. To tackle this issue we used a procedure based on *z*-scores. Three studies were excluded because they were identified as outliers based on the criteria with *z*-scores greater than 10 or less than -10 (Pietrantonio & Prati, 2008; Schwarzer & Hallum, 2008 (German sample only); Schwerdtfeger, Konermann, & Schönhofen, 2008), which indicated that the effect sizes reported in these studies were ± 10 standard deviations from the estimate of the average effect. As a result, we included 57 original studies in further analyses (see Table 1).

Two researchers (ES and AR) extracted descriptive data for each study including the sample size, socio-demographic characteristics, and the study design. Next, they retrieved data constituting moderators: the type of self-efficacy and burnout measures, countries where studies were conducted, languages used where the studies were conducted, occupation of the sample, mean age of the sample, and the number of years of work experience. Statistical information, including Cronbach's α and measures of association, was also extracted.

Coding

Data constituting moderators were coded independently by three researchers (ES, AR, and RC or KS). Overall, the concordance of the coding for moderator variables was high. All values of the kappa

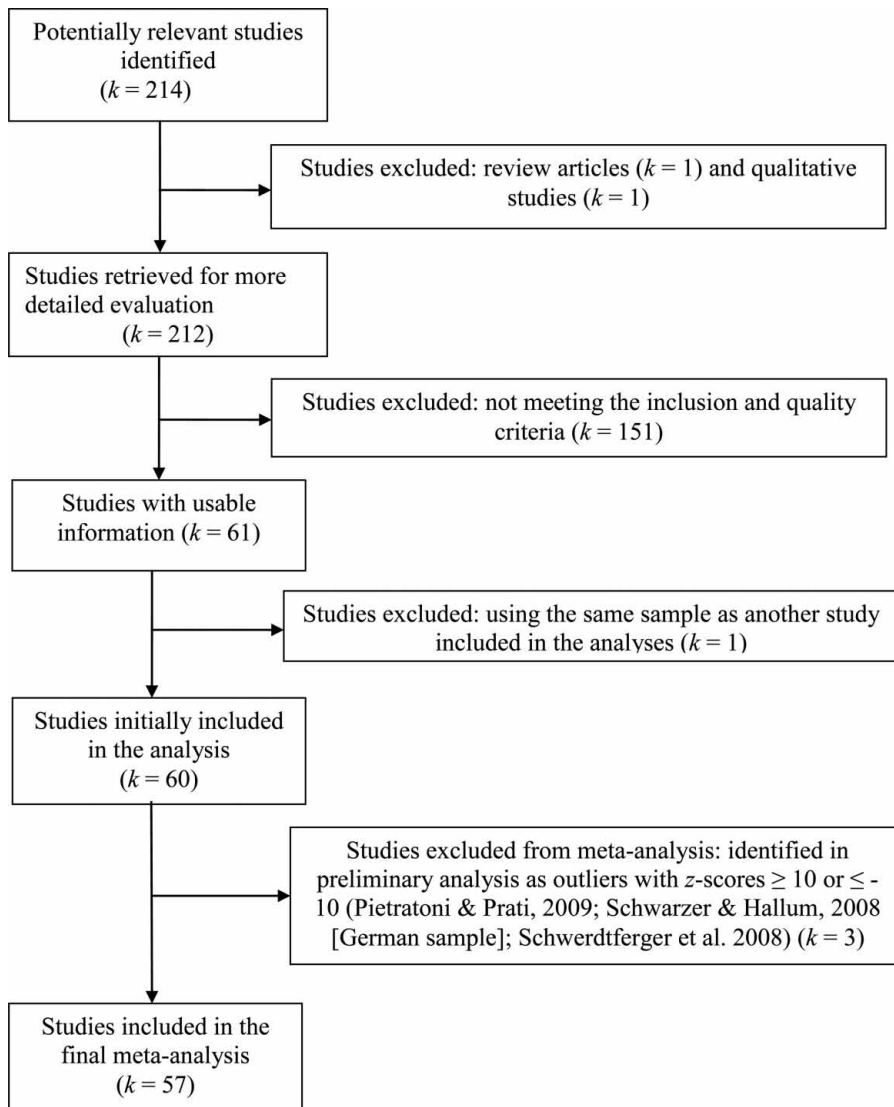


Figure 1. Selection of studies for the meta-analysis.

coefficient were above .89 ($p < .01$). Disagreements related to data selection and abstraction were resolved by a consensus method (searching for possible rating errors, followed by a discussion, and arbitration by a third researcher; Higgins & Green, 2008).

The studies were divided based on measurements used for job burnout: (a) MBI-related measurements such as MBI-General Survey (Schutte, Toppinen, Kalimo & Schaufeli, 2000), MBI-Educators Survey (Maslach et al., 1996), and MBI-Human Service Survey (Maslach & Jackson, 1981) or (b) non-MBI-related measurements such as the Utrechtse Burnout Schaal (Schaufeli & van Dierendonck, 2000), the Professional Quality of Life Scale (Stamm, 2005), Burnout Scale (Blase, 1982), and the Bergen Burnout Indicator (Matthiesen & Dyregrov, 1992).

Original studies were divided based on measurements for self-efficacy: (a) general self-efficacy measurements (Chen, Gully, & Eden, 2001; Chesney, Chambers, Taylor, Johnson, & Folkman, 2003; Jerusalem & Schwarzer, 1992; Schwarzer, 1993; Sherer et al., 1982; Zunz, 1998) or (b) context-specific self-efficacy measurements (e.g. Self-Efficacy Scale for Classroom Management and Discipline, Emmer &

Table 1. Summary of the studies included in the meta-analysis.

Study	<i>N</i> (% females)	Mean age (SD)	Mean work experience (SD)	Occupation (occupation group)	Country (language)	Study design	JB measure (<i>a</i>)	SE measure (<i>a</i>)	<i>r</i>
Baker, O'Brien, and Salahuddin (2007)	123 (100)	36.97 (9.48)	5.92 (4.70)	Shelter workers (OG 2)	USA (English)	CS	MBI (EE = .87, DP = .52, PA = .68)	^a GSES (.87), ^a SES (.76)	-.348
Berryhill, Linney, and Fromewick (2009)	100 (19)	39.3	13.1	Health-care workers (OG 2)	USA (English)	CS	MBI (EE = .90, DP = .70, PA = .79)	^b Short TES (.77)	-.408
Betoret (2006)	247 (47)	–	–	Teachers (OG 1)	Spain (Spanish)	CS	Scale by authors (range: .71–.78)	^b Scale by authors (.80)	-.360
Betoret (2009)	725 (63)	–	–	Teachers (OG 1)	Spain (Spanish)	CS	MBI (EE = .86, DP = .76, PA = .83)	^b TPTS (.84), ^b TPSE (.87)	-.465
Boyd, Lewin, and Sager (2009)	495 (27)	–	–	Sales workers (OG 3)	USA (English)	CS	MBI (EE = .80)	^b Chowdhury (1993) (.73)	-.410
Bragard, Etienne, Merckaert, Libert, and Razavi (2010)	96 (64)	28.2 (2.6)	3 (2.05)	Medical residents (OG 2)	Belgium (French)	L	MBI (EE = .94, DP = .81, PA = .77) ^c	^b Parle, Maguire and Heaven (1997) (subscales: .85, .79)	-.154 ^c
Briones, Tabernero, and Arenas (2010)	68 (60)	43.56 (10.93)	17.15 (11.97)	Teachers (OG 1)	Spain (Spanish)	CS	MBI (EE = .85, PA = .71)	^b TISES (.90)	-.364
Brouwers and Tomic (2000)	243 (74)	46.29	21.25 (8.92)	Teachers (OG 1)	The Netherlands (Dutch)	L	MBI (T1: EE = .91, DP = .72, PA = .86; T2: EE = .92, DP = .71, PA = .86)	^b SES for CMD (T1: .89, T2: .90)	-.598
Brouwers, Evers, and Tomic (2001)	277 (25)	45.87 (8.82)	21.28 (9.74)	Teachers (OG 1)	The Netherlands (Dutch)	CS	MBI (EE = .90, DP = .71, PA = .85)	^b TISES (subscales: .94, .92)	-.396
Brouwers, Tomic, and Boluijt (2011)	311 (30)	41.19 (11.05)	18.85 (11.29)	Teachers (OG 1)	The Netherlands (Dutch)	CS	MBI (EE = .91, DP = .74, PA = .83)	^b Scale by authors (.79)	-.352
Brudnik (2009)	402 (77)	38.4	13.6	Teachers (OG 1)	Poland (Polish)	CS	MBI (EE = .87, DP = .77, PA = .75) ^d	^a GSES (.86) ^d	-.347
Burke, Matthiesen, and Pallesen (2006)	496 (92)	–	–	Nursing home workers (OG 2)	Norway (Norwegian)	CS	BBi (.90)	^a GSES (.85)	-.171
Chan (2007)	267 (63)	27.5	4.67 (3.84)	Teachers (OG 1)	HK (English)	CS	MBI (EE = .87, DP = .67, PA = .79)	^b SETH (.75)	-.322
Chan (2008)	159 (62)	27.06	6.98 (7.02)	Teachers (OG 1)	HK (English)	CS	MBI (EE = .88, DP = .65, PA = .78)	^b TSES-24 (subscales range: .79–.92), ^a GSES (.83)	-.379
Cicognani, Pietrantonio, Palestini, and Prati (2009)	764 (28)	34	9.38 (7.36)	Emergency room workers (OG 2)	Italy (Italian)	CS	ProQOL R-IV (.86)	^b PPE (.77)	-.205

