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ABSTRACT

Background: Over the past few decades, higher education institutions worldwide have experienced substantial changes, including: massification, internationalisation and increasing demands for exceptional instructional quality and research quantity in environments that have also seen heightened competition for students, faculty and resources. Accordingly, these changes have contributed to a highly demanding academic employment climate that pose challenges for personal and professional development in post-secondary faculty (i.e. university or college research and teaching academics), as well as potential negative impacts on student learning and, ultimately, institutional productivity.

Purpose: Given the emergent nature of scattered existing research on faculty burnout, the present paper attempts to synthesise and critically examine published empirical findings concerning the various correlates, antecedents and outcomes of faculty burnout as informed by the Job Demands–Resources model (Demerouti et al. 2001).

Design and method: Existing empirical research on faculty burnout was identified through a rigorous search of English language, peer-reviewed articles across relevant databases (e.g. ERIC, Psycinfo, Scopus) resulting in 36 quantitative, cross-sectional studies, satisfying detailed a priori inclusion criteria.

Results: The review revealed multiple themes across studies with respect to mixed effects of demographic background factors on burnout levels, as well as clear detrimental effects of adverse job demands (e.g. workload, task characteristics, value conflict) and lack of resources (e.g. social support, rewards, control) on faculty burnout. Additionally, both personal characteristics (e.g. motivation, optimism) and stressors outside the workplace (e.g. family stressors and lack of support) were found to contribute significantly to faculty burnout, with greater burnout, in turn, having consistent adverse consequences for performance and commitment (e.g. reduced work activities, turnover intentions) as well as psychological and physical health (e.g. ill health, depression) in faculty.

Conclusions: The findings presented underscore the importance of faculty burnout and the challenges it presents in terms of faculty well-being as well as student development and institutional performance. Findings also provide further insight into the ways in which intervention efforts and resources targeting faculty burnout may prove effective.

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Introduction

The landscape of higher education has changed remarkably in the last few decades. Changes encountered by higher education institutions, including massification, greater demands for research productivity and for providing quality education, have brought about new challenges to institutions as well as academics, especially when there has not been a corresponding increase in resources (Biron et al., 2008; Byrne et al. 2013; Li, Li, and Sun 2013; McAlpine and Åkerlind 2010; Rothmann and Barkhuizen 2008). Concurrent with these substantial changes, expectations of academic performance and productivity have risen, resulting in both psychological and physical health challenges that threaten the well-being of academics (Barkhuizen, Rothmann, and van de Vijver 2014; Rothmann, Barkhuizen, and Tytherleigh 2008; Zhong et al. 2009).

Surveys of academics in the UK, Australia and Canada have found increased stress to be a growing concern. Increase in workload and the often conflicting demands that teaching, research and service place on academics have been found to contribute to faculty distress and burnout (Catano et al. 2010; Rothmann and Barkhuizen 2008; Tytherleigh et al. 2005; Watts and Robertson 2011; Winefield et al. 2003). Cuts in tenure and tenure track positions and increase in contract positions have been found to place even greater demands on core faculty (Biron et al., 2008, Byrne et al. 2013). This challenging employment climate has the potential to impair personal and professional competencies of faculty, reduce their productivity and lead to burnout experiences involving cynicism as well as mental and physical exhaustion (Blix et al. 1994; Byrne et al. 2013; Demerouti et al. 2001; Maslach, Schaufeli, and Leiter 2001; Schaufeli and Bakker 2004; Watts and Robertson 2011).

Empirical evidence clearly demonstrates that many faculty (i.e. university or college research and teaching academics holding different ranks and tenure status) in today's academic climate have experienced high levels of burnout (e.g. Blix et al. 1994; Byrne et al. 2013; Ghorpade, Lackritz, and Singh 2011; Lackritz 2004; Teven 2007). Burnout levels in academia have been reported as comparable to those observed amongst school and health care professionals (Watts and Robertson 2011). Implications of this include potentially detrimental impacts on faculty members' well-being and performance, student learning and, ultimately, institutional productivity (Byrne et al. 2013; Maslach and Leiter 1999).

Given the increasingly problematic nature of burnout in post-secondary faculty, a comprehensive review of the exiting empirical literature on burnout among academics is thus required to better identify critical antecedents, correlates and consequences of this salient yet underexplored issue. The present paper aims to provide a comprehensive and descriptive review of published empirical research on the various correlates, antecedents and outcomes of faculty burnout. This review, thus, does not represent a meta-analysis, due in part to the highly varied nature of the relations examined in scattered existing research. Rather, it aims principally to highlight findings, gaps and directions for future research on the critical topic of faculty burnout. Further, it is hoped that this thematic, descriptive review can be used to inform the design and implementation of interventions and policy changes that may be able to redress the situation by reducing stress, maintaining well-being and promoting engagement in faculty (Maslach and Leiter 1999).