(Continued)

Table 1. Continued.

Study	N (% females)	Mean age (SD)	Mean work experience (SD)	Occupation (occupation group)	Country (language)	Study design	JB measure (α)	SE measure (α)	r
Davidson et al. (2010)	258 (33)	56	17	University workers (OG 3)	Israel, NZ, USA	Quasi EX	MBI (EE = .86)	^a Scale by authors (.87)	-.243
Devos, Bouckenooghe, Engels, Hotton, and Aelterman (2007)	46 (39)	-	-	Primary school principals (OG 1)	Belgium (Dutch)	CS	MBI (.94)	^a GSE (.85)	-.553
Duffy, Oyebode, and Allen (2009)	61 (74)	42.6 (14)	11.8 (9.1)	Care home workers for elderly with dementia (OG 2)	UK (English)	CS	MBI (EE = .90, DP = .79, PA = .71)	^b IGNSE (.96)	-.498
Egyed and Short (2006)	106 (89)	43 (10.83)	13.77 (9.45)	Teachers (OG 1)	USA (English)	CS	MBI (ranges: .72-.89)	^b TES (subscales: .78, .75)	-.061
Eisele and D'Amato (2011)	599 (85)	46.6 (10.5)	-	Health-care workers (OG 2)	Sweden (Swedish)	CS	MBI (EE = .79, DP = .60, PA = .71)	^a GSE (.86)	-.332
Emold, Schneider, Meller, and Yagil (2011)	39 (92)	40.9	15.8 (10.75)	Oncology nurses (OG 2)	Israel (Hebrew)	CS	MBI (EE = .86, DP = .80, SA = .56)	^b Scale by authors (.87)	-.357 ^c
Evers, Brouwers, and Tomic (2002)	490 (23)	47.23	22.14 (8.86)	Teachers at the study-home system (OG 1)	The Netherlands (Dutch)	CS	MBI (EE = .90, DP = .68, PA = .83)	^b Scale by authors (subscales: .68, .85, .80)	-.515
Evers, Tomic, and Brouwers (2005)	271 (35)	45.57 (8.39)	18.99 (9.25)	Teachers (OG 1)	The Netherlands (Dutch)	CS	MBI (EE = .87, DP = .70, PA = .80)	^a GSES (.79)	-.433
Friedman (2003)	322 (94)	37.62 (0.50)	12.9 (0.51)	Teachers (OG 1)	Israel (Hebrew)	CS	MBI (EE = .90, DP = .79, PA = .82)	^b Scale by authors (subscales: .62, .74, .79, .82)	-.277
Gibson, Grey, and Hastings (2009)	81 (94)	25.5	1.33 (1.2)	Therapists (OG 2)	Ireland (English)	CS	MBI (EE = .85, DP = .65, PA = .80)	^b PTSE (.89)	-.346
Grau, Salanova, and Peiró (2001)	140 (46)	33 (8.05)	-	New technology workers (OG 3)	Spain (Spanish)	CS	MBI (EE = .82, DP = .86)	^a GSES (.81), ^a MBI PE scale (.70)	-.122
Greenglass and Burke (2000)	1363 (95)	42	13.31 (7.68)	Nurses (OG 2)	Canada (English)	CS	GBQ (EE = .90, DP = .82, PE = .73)	^a GSES (.87)	-.238
Howard, Rose, and Levenson (2009)	82 (57)	40 (11.45)	-	Various workers dealing with people with intellectual disabilities (OG 2)	UK (English)	CS	MBI (EE = .82, DP = .60, PA = .80)	^b DBSES (.94)	-.264
Laugaa, Rasclé, and Bruchon-Schweitzer (2008)	410 (74)	42.01 (8.5)	18.53 (10.63)	Teachers (OG 1)	France (French)	L	MBI (EE = .85, DP = .67, PA = .78)	^a GSES (.75)	-.344
Lee and Akhtar (2007)	2267 (89)	-	-	Nurses (OG 2)	HK (Chinese)	CS	MBI (EE = .90, DP = .82, PA = .78)	^a GSES (.87)	-.205
Lu (2007)	135 (78)	32.28	-	Nurses (OG 2)	Philippines (English)	CS	MBI (.76)	^a GSES (.93)	-.228

Nota, Ferrari, and Soresi (2007)	146 (58)	34.75 (7.31)	11.9 (9.1)	Social and health-care professionals (OG 2)	Italy (Italian)	CS	MBI (EE = .90, DP = .79, PA = .71)	^b Scale by authors (subscales range: .84–.90)	–.184
Ozdemir (2007)	523 (66)	38.15 (6.95)	13.77 (7.60)	Teachers (OG 1)	Turkey (Turkish)	CS	MBI (EE = .83, DP = .71, PA = .72)	^b SES for CMD (.90)	–.513
Pas, Bradshaw, Hershfeldt, and Leaf (2010)	641 (96)	–	8.45 (8.62)	Teachers (OG 1)	USA (English)	L	MBI (EE = .90)	^b TES (.84)	–.207
Petitta and Vecchione (2011)	142 (26)	–	–	Workers at a nuclear physics institute (OG 3)	Italy (Italian)	CS	MBI (EE = .87, DP = .82, PE = .76)	^b Scale by authors (.81)	–.553
Pisanti, Lombardo, Lucidi, Lazzari, and Bertini (2008)	1383 (77)	39.1	–	Nurses (OG 2)	Italy (Italian)	CS	MBI (EE = .88, DP = .72, PA = .82)	^b OCSE-N (subscales: .77, .79)	–.292
Prati, Pietrantonio, and Cicognani (2010)	451 (31)	33.66 (10.05)	9.04 (7.27)	Rescue units' workers (OG 2)	Italy (Italian)	CS	ProQOL R-IV (.79)	^b PPE (.79)	–.367
Pugh, Groth and Hennig-Thurau (2011)	528 (45)	36.5 (10.55)	5.6 (6.4)	Customer service workers (OG 3)	UK (English)	CS	Scale by authors (.88)	^b Scale by authors (.90)	.045
Ransford, Greenberg, Domitrovich, Small, and Jacobson (2009)	133 (92)	40.73 (12.04)	15 (11.43)	Teachers (OG 1)	USA (English)	CS	MBI (.86)	^b TES (.64)	–.458
Salanova, Grau, Cifre, and Llorens (2000)	140 (46)	–	–	Computer technology specialists (OG 3)	Spain (Spanish)	CS	MBI (EE = .89, DP = .87)	^b Scale by authors (.79)	–.180
Salanova, Peiró, and Schaufeli (2002)	405 (51)	32 (8.07)	–	Computer technology specialists (OG 3)	Spain (Spanish)	CS	MBI (EE = .85, DP = .82)	^a GSES (.85), ^b CSE (.71)	–.273
Schwarzer, Schmitz, and Tang (2000)	261 (71)	–	–	Teachers (OG 1)	HK (Chinese, English)	CS	MBI (EE = .88, DP = .79, PA = .83)	^a GSES (.84)	–.370
Schwarzer and Hallum (2008)	608 (85)	–	–	Teachers (OG 1)	Syria (Arabic)	CS	MBI (EE = .83, DP = .71, PA = .78)	^a GSES (.87), ^b TES (.80)	–.452
Shyman (2010)	100 (89)	–	–	Paraeducators (OG 1)	USA (English)	CS	MBI (.61)	^b TES (.49)	–.494
Skaalvik and Skaalvik (2007)	244 (63)	45	14.3 (10.85)	Teachers (OG 1)	Norway (Norwegian)	CS	MBI (EE = .79, DP = .61, PA = .79)	^b NTSES (subscales range: .74–.91); ^b Scale by authors (.79)	–.410
Skaalvik and Skaalvik (2010)	2249 (68)	45	–	Teachers (OG 1)	Norway (Norwegian)	CS	MBI (EE = .88, DP = .70)	^b NTSES (subscales range: .77–.91)	–.433
Tang, Au, Schwarzer, and Schmitz (2001)	269 (68)	37.09 (9.78)	9.5 (9.76)	Teachers (OG 1)	HK (Chinese)	CS	MBI (EE = .87, DP = .80, PA = .84)	^a GSES (.81)	–.348
*Tang et al. (2001)	61 (62)	30.36 (5.76)	6.41 (4.28)	Teachers (OG 1)	HK (Chinese)	L	MBI (T1: EE = .89, DP = .77; T2: EE = .90, DP = .83)	^a GSES (.84)	–.359
Tatar (2009)	281 (78)	–	13.84 (9.25)	Teachers (OG 1)	Israel (Hebrew)	CS	MBI (.80)	^b TES (subscales: .81, .71)	.224 ^c

(Continued)

Table 1. Continued.

Study	N (% females)	Mean age (SD)	Mean work experience (SD)	Occupation (occupation group)	Country (language)	Study design	JB measure (α)	SE measure (α)	r
Tsouloupas, Carson, Matthews, Grawitch, and Barber (2010)	610 (86)			Teachers (OG 1)	USA (English)	CS	MBI (EE = .89)	^b PSECM (.94)	-.251
Vlăduț and Kállay (2011)	177 (87)	39.8 (9.5)	-	Teachers (OG 1)	Romania (Romanian)	CS	MBI (.65)	^b TSES (.93)	-.532 ^c
Volker et al. (2010)	383 (63)	37.82	2.45 (1.25)	Addiction therapists (OG 2)	EU	L	MBI (EE = .85, DP = .71, PA = .74)	^a GSES (.82)	-.354
Weingardt, Cucciare, Bellotti, and Lai (2009)	147 (62)	47 (9.6)	-	Counsellors (OG 2)	USA (English)	EX	MBI (.75) ^c	^b PEQ (.93) ^c	-.095 ^c
Wilk and Moynihan (2005)	429 (80)	38 (11)	8.4 (9)	Call center supervisors (OG 3)	USA (English)	CS	MBI (EE = .78)	^b JSE (.89)	-.288
Xanthopoulou, Bakker, Demerouti, and Schaufeli (2007)	714 (17)	42 (9.4)	14 (10.2)	Electrical engineers (OG 3)	The Netherlands (Dutch)	CS	MBI (EE = .88)	^a GSES (.86)	-.149
Yu, Lin, and Hsu (2009)	205 (28)	-	-	High-tech IT workers (OG 3)	Taiwan (Chinese)	CS	MBI (EE = .86, DP = .89, PE = .66)	^a Bosscher and Smith (1998) (.74)	-.243
Zunz (1998)	101 (69)	42.7	-	Human service managers (OG 3)	USA (English)	CS	MBI (EE = .89, DP = .73, PA = .80)	^b Scale by authors (.85)	-.609

Note: Study = first author and year of publication; N (% females) = sample size and percentage of females; CS = cross-sectional study; L = longitudinal study; EX = experimental study; JB = job burnout; SE = self-efficacy; T1 = Time 1; T2 = Time 2; TES = Teacher Efficacy Scale; TPTS = teacher-perceived teaching self-efficacy; GSES = General Self-efficacy Scale; SES = Self-efficacy Scale; TPSE = teacher-perceived self-efficacy in classroom management; TISES = Teacher Interpersonal Self-efficacy Scale; SES for CMD = Self-efficacy Scale for Classroom Management and Discipline; SETH = Self-efficacy Toward Helping Scale; TSES-24 = Teacher Self-efficacy Scale; PPE = perceived personal efficacy for members of volunteering associations; IGNSE = inventory of geriatric nursing self-efficacy; PTSE = Perceived Therapeutic Self-efficacy Scale; DBSES = Difficult Behaviour Self-efficacy Scale; OCSE-N = Occupational Coping Self-efficacy Questionnaire for Nurses; CSE = computer self-efficacy; NTSES = Norwegian Teacher Self-efficacy Scale; PSECM = Perceived Self-efficacy in Classroom Management Questionnaire; TSES = Teachers' Sense of Efficacy Scale; PEQ = Provider Efficacy Questionnaire; JSE = job self-efficacy; MBI = Maslach Burnout Inventory with subscales; BBI = Bergen Burnout Indicator; EE = emotional exhaustion; DP = depersonalization; PA = personal accomplishment; CY = cynicism; PE = professional efficacy; SA = self-actualization; ProQOL R-IV = Professional Quality of Life Scale Revision IV-Burnout Scale; GBQ = General Burnout Inventory; OG 1 = occupation group (teachers); OG 2 = occupation group (health-care workers); OG 3 = occupation group (others).

^aGeneral self-efficacy measure.

^bSpecific self-efficacy measure.

^cInformation not reported in the article, but provided on the authors' request.

^dInformation retrieved from psychometric studies.

Hickman, 1991; Inventory of Geriatric Nursing Self-Efficacy, Mackenzie & Peragrino, 2003; Self-Efficacy Toward Helping Scale, Schwarzer, 1993; Teacher Self-Efficacy Scale, Skaalvik & Skaalvik, 2007; Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). The general self-efficacy measures assessed beliefs about abilities to deal with various challenging demands across a variety of stressful situations. The context-specific measurement accounted for workers' confidence that one can employ the skills necessary to deal with job-specific tasks, cope with job-specific challenges, or deal with stress and its consequences.

Lastly, moderation factors were created based on regions where the study had been conducted (western countries [e.g. the USA, Spain, the Netherlands] vs. other countries [e.g. China, Philippines, Turkey]), languages spoken where studies were conducted (English vs. other languages [14 other languages]), and occupations of the sample (health-care providers vs. teachers vs. other services).

Data analysis

The estimates of the average effect, heterogeneity, and effect of the moderators on the relationship between self-efficacy and job burnout were examined using Comprehensive Meta-Analysis software (version 2.2.064; Borenstein, Hedges, Higgins, & Rothstein, 2005). The statistical analysis followed the procedure described by Hunter and Schmidt (2004). The estimates were computed using the random-effect model method (Field & Gillett, 2010).

Pearson's correlation was used as the effect size indicator. If the original study provided only statistical analyses other than Pearson's correlation, those statistics were converted into Pearson's correlations. When the original study provided multiple Pearson's correlations between self-efficacy and job burnout (e.g. for separate subscales), a mean correlation coefficient was calculated. Partial correlation coefficients or beta coefficients were not considered. The direction of a correlation involving the MBI personal accomplishment subscale was reversed to create negative associations between self-efficacy and burnout. When a study used a measurement of general self-efficacy and a context-specific self-efficacy measure, we included a Pearson's correlation between context-specific self-efficacy and burnout in the calculation of a cumulative effect size. In line with social cognitive theory (Bandura, 1997), context-specific self-efficacy is considered a more proximal predictor of specific outcomes, such as burnout. In analyses testing the role of burnout (when no specific burnout component was investigated) the total scores of the respective burnout measure (all components) were used.