Theoretical frameworks

Burnout is a state of physical, emotional and mental exhaustion resulting from a prolonged response to long-term exposure to demanding situations. This psychological syndrome has

three dimensions: emotional exhaustion, depersonalisation or cynicism and perception of reduced personal accomplishment or professional efficacy (Maslach and Jackson 1981; Maslach, Jackson, and Leiter 1996; Pines and Aronson 1988). Emotional exhaustion, the most critical component of burnout, is a direct outcome of chronic stress and excessive job demands. It refers to feelings of fatigue and the depletion of emotional resources (Maslach, Schaufeli, and Leiter 2001). Depersonalisation or cynicism involves the development of uncaring or cynical attitudes towards others or one's work, whereby employees protect themselves from stress by emotionally disengaging from other people or their work (Fernet, Guay, and Senécal 2004; Maslach, Jackson, and Leiter 1996). The third dimension involves a reduced perception of personal accomplishment and efficacy; employees negatively self-assess their competence and performance and have lowered satisfaction with personal achievement (Maslach and Jackson 1981; Maslach, Jackson, and Leiter 1996).

Researchers have attempted to understand burnout predictors and consequences. The Job Demands–Resources model (The JD-R; Demerouti et al. 2001) is one of the leading models that predicts burnout antecedents and outcomes. Demerouti et al. (2001) define job demands as those social, organisational and physical features of the occupation that entail continuous mental or physical efforts and, therefore, are associated with potential psychological or physical costs such as exhaustion and fatigue. In contrast, job resources refer to aspects of the occupation that (1) buffer or reduce job demands or their corresponding detrimental impacts, (2) facilitate the employee's growth and development and (3) assist in achieving work-related goals (Demerouti et al. 2001, 501). The Job Demands–Resources model posits that excessive job demands lead to strain and burnout that, in turn, leads to poor performance and health problems. Burnout is, therefore, expected to fully or partially mediate the relationship between job demands and maladaptive outcomes. This mediation process is referred to as the energetic or health impairment process in the JD-R model. Whereas lack of resources is proposed to lead to higher level of exhaustion and burnout, abundance of job resources is assumed to diminish the negative impact of job demands on burnout levels (Demerouti et al. 2001; Schaufeli and Bakker 2004; Schaufeli and Taris 2014).

Empirical evidence strongly supports the role of job demands (e.g. work overload, work–home conflict) and job resources (e.g. job control, support) in predicting burnout (Schaufeli and Taris 2014). Moreover, an extensive review of burnout antecedents by Maslach and Leiter (1997) identified six workplace demands and resources (workload, control, value, fairness, reward and community) as salient predictors of occupational burnout. In addition to demands and resources, personal characteristics (e.g. motivation, optimism) can influence the experience of burnout directly, and moderate or mediate the relationship between occupational factors and burnout (Schaufeli and Taris 2014). In the present review, the Job Demands–Resources model is used as the guiding framework to synthesise the themes and empirical evidence examined in relation to faculty burnout. Antecedents of burnout are, thus, categorised primarily according to job demands, job resources and personal characteristics, with the outcomes of burnout organised according to health and performance in post-secondary faculty.

Search strategies

The empirical published research included in this review was identified through a comprehensive search of English language, peer-reviewed studies via the ERIC, Psycinfo and Scopus

Table 1. Summary of search strategies and the number of retrieved articles.

Database	Search terms	N retrieved articles
Scopus	Burnout AND (university OR college OR academic* OR teaching staff OR lecturer* OR research staff OR faculty OR professor*)	466
Psycinfo	Burnout AND (university OR college OR academic* OR teaching staff OR lecturer* OR research staff OR faculty OR professor*)	352
ERIC	SU.EXACT.EXPLODE('Teacher Burnout')	478

electronic databases. Considering that different terms are used internationally to refer to post-secondary faculty members, we employed a variety of search terms to capture higher education academics internationally. The search terms used were: *burnout*, *university*, *college*, *faculty*, *professors, academics*, *teaching staff*, *lecturers* and *research staff*, with *teacher burnout* additionally included as a subject heading in the ERIC database. Occupational stress was not included as a search term because it is theoretically different from burnout (Maslach 1993; Maslach, Schaufeli, and Leiter 2001; Rudow 1999). The most important difference between the two constructs concerns the multidimensionality of burnout compared to the uni-dimensional nature of occupational stress. Depersonalisation and cynicism as burnout components offer an interpersonal lens concerning perceptions of others and work responsibilities. Occupational stress, however, does not necessarily entail cynical attitudes and can be conceptually differentiated as a precursor to burnout (Maslach and Leiter 1999). Finally, burnout is a chronic state that takes time to evolve, whereas occupational stress can occur as a result of short-lived episodes of exceptional workload (Maslach, Schaufeli, and Leiter 2001; Rudow 1999). The search terms and the number of retrieved articles are presented in Table 1.

Two inclusion/exclusion criteria were defined to address the review objectives. First, only studies that investigated burnout in post-secondary *faculty* were included, thus excluding studies that focused on administrators, staff or students. Given that the term 'post-secondary' commonly refers to educational contexts following the completion of secondary education, studies examining faculty employed at both junior colleges (e.g. ages 16–18) as well as more traditional post-secondary institutions (e.g. institutes, colleges, universities) were included in the present review. Second, studies that examined burnout exclusively among medical academics (e.g. physicians, nurses) were excluded from this review. The clinical responsibilities and the unique demands and pressures associated to medical faculty positions were reasons for this exclusion (Watts and Robertson 2011). In addition to the database searches, a manual search was conducted to identify seminal and frequently cited references in the retrieved articles. In sum, the search process resulted in 36 empirical studies investigating burnout in post-secondary faculty.