Overall, correlations were directly synthesized to form the estimate of the effect size without transforming into Fisher's z . The correction for attenuation due to the measurement error was obtained by dividing the correlation coefficient (for self-efficacy–burnout association) by the geometric mean of the reliability coefficients (Cronbach's α coefficients for self-efficacy and burnout measures). Cronbach's α coefficients were retrieved from the original studies. If the original study provided α for subscales only, a mean Cronbach's α for a total score was calculated. When no α was available, it was obtained from psychometric studies (Gibson & Dembo, 1984; Luszczynska, Gutiréz-Doña, & Schwarzer, 2005; Maslach & Jackson, 1981). In sum, we corrected for attenuation due to measurement errors for an effect size from each study using the method described by Hunter and Schmidt (2004) but we did not calculate the ρ coefficient which requires the correction of artifacts (such as restriction of range) on a weighted mean r (Hunter & Schmidt, 2004).

Heterogeneity of the data included in the meta-analysis was tested using a Q -statistic. The Q -statistic evaluates how effect sizes scatter on a χ^2 distribution (Cochran, 1954). Between-studies data heterogeneity was also evaluated with I^2 , which measures the percentage of variability in the observed effect estimates that is due to between-studies heterogeneity rather than chance. Furthermore, τ^2 reflecting the actual amount of variation (the between-studies variance) was reported.

In the moderation analysis an estimate of the average effect was calculated for each level of the moderators, and group mean effect sizes were compared using the Q_B statistic. Q_B was used as an omnibus test for detecting between-groups differences for categorical moderator variables

(Hedges & Pigott, 2004). A significant Q_B score indicates that the estimates of the average effect are different from each other. For continuous moderator variables such as age and the number of years of work experience, meta-regression analyses were conducted using the mean age and mean number of years of work experience in each study (Borenstein et al., 2005). In these analyses Q_B was used to indicate the significance of the effect of the continuous moderator variables. A significant Q_B value suggests that estimates of the effect size were predicted by these variables.

To address the file drawer problem, robustness of the calculated estimate of the average effect against the effect of unpublished null results was assessed using the fail-safe N test (Rosenthal, 1979). In this test the number of unpublished studies that were necessary to produce a nonsignificant result was calculated.

Results

Description of the analyzed material

Table 1 displays information about the samples, procedures, and measurements applied in the 57 original studies. The analysis included 22,774 participants. A sample size for each study varied from 39 to 2267 participants, with an average of 399.54 ($SD = 453.74$) and a median of 267. Data were collected in various professional groups including teachers (50.88%; $k = 29$), health-care providers (29.82%; $k = 17$), and other services workers such as call center workers and information technology specialists (19.30%, $k = 11$). The mean age was 39.10 years ($SD = 6.38$; range = 25.50–56.00). The mean number of years of work experience was 12.16 years ($SD = 5.59$; range = 1.33–22.14). The studies enrolled from 17% to 100% of women ($M = 63.12\%$, $SD = 23.71\%$); only one original study was homogeneous in terms of gender.

Associations between job burnout and self-efficacy

The meta-analysis conducted for 57 original studies yielded the estimate of the average effect of $-.33$ (95% CI: $-.365, -.288$, $\tau^2 = .022$; Table 2), for associations between self-efficacy and burnout. The estimate of the average effect between self-efficacy and emotional exhaustion ($-.31$; 95% CI: $-.342, -.268$, $\tau^2 = .013$) was similar to the estimate of the average effect for the relationship between self-efficacy and depersonalization ($-.33$; 95% CI: $-.374, -.275$, $\tau^2 = .026$). The largest estimate of the average effect ($-.49$; 95% CI: $-.554, -.414$; $\tau^2 = .070$), was found for the relationship between self-efficacy and reduced personal accomplishment. When applying the most often used measure of moderation, such as the overlap of confidence intervals (Hunter & Schmidt, 2004), the estimates found for personal accomplishment can be interpreted as significantly larger than those observed for two other components of burnout.

The type of measurement as the moderator

To examine the effect of burnout measurement type on the estimate of the average effect, studies were divided into two groups: (a) MBI-related measurement (87.7%) or (b) measurement other than MBI-related (12.3%; Table 2). The moderation analysis showed a similar size of the estimates of the average effect in studies using the MBI-related measurement and in studies using other measurements, $Q_B(1) = 2.70$, $p = .10$.

The original studies were divided into two categories on the basis of the type of measurement used to assess efficacy beliefs: (a) general self-efficacy (31.6%) or (b) self-efficacy specific for the work-related contexts (68.4%; Table 2). Context-specific self-efficacy referred to beliefs about the ability to deal with job-specific tasks, cope with job-specific challenges, or deal with job-related stress and its consequences. Results of the moderation analysis showed that there was no significant difference in the estimates of the average effect calculated for associations between burnout and either (a) general self-efficacy or (b) context-specific self-efficacy, $Q_B(1) = 2.53$, $p = .11$.

Table 2. Results of meta-analysis of the relationship between self-efficacy and job burnout: overall and moderator effects.

	Range of correlation coefficients (<i>r</i>) retrieved from original studies	The estimate of the average effect (weighted <i>r</i>)	95% CI for the estimate of the average effect	<i>n</i>	<i>k</i>	Heterogeneity		Sampling bias estimation: fail-safe <i>N</i>
						<i>Q</i>	<i>I</i> ² %	
Overall effects								
SE-JB	-.609 to .224	-.327	-.365 to -.288	22,774	57	540.40***	89.64	29,608
SE-exhaustion	-.549 to .007	-.306	-.342 to -.268	16,492	42	239.03***	82.85	12,985
SE-depersonalization/cynicism	-.561 to -.050	-.325	-.374 to -.275	16,201	39	427.29***	91.11	14,157
SE-lack of accomplishment	-.836 to -.068	-.487	-.554 to -.414	12,798	35	860.68***	96.05	24,721
Moderator								
JB measure								
MBI measures	-.609 to .224	-.338	-.377 to -.298	18,879	50	422.65***	88.41	23,688
Other measures	-.553 to .045	-.246	-.348 to -.139	3895	7	63.92***	90.61	324
SE measure								
General SE	-.553 to -.122	-.288	-.330 to -.244	9416	18	64.44***	73.62	2536
Specific SE	-.609 to .224	-.342	-.394 to -.286	13,357	39	427.55**	91.11	14,773
Occupation								
Teachers	-.598 to .224	-.377	-.427 to -.324	10,601	29	247.37***	88.68	10,482
Health-care providers	-.498 to -.095	-.264	-.302 to -.224	8618	17	43.61***	63.31	1948
Other	-.609 to .045	-.280	-.382 to -.171	3557	11	113.36***	91.18	634
Country								
Western	-.609 to .045	-.335	-.378 to -.291	16,590	41	364.17***	89.02	16,520
Other	-.519 to .224	-.305	-.408 to -.195	5397	13	186.07***	93.55	1261
Language								
English	-.609 to .045	-.306	-.372 to -.237	5661	19	123.14***	85.38	5661
Other	-.598 to .224	-.338	-.385 to -.290	16,594	36	389.01***	91.00	15,115

Notes: SE = self-efficacy; JB = job burnout; 95% CI = critical intervals for the weighted effect size, *n* = sample size; *k* = number of studies. A significant *Q* value indicates that the data are heterogeneous, suggesting that the variability among studies was not due to sampling error. An *I*²% value indicates the percentage of variance due to heterogeneity among studies. A fail-safe *N* value indicates the number of studies with null results that are necessary to overturn the results of the meta-analysis and to conclude that the results are due to sampling bias.