Sample characteristics

The studies reviewed had examined a total of 9110 faculty members, with sample sizes ranging from 45 to 1067 (Mdn = 261.5, *M* = 284.7, SD = 224.3). With respect to gender distribution, one sample included only females, while the remainder included a percentage of males ranging from 22.6 to 88% (Mdn = 55.4%, *M* = 56%, SD = 18.8). A total of 32 independent samples were examined in the retrieved articles. Studies were conducted in various countries, including Canada (3), China (3), India (2), Iran (1), Ireland (1), Pakistan (1), Portugal

(1), South Africa (3), Spain (3), the Netherlands (1), the UK (2), the US (9) and Turkey (2). It should be noted that one sample from Canada, one from Pakistan, one from South Africa and one from the US were analysed in more than one paper. All studies were conducted among faculty members in a post-secondary context as defined in the previous section.

Study methodologies

All of the reviewed studies employed a cross-sectional survey design and evaluated burnout as study variable, with all studies except one (Singh and Bush 1998; which used the research-related burnout measure developed by the authors themselves) having evaluated burnout using a variant of the Maslach Burnout Inventory (MBI; Maslach and Jackson 1981, 1986; Maslach, Jackson, and Leiter 1996). The majority of studies included in the review examined all three dimensions of burnout; however, two studies analysed the exhaustion dimension exclusively (Frisby, Goodboy, and Buckner 2015 (the other two dimensions were not included due to poor reliability), Van Emmerik 2002), and three studies additionally included the cynicism dimension (Barkhuizen, Rothmann, and van de Vijver 2014; McClenahan, Giles, and Mallett 2007; Rothmann, Barkhuizen, and Tytherleigh 2008).

Using the Job Demands–Resources model (JD-R) as the guiding framework, the variables that were examined in relation to burnout were categorised as: job demands, job resources, personal characteristics and indicators of well-being and performance. Demographic characteristics and selected stressors outside the workplace were also examined in relation to burnout. A detailed discussion of study findings is presented, first with respect to demographic variables, followed by results concerning the antecedents, correlates and consequences of burnout in faculty members. Magnitude of the relationships and ranges of standardised coefficients are provided for antecedents, correlates and consequences of burnout for studies that reported these results. As the majority of studies employed mean difference tests to examine the relationship between demographic characteristics and burnout, only the results of significance testing are provided concerning relations between burnout and demographic variables. A detailed overview of each study included in the current review is presented in Appendix A.

Findings

Demographic variables and faculty burnout

More than half of the reviewed studies examined the effect of demographic characteristics on faculty burnout. These characteristics mainly included age, gender, years of experience and academic rank or status. The generally mixed findings concerning the influence of each of the background variables are detailed below.

Age
Age as a demographic characteristic has shown a consistent pattern of relationship with burnout in general (Schaufeli and Enzmann 1998). In the articles included in this review, a significant negative relationship was found between age and emotional exhaustion, indicating that older faculty members reported lower level of exhaustion (Byrne 1991; Fernet, Guay, and Senécal 2004; Ghorpade, Lackritz, and Singh 2007, 2011; Lackritz 2004; Rothmann

and Barkhuizen 2008; Tümkaya 2007; Singh and Bush 1998). In contrast, no significant relationship was reported in other studies (Bilge 2006; Blix et al. 1994; Gonzalez and Bernard 2006; Li, Li, and Sun 2013; McClenahan, Giles, and Mallett 2007). Two studies reported age to be negatively correlated with depersonalisation (Gonzalez and Bernard 2006; Tümkaya 2007) but the majority did not observe any such relationship (Bilge 2006; Blix et al. 1994; Byrne 1991; Fernet, Guay, and Senécal 2004; Ghorpade, Lackritz, and Singh 2007, 2011; Lackritz 2004; McClenahan, Giles, and Mallett 2007; Rothmann and Barkhuizen 2008; Singh and Bush 1998). The relationship between age and personal accomplishment was not typically significant; however, studies by Byrne (1991), Li, Li, and Sun (2013), and Rothmann and Barkhuizen (2008) did find older academics to report higher perceptions of accomplishment.

Gender

Although there have been assertions that burnout tends to be more prevalent among females, this review found inconsistent and contradictory differences between males and females with respect to their burnout levels. Some studies showed that females had higher levels of experienced exhaustion (Byrne 1991; Ghorpade, Lackritz, and Singh 2007, 2011; Lackritz 2004; Tümkaya 2007), while others showed depersonalisation levels to be lower among female academics (Bilge 2006; Doyle and Hind 1998; Ghorpade, Lackritz, and Singh 2007, 2011; Lackritz 2004). With respect to the relationship between gender and perceived accomplishment, only one study (Byrne 1991) reported gender differences, with females having lower perceptions of personal accomplishment. However, most of the studies that examined gender differences found no significant relationship between gender and burnout (Blix et al. 1994; Byrne et al. 2013; Gonzalez and Bernard 2006; Jamal 1999b; Jamal and Baba 2001; Li, Li, and Sun 2013; McClenahan, Giles, and Mallett 2007; Rothmann and Barkhuizen 2008).