**p* < .01.

***p* < .01.

****p* < .001.

Type of occupation as the moderator

To examine whether the type of occupation affected the estimate of the average effect for the relationship between self-efficacy and burnout, studies were divided into three groups: (a) health-care providers (29.8%), (b) teachers (50.9%), or (c) other services' workers (19.3%; Table 2). The moderation analysis showed that the size of the estimates of the average effect depended on the type of occupation, $Q_B(2) = 11.54$, $p < .01$. Follow-up tests indicated that the estimates found for teachers were larger than those for health-care providers, $Q_B(1) = 11.40$, $p = .001$, and were no different from estimates of the average effect for other occupations, $Q_B(1) = 2.70$, $p = .10$. There was no significant difference in the size of the estimates of the average effect found for health-care providers, compared to other services' occupations, $Q_B(1) = 0.08$, $p = .78$.

Mean age and the number of years of work experience as moderators

The effects of age and the number of years of work experience were examined using a meta-regression. Fifteen studies that did not report the mean age of the sample were excluded, resulting in 42 original studies included in this analysis. Results of the meta-regression showed that age was significantly related to the estimate of the average effect for the self-efficacy–burnout relationship, $B = -.009$, $SE = .002$, $z = -5.76$, $Q_B(1) = 33.22$, $p < .001$. The self-efficacy–burnout associations were stronger among older workers than among younger workers.

Next, we examined whether the number of years of work experience at the current occupation influenced the estimates of the average effect for the self-efficacy–burnout relationship. Twenty-three studies did not report the mean years of work experience; therefore, these studies were excluded, resulting in 34 studies included in this analysis. Results of the meta-regression analysis showed that work experience was significantly related to the average effect size estimate for the self-efficacy–burnout relationship, $B = -.014$, $SE = .002$, $z = -7.37$, $Q_B(1) = 54.36$, $p < .001$. The burnout–self-efficacy associations were stronger among participants with a higher number of years of work experience than among participants with a lower number of years of work experience.

Culture and language as the moderators

To analyze the moderating effect of regions where studies were conducted, original studies were classified into two groups: (a) Western culture (71.9%) or (b) other cultures (22.8%; Table 2). Studies that included samples from both Western cultures and other cultures were excluded from this analysis. Similar estimates of the average effect were found in the Western culture and other cultures, $Q_B(1) = 0.43$, $p = .51$.

Finally, original studies were divided into two types of primary languages spoken in countries where studies were conducted: (a) English (33.3%) or (b) non-English languages (63.2%; Table 2). In this analysis, studies were excluded when the location where they were conducted was not identifiable. A moderation analysis showed that similar estimates of the average effect were found for English-speaking countries and for non-English-speaking countries, $Q_B(1) = 0.60$, $p = .44$.

Discussion

The present study adds to the existing literature by indicating the coexistence of high levels of self-efficacy and low levels of job burnout among professionals of various occupations. The meta-analysis of 57 studies suggested that the association between these two constructs was moderate. The findings might indicate that self-efficacy plays a protective factor role against the components of burnout and/or that low levels of burnout may contribute to higher self-efficacy.

The results showed that self-efficacy forms different associations with the three components of burnout. The differences in the relationships contribute to the discussion on the internal structure of the job burnout construct, as they may be indicative of different processes through which protective factors (such as self-efficacy) may form associations with burnout components. Thus, the findings

may be interpreted as supporting the assumptions made by Maslach et al. (2001), suggesting that job burnout consists of three distinct components.

Emotional exhaustion is often indicated as the core component of job burnout (Maslach-Pines, 2005). Furthermore, there are conceptual proposals to focus on exhaustion and depersonalization components and to exclude personal accomplishments from the components of burnout (Schaufeli & Bakker, 2004). These proposals emerged as the result of a research paradigm that focused on investigating the risk factors for burnout (Greenglass & Burke, 2001). In contrast, the results of the present study suggest that personal accomplishments should not be disregarded as a burnout component, as it may form the strongest links with modifiable personal resource variables, such as self-efficacy. Thus, the personal accomplishments component may be particularly relevant in studies focusing on individual protective factors, guided by such theoretical approaches as social cognitive theory (Bandura, 1997).

Our findings suggest that compared to other burnout components personal accomplishments form the strongest associations with self-efficacy. These results are in line with another meta-analysis focusing on individual protective factors. This analysis showed that autonomy, competence, and relatedness form the strongest associations with personal accomplishments, compared to the other burnout components (Li et al., 2013). In an argument for the association between self-efficacy and personal accomplishments, Schaufeli and Bakker (2004) proposed that these two variables overlap conceptually. It has to be noted that our meta-analysis suggests that the two variables share a modest amount of variance.

The associations between burnout and self-efficacy were similar, regardless of the type of self-efficacy measured (general vs. specific, related to the task at hand). Future research may need to further evaluate the role of types of self-efficacy, because subtle differences in the conceptualization and measurement of self-efficacy may determine the strength of its association with important health-related outcomes (cf. Burkert, Knoll, Scholz, Roigas, & Gralla, 2012).

We found significant differences between the occupational groups in the self-efficacy–burnout associations. In particular, the associations were stronger for teachers than for health-care providers. So far, systematic reviews either focused on one occupational group (Brown, 2012; Li et al., 2013) or did not account for the moderating effect of the occupation (Alarcon et al., 2009). The strongest associations found for teachers indicate that this occupational group may particularly benefit from interventions enhancing self-efficacy beliefs. Future research needs to continue investigating occupation-specific protective factors that are likely to form strong associations with lower levels of burnout.

The meta-regression results indicate that the strongest associations between burnout and self-efficacy occurred among older individuals or those with more work experience. Previous systematic reviews showed that older age or more years of work experience may be related to lower levels of burnout (Brewer & Shapard, 2004). Our meta-analysis results provide insights into the interpretation of these associations. Older workers have a better established link between the protective beliefs about their own ability to deal with stressful events and lower burnout. They may be more likely to use this protective resource effectively, in order to lower their burnout. Future research needs to identify the modifiable protective factors that help to explain burnout levels in younger and less experienced workers.

The estimates of the average effect were similar across the cultures. This finding has an implication for practice: interventions aiming at burnout preventions and addressing self-efficacy may have similar effects in male and female workers, from both Western and non-Western cultures.

The present study has its limitations. The original studies were mostly cross-sectional in design. No causal conclusions regarding the self-efficacy and burnout relationship can be made. Although we have identified a relatively large number of original studies, the majority of them used MBI as the measure of burnout and enrolled teacher samples. Other measures of burnout were rarely used, and therefore we could not conduct a thorough comparison across the conceptualizations of burnout. Compared to studies on teachers, a low number of studies were conducted among other

homogeneous occupational groups (e.g. social care workers). Therefore, comparisons conducted between occupational groups should be considered as preliminary. Gender may moderate the effects of work stress (Biron & Link, 2014) and the associations between self-efficacy and health among workers (Cieslak et al., 2014); therefore its effects should be considered in future reviews. Across burnout components, the strongest associations with self-efficacy were obtained for the subscale of burnout which is positively worded (i.e. personal accomplishment subscale). Future meta-analyses may need to systematically test for the effects of item directionality. Finally, we investigated the role of only one personal resource variable (self-efficacy). Future studies need to establish if associations between burnout and other variables representing modifiable personal resources may form equally strong or even stronger associations. Identifying the strongest predictors of low levels of burnout may have implications for health promotion in organizations.

Regardless of its limitations, our study offers novel evidence for the relationship between self-efficacy and burnout. Significant associations between these two variables were observed across countries, professions, and age groups. Differences in these relationships indicate that larger estimates of average effects were found among teachers, older individuals, and those with more years of work experience. Furthermore, we provided preliminary support for the notion of the three-component structure of the burnout, demonstrating that the associations between burnout and self-efficacy may vary, depending on the evaluated burnout component.

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References

Note: References marked with an asterisk indicate studies included in meta-analysis.