Years of experience

There is limited empirical evidence concerning the impact of years of experience on faculty burnout. In a sample of 158 US faculty, Blix et al. (1994) found that faculty members with less than 10 years of experience were more at risk of emotional exhaustion. Gonzalez and Bernard's (2006) study of 193 US academics found the same relationship. Of the remaining studies that have examined this relationship, no correlation between years of experience and burnout was observed (Bilge 2006; Byrne 1991; Rothmann and Barkhuizen 2008).

Academic rank and employment status

Empirical evidence on the role of rank, the hierarchical nature of faculty positions (e.g. assistant vs. associate professor in North America) and employment status (e.g. tenure-track, tenured, or contract-based) in relation to faculty burnout is limited as well as mixed. Azeem and Nazir (2008) measured burnout in a sample of 300 Indian academics and found lecturers (equivalent to assistant professors in North America) to experience a higher level of exhaustion than either professors or readers (equivalent to associate professor). Somewhat consistent results were revealed in a sample of 283 Turkish faculty members, with results showing exhaustion levels to be the lowest among full professors in contrast to assistant professors and lecturers (Tümkaya 2007). With respect to the role of employment status in relation to burnout, a study of 263 US academics (analysed across three empirical articles) showed that

adjunct full-time lecturers who had exclusively teaching responsibilities experienced lower levels of exhaustion and depersonalisation, and perceived a higher level of accomplishment as compared to tenured or tenure-track academics (Ghorpade, Lackritz, and Singh 2007, 2011; Lackritz 2004). Singh and Bush (1998) found that tenure status moderates the negative relationship between burnout and job satisfaction (stronger for non-tenured faculty) as well as between burnout and perceived lack of reward (stronger for tenured faculty). Finally, some of the studies observed no significant influence of rank and status on burnout (Blix et al. 1994; Fernet, Guay, and Senécal 2004; Gonzalez and Bernard 2006; Li, Li, and Sun 2013; McClenahan, Giles, and Mallett 2007; Van Emmerik 2002).

Antecedents of faculty burnout

More than half of the studies that were reviewed examined burnout in relation to its predictors. Explored antecedents of burnout were grouped into three categories according to the JD-R model: job demands, job resources and personal characteristics. The job demands assessed in the studies included role ambiguity, role conflict, workload, quantitative demands, total number of students taught in one professor's classes, over-qualification and pressure for productivity. Moreover, support from colleagues, superiors and organisations, as well as job control, decision-making, role clarity, reward and abundance of growth opportunity were evaluated as job resources. Optimism, work self-determination, personality, perceived competence, humour and emotional labour were included as personal factors.

Job demands

Job demands were consistently found to predict higher levels of faculty burnout (e.g. Fernet, Guay, and Senécal 2004; Zhong et al. 2009). More specifically, reported workload represents the most frequently examined aspect of academic job demands as a predictor of burnout (βs = .19–.51). High workload and quantitative demands (demands related to the amount of assigned work) were shown to be positive predictors of faculty burnout in studies conducted in South Africa and Spain (Barkhuizen, Rothmann, and van de Vijver 2014; Navarro et al. 2010; Rothmann, Barkhuizen, and Tytherleigh 2008). Moreover, work overload and pressure were consistently significant predictors of greater burnout (McClenahan, Giles, and Mallett 2007) or emotional exhaustion levels (Gonzalez and Bernard 2006; Van Emmerik 2002). Role conflict and role ambiguity were also reported to predict faculty burnout positively. The results of a study with 263 US faculty by Ghorpade, Lackritz, and Singh (2011) showed role conflict to impact emotional exhaustion and depersonalisation positively, with role ambiguity leading to lower perceived accomplishment. In a sample of 94 South African faculty, Pretorius (1994) also found role conflict to predict more exhaustion, and role ambiguity to predict greater depersonalisation, with neither factor predicting personal accomplishment. Finally, lack of role clarity was shown to predict greater emotional exhaustion in a large-scale study of 1067 Dutch academics (Van Emmerik 2002).

Other job demands have also been shown to predict burnout in post-secondary faculty, with the standardised coefficients reported for job demands predicting burnout ranging from .18 (Navarro et al. 2010) to .52 (Gomes, Faria, and Gonçalves 2013) across studies. For instance, over-qualification – the perception that an individual is more qualified than is needed to perform the assigned tasks – was a significant predictor of emotional exhaustion in a study of 193 Spanish academics (Navarro et al. 2010). Gomes, Faria, and Gonçalves (2013)

further showed a latent factor including greater pressure to increase scientific productivity, work-overload, work–home conflict, and working conditions to predict higher burnout in a sample of 333 Portuguese faculty. Pretorius (1994) found that the higher number of students taught is a significant antecedent of exhaustion and depersonalisation among South African academics. A more context-specific professorial demand, namely the work typologies, was shown to be a significant predictor of emotional exhaustion in a sample of US faculty members (Gonzalez and Bernard 2006). The work typologies represent the relative amount of time devoted to teaching, research, service and professional development of faculty members. The results of the study revealed that faculty who had a more balanced typology, as represented by lighter teaching loads which, in turn, allowed for greater time for research and service, reported significantly lower levels of emotional exhaustion compared to those classified as having heavy teaching loads.

Two studies further examined job demands as an aggregate variable in relation to burnout, with standardised coefficients reported ranging from .24 to 45. In a study of 398 Canadian faculty (Fernet, Guay, and Senécal 2004), a composite measure of workplace demands summing across workload, role clarity, role ambiguity and research-related pressure was found to predict higher levels of emotional exhaustion and depersonalisation. Similarly, in a study of 300 Chinese academics (Zhong et al. 2009), a job demand variable comprised of factors such as management role, relationships with others, career and achievement pressure, organisational structure and climate and work–home conflict, predicted total burnout scores.

Job resources

The extent of job resources available to academics has also been explored in relation to burnout, with the magnitude of standardised coefficients reported across studies ranging from small (β = .11; Van Emmerik 2002) to large (β = .79; Barkhuizen, Rothmann, and van de Vijver 2014). Social support was the most frequently examined antecedent of burnout. Findings indicated higher levels of support from one's organisation or superiors (Rothmann, Barkhuizen, and Tytherleigh 2008; Van Emmerik 2002), one's colleagues (Rothmann, Barkhuizen, and Tytherleigh 2008; Van Emmerik 2002) and social support in general (McClenahan, Giles, and Mallett 2007) to predict lower levels of reported burnout. Interestingly, among Dutch academics, social support in the workplace was more influential for females than males in predicting lower emotional exhaustion (Van Emmerik 2002). Job control predicted burnout in Canadian faculty, with greater control predicting lower exhaustion and depersonalisation, and higher levels of perceived accomplishment (Fernet, Guay, and Senécal 2004). Additionally, participation in decision-making was found to predict greater perceived accomplishment in South African academics (Pretorius 1994). Concerning findings observed using omnibus measures, the largest positive relations between burnout and job resources have been found in research utilising a composite measure of job resources including task characteristics, role clarity and relationships (Barkhuizen, Rothmann, and van de Vijver 2014). Nevertheless, other research analysing a composite latent variable including support, workplace rewards and opportunities for growth found higher resource levels to correspond with moderately lower levels of burnout (Rothmann, Barkhuizen, and Tytherleigh 2008). Moreover, a perceived lack of performance-contingent rewards similarly predicted higher research burnout among US tenured faculty (Singh and Bush 1998).

Personal factors

The reviewed studies examined several personal factors in relation to burnout, with stand-ardised coefficients ranging from .14 (Tümkaya 2007) to .75 (Singh and Bush 1998) in mag-nitude. For instance, Barkhuizen, Rothmann, and van de Vijver (2014) found that dispositional optimism indirectly predicted burnout by influencing academics' perceptions of work demands. Other studies showed optimism to lead directly to lower burnout levels (Otero-López, Mariño, and Bolaño 2008; Rothmann, Barkhuizen, and Tytherleigh 2008). Ghorpade, Lackritz, and Singh (2007), further, found the 'big five' personality characteristics to impact faculty burnout. Their results showed higher levels of extroversion and emotional stability (reverse coding of neuroticism), and lower levels of openness to experience to predict lower emotional exhaustion. Agreeableness and emotional stability negatively predicted deper-sonalisation, whereas each personality dimension, except for openness, positively impacted perceived accomplishment. Zhang and Zhu (2008) compared the effects of deep acting – an attempt to feel the displayed emotions – with surface acting – faking emotions to meet occupation norms – as emotional labour strategies in a sample of 164 Chinese faculty mem-bers. The findings revealed that deep acting predicted lower burnout levels, whereas surface acting predicted greater depersonalisation. Moreover, Singh and Bush (1998) showed that intrinsic motivation was a negative predictor of research burnout among US faculty members ($\beta=-.75$) with motivational variables having the largest coefficients among the personal factors reviewed. Finally, self-defeating humour was found to be detrimental to burnout and predicted higher levels of exhaustion and depersonalisation as well as lower perceived accomplishment among Turkish faculty (Tümkaya 2007).

Only seven studies examined mediation and moderation with respect to both occupa-tional and personal factors in relation to burnout, with two studies showing no interactive effects (Barkhuizen, Rothmann, and van de Vijver 2014; Rothmann, Barkhuizen, and Tytherleigh 2008). In contrast, Navarro et al. (2010) found that perceived competence medi-ated the effects of role ambiguity and overload on depersonalisation and accomplishment. Role ambiguity and overload predicted lower faculty perceived competence that, in turn, predicted higher depersonalisation and lower perceived accomplishment. Secondary cog-nitive appraisal, represented by coping potential and control perception, was shown to partially mediate the relationship between demands (stressors) and burnout in a sample of Portuguese academics (Gomes, Faria, and Gonçalves 2013). Higher demands predicted lower coping potential and control perceptions that predicted higher faculty burnout. A three-way interaction between job demands, job resources and self-determination was also found in the study by Fernet, Guay, and Senécal (2004), showing higher levels of job control to reduce the impact of job demands on burnout specifically for highly self-determined Canadian faculty. Similarly, personality characteristics were found to reduce the negative effects of role ambiguity and role conflict on burnout in a study of US faculty (Ghorpade, Lackritz, and Singh 2011).