- Alarcon, G., Eschleman, K. J., & Bowling, N. A. (2009). Relationship between personality variables and burnout: A meta-analysis. *Work & Stress*, 23, 244–263. doi:10.1080/02678370903282600
- *Baker, L. M., O'Brien, K. M., & Salahuddin, N. M. (2007). Are shelter workers burned Out?: An examination of stress, social support, and coping. *Journal of Family Violence*, 22, 465–474. doi:10.1007/s10896-007-9103-1
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- *Berryhill, J., Linney, J. A., & Fromewick, J. (2009). The effects of education accountability on teachers: Are policies too-stress provoking for their own good? *International Journal of Education Policy and Leadership*, 4(5), 1–14.
- *Betoret, F. D. (2006). Stressors, self-efficacy, coping resources, and burnout among secondary school teachers in Spain. *Educational Psychology*, 26, 519–539. doi:10.1080/01443410500342492
- *Betoret, F. D. (2009). Self-efficacy, school resources, job stressors and burnout among Spanish primary and secondary school teachers: A structural equation approach. *Educational Psychology*, 29, 45–68. doi:10.1080/01443410802459234
- Biron, M., & Link, S. (2014). Stress, appraisal and work routine in wartime: Do men and women differ? *Anxiety, Stress, & Coping*, 27, 229–240. doi:10.1080/10615806.2013.836506
- Blase, J. J. (1982). A social-psychological grounded theory of teacher stress and burnout. *Educational Administration Quarterly*, 18, 93–113. doi:10.1177/0013161X82018004008

- Blecharz, J., Luszczynska, A., Scholz, U., Schwarzer, R., Siekanska, M., & Cieslak, R. (2014). Predicting performance and performance satisfaction: The role of mindfulness and beliefs about the ability to deal with social barriers in sport. *Anxiety, Stress, & Coping*, 27, 270–287. doi:10.1080/10615806.2013.839989
- Borenstein, M., Hedges, L., Higgins, J., & Rothstein, H. (2005). *Comprehensive meta-analysis. Version 2*. Englewood, NJ: Biostat.
- Bosscher, R. J., & Smit, J. H. (1998). Confirmatory factor analysis of the general self-efficacy scale. *Behaviour Research and Therapy*, 36(3), 339–343.
- *Boyd, N. G., Lewin, J. E., & Sager, J. K. (2009). A model of stress and coping and their influence on individual and organizational outcomes. *Journal of Vocational Behavior*, 75, 197–211. doi:10.1016/j.jvb.2009.03.010
- *Bragard, I., Etienne, A.-M., Merckaert, I., Libert, Y., & Razavi, D. (2010). Efficacy of a communication and stress management training on medical residents' self-efficacy, stress to communicate and burnout: A randomized controlled study. *Journal of Health Psychology*, 15, 1075–1081. doi:10.1177/1359105310361992
- Brewer, E. W., & Shapard, L. (2004). Employee burnout: A meta-analysis of the relationships between age or years of experience. *Human Resource Development Review*, 3, 102–123. doi:10.1177/1534484304263335
- *Briones, E., Taberner, C., & Arenas, A. (2010). Job satisfaction of secondary school teachers: Effect of demographic and psycho-social factors. *Revista de Psicología del Trabajo y de las Organizaciones*, 26, 115–122. doi:10.5093/tr2010v26n2a3
- *Brouwers, A., Evers, W. J. G., & Tomic, W. (2001). Self-efficacy in eliciting social support and burnout among secondary-school teachers. *Journal of Applied Social Psychology*, 31, 1474–1491. doi:10.1111/j.1559-1816.2001.tb02683.x
- *Brouwers, A., & Tomic, W. (2000). A longitudinal study of teacher burnout and perceived self-efficacy in classroom management. *Teaching and Teacher Education*, 16, 239–253. doi:10.1016/S0742-051X(99)00057-8
- *Brouwers, A., Tomic, W., & Boluijt, H. (2011). Job demands, job control, social support and self-efficacy beliefs as determinants of burnout among physical education teachers. *Europe's Journal of Psychology*, 1, 17–39.
- Brown, C. G. (2012). A systematic review of the relationship between self-efficacy and burnout in teachers. *Educational & Child Psychology*, 29, 47–63.
- *Brudnik, M. (2009). Perception of self-efficacy and professional burnout in general education teachers. *Human Movement*, 10, 170–175. doi:10.2478/v10038-009-0013-3
- *Burke, R. J., Matthiesen, S. B., & Pallesen, S. (2006). Workaholism, organizational life and well-being of Norwegian nursing staff. *Career Development International*, 11, 463–477. doi:10.1108/13620430610683070
- Burkert, S., Knoll, N., Scholz, U., Roigas, J., & Gralla, O. (2012). Self-regulation following prostatectomy: Phase-specific self-efficacy beliefs in implementing pelvic-floor exercise. *British Journal of Health Psychology*, 17, 273–293. doi:10.1111/j.2044-8287.2011.02037.x
- *Chan, D. W. (2007). Burnout, self-efficacy, and successful intelligence among Chinese prospective and in-service school teachers in Hong Kong. *Educational Psychology*, 27, 33–49. doi:10.1080/01443410601061397
- *Chan, D. W. (2008). Dimensions of teacher self-efficacy among Chinese secondary school teachers in Hong Kong. *Educational Psychology*, 28, 181–194. doi:10.1080/01443410701491833
- Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4, 62–83. doi:10.1177/109442810141004
- Chesney, M. A., Chambers, D. B., Taylor, J. M., Johnson, L. M., & Folkman, S. (2003). Coping effectiveness training for men living with HIV: Results from a randomized clinical trial testing a group-based intervention. *Psychosomatic Medicine*, 65, 1038–1046. doi:10.1097/01.PSY.0000097344.78697.ED
- Chowdhury, J. (1993). The motivational impact of sales quotas on effort. *Journal of Marketing Research*, 30, 28–41. doi:10.2307/3172511
- *Cicognani, E., Pietrantonio, L., Palestini, L., & Prati, G. (2009). Emergency workers' quality of life: The protective role of sense of community, efficacy beliefs and coping strategies. *Social Indicators Research*, 94, 449–463. doi:10.1007/s11205-009-9441-x
- Cieslak, R., Shoji, K., Douglas, A., Melville, E., Luszczynska, A., & Benight, C. C. (2014). A meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma. *Psychological Services*, 11, 75–86. doi:10.1037/a0033798
- Cochran, W. G. (1954). The combination of estimates from different experiments. *Biometrics*, 10, 101–129. doi:10.2307/3001666
- *Davidson, O. B., Eden, D., Westman, M., Cohen-Charash, Y., Hammer, L. B., Kluger, A. N., ... Spector, P. E. (2010). Sabbatical leave: Who gains and how much? *Journal of Applied Psychology*, 95, 953–964. doi:10.1037/a0020068
- Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments. *European Journal of Psychological Assessment*, 19, 12–23. doi:10.1027//1015-5759.19.1.12
- *Devos, G., Bouckaenoghe, D., Engels, N., Hotton, G., & Aelterman, A. (2007). An assessment of well-being of principals in Flemish primary schools. *Journal of Educational Administration*, 45, 33–61. doi:10.1108/09578230710722449
- *Duffy, B., Oyeboode, J. R., & Allen, J. (2009). Burnout among care staff for older adults with dementia: The role of reciprocity, self-efficacy and organizational factors. *Dementia*, 8, 515–541. doi:10.1177/1471301209350285
- *Egyed, C. J., & Short, R. J. (2006). Teacher self-efficacy, burnout, experience and decision to refer a disruptive student. *School Psychology International*, 27, 462–474. doi:10.1177/0143034306070432