Other antecedents

Burnout has additionally been examined in relation to satisfaction and stressors outside the workplace. In a study of 100 Irish academics, Byrne et al. (2013) showed that satisfaction with promotion and one's work predicted lower burnout levels. Similar findings were observed in 194 Turkish academics (Bilge 2006), with coefficients reported ranging from .23 to 49 in magnitude for the two studies. Finally, Otero-López, Mariño, and Bolaño (2008)

showed that demands and resources outside the workplace also explained small proportions of variance (0.5–11%) of the experience of burnout; daily hassles and life events led to greater burnout, while support from family and friends predicted lower burnout levels.

Correlates of Faculty Burnout

Researchers have primarily examined the correlates of burnout in relation to personal factors, occupational factors including job demands and resources and indicators of personal and occupational well-being. Empirical evidence about correlates of burnout is limited to variables not examined as antecedents or outcomes of burnout.

Personal factors

Intrinsic motivation, Type-A behaviour (i.e. high achievement ambitions, impatience and heightened pace of life), caring, coping humour, coping abilities and personality represent the critical psychosocial variables that have been examined in relation to faculty burnout. Intrinsic motivation was the most frequently explored of these variables and was highlighted in four articles (Jamal 1999a; Li, Li, and Sun 2013; Singh and Bush 1998; Teven 2007). Findings consistently showed a negative relationship between motivation and exhaustion as well as depersonalisation, and a positive relationship between motivation and personal accomplishment. Correlations of moderate magnitude between motivation and burnout are reported in samples of Canadian ($N = 420$) and Pakistani ($N = 335$) college faculty (Jamal 1999a), and in a sample of 268 new faculty members in China (Li, Li, and Sun 2013). Moreover, Singh and Bush (1998) found a small negative relationship between intrinsic motivation, and between emotional exhaustion and depersonalisation, in a sample of 258 US faculty. Finally, Teven (2007) showed US college faculty who experienced burnout to also reported lower levels of intrinsic motivation ($N = 48$), with the correlation being strong in magnitude.

With respect to the remaining psychosocial variables, Type-A behaviour patterns were found to be positively and moderately correlated with overall burnout levels in Canadian and Pakistani college faculty (Jamal 1999b; Jamal and Baba 2001). Caring, as represented by empathy, understanding and responsiveness, was found by Teven (2007) to be negatively and moderately correlated with exhaustion, strongly correlated with depersonalisation and weakly correlated with loss of accomplishment in college faculty. Moreover, hardiness, represented by commitment, control and challenge as abilities necessary to endure stressful conditions, was reported to correlate negatively, albeit weakly, with faculty burnout (Otero-López, Mariño, and Bolaño 2008). In terms of coping behaviour, Blix et al. (1994) found that burnout was moderately correlated with lower coping abilities among US faculty, with finding from Tümkaya (2007) showing a small, negative correlation between humour-related coping and burnout among Turkish academics.

Occupational factors

Existing research on faculty burnout has mainly examined occupational factors as critical antecedents, with multiple studies exploring the correlation between burnout and workplace characteristics (Jamal 1999a; Jamal and Baba 2001; Lackritz 2004; Siegall and McDonald 2004; Singh and Bush 1998). Social support as a resource, and existing workplace demands or lack of resources (e.g. lack of performance-contingent rewards, person–organisation value

mismatch, high numbers of students taught, work-related stressors) have each been found to correlate with burnout in the studies reviewed. For instance, Singh and Bush (1998) and Jamal and Baba (2001) found a small negative correlation between burnout and social support among US-tenured professors and Canadian college faculty, respectively. Siegall and McDonald (2004) also found person–organisation value congruence to be negatively correlated with multiple burnout dimensions among US faculty (N = 135; coefficients were medium to large in magnitude), with lack of performance-contingent rewards found to be moderately associated with greater emotional exhaustion and depersonalisation among US faculty members (Singh and Bush 1998).

Similarly, findings revealed that perceived job stress is correlated with greater experienced burnout among US faculty (Blix et al. 1994) as well as Canadian and Pakistani college faculty (Jamal 1999a), with the correlations observed being medium to large in magnitude. In contrast, Lackritz (2004) examined 13 job-related stressors in the context of higher education in a sample of US faculty and found low positive relationships between burnout dimensions and various professorial demands (e.g. teaching load, number of service activities, total number of students taught, time at work). In contrast, higher total number of students taught and negative student evaluations were found to be the only significant predictors of depersonalisation (Lackritz 2004). Finally, an examination of the relationship between instructional dissent, defined as students' complaints and disagreements about instructional issues (as a transactional demand), and burnout among 113 US faculty showed a small, positive correlation between emotional exhaustion and dissent (Frisby, Goodboy, and Buckner 2015).