- *Eisele, P., & D'Amato, A. (2011). Psychological climate and its relation to work performance and well-being: The role of general self-efficacy and organizational citizenship behavior. *Baltic Journal of Psychology, 12*, 4–21.
- Emmer, E. T., & Hickman, J. (1991). Teacher efficacy in classroom management and discipline. *Educational and Psychological Measurement, 51*, 755–765. doi:10.1177/0013164491513027
- *Emold, C., Schneider, N., Meller, I., & Yagil, Y. (2011). Communication skills, working environment and burnout among oncology nurses. *European Journal of Oncology Nursing, 15*, 358–363. doi:10.1016/j.ejon.2010.08.001
- *Evers, W. J. G., Brouwers, A., & Tomic, W. (2002). Burnout and self-efficacy: A study on teachers' beliefs when implementing an innovative educational system in the Netherlands. *British Journal of Educational Psychology, 72*, 227–243. doi:10.1348/000709902158865
- *Evers, W. J. G., Tomic, W., & Brouwers, A. (2005). Does equity sensitivity moderate the relationship between self-efficacy beliefs and teacher burnout? *Representative Research in Social Psychology, 28*, 35–46.
- Field, A. P., & Gillett, R. (2010). How to do a meta-analysis. *British Journal of Mathematical and Statistical Psychology, 63*, 665–694. doi:10.1348/000711010X502733
- *Friedman, I. A. (2003). Self-efficacy and burnout in teaching: The importance of interpersonal-relations efficacy. *Social Psychology of Education, 6*, 191–215. doi:10.1023/A:1024723124467
- *Gibson, J. A., Grey, I. M., & Hastings, R. P. (2009). Supervisor support as a predictor of burnout and therapeutic self-efficacy in therapists working in ABA schools. *Journal of Autism and Developmental Disorders, 39*, 1024–1030. doi:10.1007/s10803-009-0709-4
- Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76*, 569–582. doi:10.1037/0022-0663.76.4.569
- Glasziou, P., Irwig, L., Bain, C., & Colditz, G. (2001). *Systematic reviews in health care: A practical guide*. Cambridge, MA: Cambridge University Press.
- *Grau, R., Salanova, M., & Peiró, J. M. (2001). Moderator effects of self-efficacy on occupational stress. *Psychology in Spain, 5*, 63–74.
- *Greenglass, E. R., & Burke, R. J. (2000). Hospital downsizing, individual resources, and occupational stressors in nurses. *Anxiety, Stress and Coping, 13*, 371–390. doi:10.1080/10615800008248342
- *Greenglass, E. R., & Burke, R. J. (2001). Stress and the effects of hospital restructuring in nurses. *CJNR: Canadian Journal of Nursing Research, 33*, 93–108.
- Hahn, V. C., Binnewies, C., Sonnentag, S., & Mojza, E. J. (2011). Learning how to recover from job stress: Effects of a recovery training program on recovery, recovery-relates self-efficacy, and well-being. *Journal of Occupational Health Psychology, 16*, 202–216. doi:10.1037/a0022169
- Hedges, L. V., & Pigott, T. D. (2004). The power of statistical tests for moderators in meta-analysis. *Psychological Methods, 9*, 426–445. doi:10.1037/1082-989X.9.4.426
- Higgins, J., & Green, S. (2008). *Cochrane handbook for systematic reviews of interventions*. Chichester: Wiley.
- *Howard, R., Rose, J., & Levenson, V. (2009). The psychological impact of violence on staff working with adults with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 22*, 538–548. doi:10.1111/j.1468-3148.2009.00496.x
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings*. Thousand Oaks, CA: Sage.
- Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal process. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 195–213). Washington, DC: Hemisphere.
- Jimmieson, N. L., Terry, D. J., & Callan, V. J. (2004). A longitudinal study of employee adaptation to organizational change: The role of change-related information and change-related self-efficacy. *Journal of Occupational Health Psychology, 9*, 11–27. doi:10.1037/1076-8998.9.1.11
- Kay-Eccles, R. (2012). Meta-analysis of the relationship between coworker social support and burnout using a two level hierarchical linear model. *Western Journal of Nursing Research, 34*, 1062–1063. doi:10.1177/0193945912453684
- Kmet, L. M., Lee, R. C., & Cook, L. S. (2004). *Standard quality assessment criteria for evaluating primary research papers from a variety of fields*. Edmonton: Alberta Heritage Foundation for Medical Research.
- *Laugaa, D., Rasche, N., & Bruchon-Schweitzer, M. (2008). Stress and burnout among French elementary school teachers: A transactional approach. *European Review of Applied Psychology, 58*, 241–251. doi:10.1016/j.erap.2008.09.007
- *Lee, J. S. Y., & Akhtar, S. (2007). Job burnout among nurses in Hong Kong: Implications for human resource practices and interventions. *Asia Pacific Journal of Human Resources, 45*, 63–84. doi:10.1177/1038411107073604
- Lee, R. T., Seo, B., Hladkyj, S., Lovell, B. L., & Schwartzmann, L. (2013). Correlates of physician burnout across regions and specialties: A meta-analysis. *Human Resources for Health, 11*, 48. doi:10.1186/1478-4491-11-48
- Li, C., Wang, C. K. J., Pyun, D. Y., & Kee, Y. H. (2013). Burnout and its relations with basic psychological needs and motivation among athletes: A systematic review and meta-analysis. *Psychology of Sport & Exercise, 14*, 692–700. doi:10.1016/j.psychsport.2013.04.009
- Lim, N., Kim, E. K., Kim, H., Yang, E., & Lee, S. (2010). Individual and work-related factors influencing burnout of mental health professionals: A meta-analysis. *Journal of Employment Counseling, 47*, 86–96. doi:10.1002/j.2161-1920.2010.tb00093.x

- *Lu, J. L. (2007). Multiple interactions of hazard exposures, role stressors and situational factors, and burnout among nurses. *International Journal of Occupational Safety and Ergonomics*, 13, 73–82.
- Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The general self-efficacy scale: Multicultural validation studies. *Journal of Psychology*, 139, 439–457.
- Luszczynska, A., Gutiérrez-Doña, B., & Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. *International Journal of Psychology*, 40, 80–89.
- Luszczynska, A., & Schwarzer, R. (2005). Social cognitive theory. In M. Conner & P. Norman (Eds.), *Predicting health behaviour* (2nd ed., pp. 127–169). Buckingham: Open University Press.
- Mackenzie, C. S., & Peragine, G. (2003). Measuring and enhancing self-efficacy among professional caregivers of individuals with dementia. *American Journal of Alzheimer's Disease and Other Dementias*, 18, 291–299. doi:10.1177/153331750301800507
- Malach-Pines, A. (2005). The burnout measure, short version. *International Journal of Stress Management*, 12, 78–88. doi:10.1037/1072-5245.12.1.78
- Maslach, C., & Jackson, S. E. (1981). *Maslach burnout inventory: Manual*. Palo Alto, CA: Counseling Psychologists.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual: Third edition*. Mountain View, CA: Counseling Psychologists.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397–422. doi:10.1146/annurev.psych.52.1.397
- Matthiesen, S. B., & Dyregrov, A. (1992). Empirical validation of the Bergen Burnout Indicator. *International Journal of Psychology*, 27, 497–513.
- *Nota, L., Ferrari, L., & Soresi, S. (2007). Self-efficacy and quality of life of professionals caring for individuals with intellectual disabilities. *Journal of Policy and Practice in Intellectual Disabilities*, 4, 129–140. doi:10.1111/j.1741-1130.2007.00110.x
- *Ozdemir, Y. (2007). The role of classroom management efficacy in predicting teacher burnout. *International Journal of Social Sciences*, 2, 257–263.
- Parle, M., Maguire, P., & Heaven, C. (1997). The development of a training model to improve health professionals' skills, self-efficacy and outcome expectancies when communicating with cancer patients. *Social Science & Medicine*, 44(2), 231–240. doi:10.1016/S0277-9536(96)00148-7
- *Pas, E. T., Bradshaw, C. P., Hershfeldt, P. A., & Leaf, P. J. (2010). A multilevel exploration of the influence of teacher efficacy and burnout on response to student problem behavior and school-based service use. *School Psychology Quarterly*, 25, 13–27. doi:10.1037/a0018576
- Perrewé, P. L., Hochwarter, W. A., Rossi, A. M., Wallace, A., Maignan, I., Castro, S. L., ... Deussen, C. A. V. (2002). Are work stress relationships universal? A nine-region examination of role stressors, general self-efficacy, and burnout. *Journal of International Management*, 8, 163–187. doi:10.1016/S1075-4253(02)00052-2
- *Petitta, L., & Vecchione, M. (2011). Job burnout, absenteeism, and extra role behaviors. *Journal of Workplace Behavioral Health*, 26, 97–121. doi:10.1080/15555240.2011.573752
- Pietrantonio, L., & Prati, G. (2008). Resilience among first respondents. *African Health Sciences*, 8, 14–20.
- *Pisanti, R., Lombardo, C., Lucidi, F., Lazzari, D., & Bertini, M. (2008). Development and validation of a brief Occupational Coping Self-Efficacy Questionnaire for Nurses. *Journal of Advanced Nursing*, 62, 238–247. doi:10.1111/j.1365-2648.2007.04582.x
- *Prati, G., Pietrantonio, L., & Cicognani, E. (2010). Self-efficacy moderates the relationship between stress appraisal and quality of life among rescue workers. *Anxiety, Stress, & Coping*, 23, 463–470. doi:10.1080/10615800903431699
- *Pugh, S. D., Groth, M., & Hennig-Thurau, T. (2011). Willing and able to fake emotions: A closer examination of the link between emotional dissonance and employee well-being. *Journal of Applied Psychology*, 96(2), 377–390. doi:10.1037/a0021395
- *Ransford, C. R., Greenberg, M. T., Domitrovich, C. E., Small, M., & Jacobson, L. (2009). The role of teachers' psychological experiences and perceptions of curriculum supports on the implementation of a social and emotional learning curriculum. *School Psychology Review*, 38(4), 510–532.
- Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin*, 86, 638–641. doi:10.1037/0033-2909.86.3.638
- *Salanova, M., Grau, R. M., Cifre, E., & Llorens, S. (2000). Computer training, frequency of usage and burnout: The moderating role of computer self-efficacy. *Computers in Human Behavior*, 16, 575–590. doi:10.1016/S0747-5632(00)00028-5
- *Salanova, M., Peiró, J. M., & Schaufeli, W. B. (2002). Self-efficacy specificity and burnout among information technology workers: An extension of the job demand-control model. *European Journal of Work and Organizational Psychology*, 11, 1–25. doi:10.1080/13594320143000735
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293–315. doi:10.1002/job.248
- Schaufeli, W. B., & van Dierendonck, D. (2000). *UBOS-Utrechtse burnout Schaal: Manual*. Lisse: Swets & Zeitlinger.
- Schaufeli, W. B., Leiter, M., & Maslach, C. (2009). Burnout: 35 years of research and practice. *Career Development International*, 14, 204–220. doi:10.1108/13620430910966406