Well-being

Faculty burnout was consistently found to be correlated with various indicators of occupational well-being, including: job satisfaction, quitting intentions, job involvement, engagement, organisational commitment and organisational citizenship behaviours as well as stress, health problems, anxiety and psychological complaints. Job satisfaction was negatively and consistently correlated with burnout, with the correlation being medium to high in magnitude (Blix et al. 1994; Jamal 1999b; Jamal and Baba 2001; Li, Li, and Sun 2013; McClenahan, Giles, and Mallett 2007; Siegall and McDonald 2004; Teven 2007; Vera, Salanova, and Martín 2010; Zhang and Zhu 2008). It is perhaps not surprising that burnout has also been found to correlate positively, and of moderate to large magnitude, with expressed intentions by post-secondary faculty to leave their current position (Blix et al. 1994; Jamal 1999b; a, Li, Li, and Sun 2013; Siegall and McDonald 2004). The reviewed studies, however, explored academics' perceived intentions to leave rather than the actual quitting behaviour.

Engagement, defined as an energetic and effective connection with one's work (Schaufeli, Bakker, and Salanova 2006), and job involvement, defined as the psychological identification with one's job (Kanungo 1982), have also been typically associated with burnout in occupational settings (Barkhuizen, Rothmann, and van de Vijver 2014; Jamal 1999a; Vera, Salanova, and Martín 2010). In two samples of 595 South African academics (Barkhuizen, Rothmann, and van de Vijver 2014) and 170 Spanish faculty members (Vera, Salanova, and Martín 2010), engagement was found to be negatively correlated with burnout. A small, negative correlation between job involvement and burnout was also found in a sample of 335 Pakistani college faculty (Jamal 1999a). Barkhuizen, Rothmann, and van de Vijver (2014) further showed greater burnout to be moderately associated with lower commitment among South African faculty members. Similar finding were reported by Abdi et al. (2012). They found that

burnout was correlated negatively with organisational citizenship behaviours such as con-scientiousness, courtesy and sportsmanship in a sample 45 physical education faculty members from Iran (correlations were medium to large in magnitude).

Research evidence also indicates a negative correlation between burnout and psychological as well as physical well-being, family-related stressors and work–home conflict. For instance, findings from a sample of 320 US faculty showed burnout to be strongly correlated with depression (Meier 1984). Moreover, a higher level of experienced burnout strongly corresponded to more perceived physical health problems in a study of US faculty members (Blix et al. 1994). Finally, two studies included in this review additionally investigated the relationships between burnout and family-related stressors as well as work–home conflict. In their study of female college faculty, Sahu and Misra (1995) observed a small positive correlation between family-related stress and burnout, with findings with US faculty similarly showing correlation of small magnitude between work–home conflict and burnout (Singh and Bush 1998).

Consequences of faculty burnout

Although the empirical evidence examining the consequences of burnout for academics is limited, results generally show that burnout can directly predict, or mediate the effects of more global predictors, across multiple indicators of well-being and performance – such as ill health, stress, depression, low satisfaction and reduced work activities (Barkhuizen, Rothmann, and van de Vijver 2014; Navarro et al. 2010; Rothmann, Barkhuizen, and Tytherleigh 2008; Siegall and McDonald 2004; Zhong et al. 2009). Employing structural equation mod-elling, the reported results show burnout to mediate the relationship between work stressors and health problems in South African academics as indicated by large coefficients (.72–.74) for burnout as a predictor of health problems (Barkhuizen, Rothmann, and van de Vijver 2014; Rothmann, Barkhuizen, and Tytherleigh 2008). A much smaller path coefficient (.28) was observed for burnout as a predictor of poor health in a sample of Chinese faculty (Zhong et al. 2009), with findings further showing high burnout levels to correspond with not only greater depression (β = .44; Zhong et al. 2009) but also lower job satisfaction levels among US non-tenured academics (i.e. research burnout, β=−.49; Singh and Bush 1998). Moreover, Navarro et al. (2010) found that emotional exhaustion mediated the effects of work overload, role conflict and over-qualification on stress symptoms, personal fulfilment and depersonalisation in Spanish faculty members. Finally, Siegall and McDonald (2004) found burnout to significantly mediate the relationship between person–organisation value mismatch as a stressor and job satisfaction, as well as time spent on work activities as outcomes.

General Discussion

As informed by the Job Demands–Resources model, which served as the guiding framework for classifying and proposing expected relationships between the various personal and con-textual variables associated with burnout experiences, this review sought to examine and synthesise findings reported in the published literature on the antecedents, correlates and outcomes of burnout in post-secondary faculty. Overall, the review shows that the job demands, job resources and personal characteristics significantly contribute to the experiences of burnout among faculty members. No definitive patterns were evident in the review

articles with respect to the role of demographic variables in relation to burnout, however. These aspects are elaborated upon further below.