- Schwarzer, R. (1993). *Measurement of perceived self efficacy. Psychometric scales for cross-cultural research*. Berlin: Freie Universität Berlin.
- *Schwarzer, R., & Hallum, S. (2008). Perceived teacher self-efficacy as a predictor of job stress and burnout: Mediation analyses. *Applied Psychology, 57*, 152–171. doi:10.1111/j.1464-0597.2008.00359.x
- *Schwarzer, R., Schmitz, G. S., & Tang, C. (2000). Teacher burnout in Hong Kong and Germany: A cross-cultural validation of the Maslach Burnout Inventory. *Anxiety, Stress, & Coping, 13*, 309–326. doi:10.1080/10615800008549268
- Schutte, N., Toppinen, S., Kalimo, R., & Schaufeli, W. (2000). The factorial validity of the Maslach Burnout Inventory-General Survey (MBI-GS) across occupational groups and nations. *Journal of Occupational and Organizational Psychology, 73*, 53–66. doi:10.1348/096317900166877
- Schwerdtfeger, A., Konermann, L., & Schönhofen, K. (2008). Self-efficacy as a health-protective resource in teachers? A biopsychological approach. *Health Psychology, 27*, 358–368. doi:10.1037/0278-6133.27.3.358
- Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The Self-Efficacy Scale: Construction and validation. *Psychological Reports, 51*, 663–671. doi:10.2466/pr0.1982.51.2.663
- *Shyman, E. (2010). Identifying predictors of emotional exhaustion among special education paraeducators: A preliminary investigation. *Psychology in the Schools, 47*, 828–841. doi:10.1002/pits.20507
- *Skaalvik, E. M., & Skaalvik, S. (2007). Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *Journal of Educational Psychology, 99*, 611–625. doi:10.1037/0022-0663.99.3.611
- *Skaalvik, E. M., & Skaalvik, S. (2010). Teacher self-efficacy and teacher burnout: A study of relations. *Teaching and Teacher Education, 26*, 1059–1069. doi:10.1016/j.tate.2009.11.001
- Stamm, B. H. (2005). *The professional quality of life scale: Compassion satisfaction, burnout, and compassion fatigue/secondary trauma scales*. Lutherville, MD: Sidran.
- Stamm, B. H. (2010). *The concise ProQOL manual* (2nd ed.). Pocatello, ID: ProQOL.org.
- *Tang, C. S.-K., Au, W.-T., Schwarzer, R., & Schmitz, G. (2001). Mental health outcomes of job stress among Chinese teachers: Role of stress resource factors and burnout. *Journal of Organizational Behavior, 22*, 887–901. doi:10.1002/job.120
- *Tatar, M. (2009). Teachers turning for help to school counsellors and colleagues: Toward a mapping of relevant predictors. *British Journal of Guidance and Counselling, 37*, 107–127. doi:10.1080/03069880902728564
- Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*, 202–248. doi:10.3102/00346543068002202
- *Tsouloupas, C. N., Carson, R. L., Matthews, R., Grawitch, M. J., & Barber, L. K. (2010). Exploring the association between teachers' perceived student misbehaviour and emotional exhaustion: The importance of teacher efficacy beliefs and emotion regulation. *Educational Psychology, 30*, 173–189. doi:10.1080/01443410903494460
- Unsworth, K. L., & Mason, C. M. (2012). Help yourself: The mechanisms through which a self-leadership intervention influences strain. *Journal of Occupational Health Psychology, 17*, 235–245. doi:10.1037/a0026857
- *Vlăduț, C. I., & Kállay, É. (2011). Psycho-emotional and organizational aspects of burnout in a sample of Romanian teachers. *Cognition, Brain, Behavior: An Interdisciplinary Journal, 15*, 331–358.
- *Volker, R., Bernhard, B., Anna, K., Fabrizio, S., Robin, R., Jessica, P., ... Norbert, S. (2010). Burnout, coping and job satisfaction in service staff treating opioid addicts—from Athens to Zurich. *Stress & Health, 26*(2), 149–159. doi:10.1002/smi.1276
- Voss Horrell, S. C., Holohan, D. R., Didion, L. M., & Vance, T. G. (2011). Treating traumatized OEF/OIF veterans: How does trauma treatment affect the clinician? *Professional Psychology: Research and Practice, 42*, 79–86. doi:10.1037/a0022297
- *Weingardt, K. R., Cucciare, M. A., Bellotti, C., & Lai, W. P. (2009). A randomized trial comparing two models of web-based training in cognitive-behavioral therapy for substance abuse counselors. *Journal of Substance Abuse Treatment, 37*, 219–227. doi:10.1016/j.jsat.2009.01.002
- *Wilk, S. L., & Moynihan, L. M. (2005). Display rule “Regulators”: The relationship between supervisors and worker emotional exhaustion. *Journal of Applied Psychology, 90*, 917–927. doi:10.1037/0021-9010.90.5.917
- *Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the job demands-resources model. *International Journal of Stress Management, 14*, 121–141. doi:10.1037/1072-5245.14.2.121
- *Yu, M.-C., Lin, C.-C., & Hsu, S.-Y. (2009). Stressors and burnout: The role of employee assistance programs and self-efficacy. *Social Behavior and Personality: An International Journal, 37*, 365–377. doi:10.2224/sbp.2009.37.3.365
- *Zunz, S. J. (1998). Resiliency and burnout. *Administration in Social Work, 22*, 39–54. doi:10.1300/J147v22n03_03