Demographic characteristics

Consistent with the existing research showing the largely inconclusive and contradictory influence of demographic variables on burnout (Maslach, Schaufeli, and Leiter 2001; Schaufeli and Enzmann 1998), this review did not find background variables to play a major contributing role in faculty burnout levels. No consistent gender differences were found in relation to the level of experienced burnout, as some studies reported more exhaustion in females (e.g. Bilge 2006; Ghorpade, Lackritz, and Singh 2011) while others suggested greater depersonalisation in males (e.g. Bilge 2006; Doyle and Hind 1998). Most findings showed no relationship with gender. The failure to find consistent gender differences in relation to burnout may, however, be partly attributed to variables such as academic rank and status that are often confounded with gender (Maslach 1998; Rothmann and Barkhuizen 2008).

Additionally, the role of academic rank or status in relation to burnout was inconclusive, as the majority of studies that examined this demographic variable reported no significant relationship between rank and status and faculty burnout (e.g. Blix et al. 1994; Fernet, Guay, and Senécal 2004; Gonzalez and Bernard 2006; Li, Li, and Sun 2013). Nonetheless, the potential confound between rank/status and years of experience may partly explain these contradictory findings. It is worth mentioning that a lack of international consistency with respect to faculty rank designation also makes comparisons based on rank difficult to interpret. Finally, although age and years of experience are also often confounded with each other, a consistent pattern of results emerged for these variables, showing faculty who are younger or new to the profession to be more vulnerable to burnout (e.g. Bilge 2006; Byrne 1991; Ghorpade, Lackritz, and Singh 2011; Li, Li, and Sun 2013). This pattern of relationship might be a result of selection bias, meaning that faculty with high levels of burnout may already have quit their positions, whereas those who have held on to their employment are those who have been able to cope with the high demands and stressors successfully. In contrast, it can be assumed that older, or more experienced academics, have likely developed more efficient coping strategies to deal with job demands and lack of resources, thereby contributing to lower burnout levels (Watts and Robertson 2011). In sum, the contribution of demographic characteristics to burnout levels was neither consistent nor substantial, warranting a greater focus on occupational factors and individual differences in personal characteristics that yielded more consistent results.

Contributors to burnout

Following from the Job Demands–Resources model, the antecedents of burnout examined in the reviewed articles were categorised into job demands, job resources and personal characteristics. Personal characteristics, as well as perceived occupational demands and resources, were found to be consistently correlated with or predictive of faculty burnout. Overall, these types of antecedents most significantly contributed to emotional exhaustion levels, and had the least substantial influence on perceived personal accomplishment. As suggested in the general literature on occupational burnout, personal characteristics can influence employees' adjustment to occupational demands, moderate the relationship between job demands and burnout levels and buffer negative aspects of the work environment (Fernet, Guay, and Senécal 2004). This review yielded similar findings, showing that

personal characteristics such as optimism, hardiness, coping abilities and intrinsic motivation can be of great importance in off-setting burnout. These attributes either corresponded directly with lower levels of burnout (Blix et al. 1994; Otero-López, Mariño, and Bolaño 2008; Singh and Bush 1998) or indirectly predicted lower burnout by impacting the academics' perceptions of job demands or resources (Barkhuizen, Rothmann, and van de Vijver 2014). On the other hand, characteristics such as Type-A behaviours were found to predict higher burnout levels (Jamal 1999b; Otero-López, Mariño, and Bolaño 2008). The results of the few studies that have examined the interaction between personal factors and occupational factors (e.g. Gomes, Faria, and Gonçalves 2013; Navarro et al. 2010) indicate that academics can draw on their personal resources to reduce the negative impact of work demands (Ghorpade, Lackritz, and Singh 2011).

Consistent with the Job Demands–Resources model (JD-R) and the reported findings in various occupational settings showing job demands to adversely affect burnout levels (Maslach, Jackson, and Leiter 1996; Maslach and Leiter 1997; Schaufeli and Bakker 2004), this review also found job demands to be significant predictors of faculty burnout. The reviewed studies confirmed the negative contribution of workload and value incongruence on reported burnout among academics (e.g. Barkhuizen, Rothmann, and van de Vijver 2014; Siegall and McDonald 2004), thus supporting the Maslach and Leiter (1997) model with respect to the negative influence of workload and value conflict. The reviewed studies also identified other occupational demands that predicted faculty burnout: namely, negative and demanding task characteristics, higher total numbers of students taught and over-qualification (e.g. Navarro et al. 2010; Pretorius 1994). Moreover, the role of resources in contributing to lower burnout resonates with the JD-R model in general, and Maslach and Leiter's (1997) model in particular, concerning the potential benefits of social support, rewards and control (e.g. Fernet, Guay, and Senécal 2004; Rothmann, Barkhuizen, and Tytherleigh 2008). However, although having more opportunities for professional growth was found to be a significant occupational resource that predicted lower levels of faculty burnout, this factor is not addressed in the model by Maslach and Leiter (1997).

This review also showed that, although burnout is an occupational syndrome, factors outside the workplace can exacerbate the situation and lead to either greater burnout (e.g. daily hassles, negative life events, family-related stressors) or lower burnout levels (e.g. friends and family support; Otero-López, Mariño, and Bolaño 2008; Sahu and Misra 1995). Moreover, work–home conflict was found to be a significant predictor of faculty burnout that surprisingly has been examined in only a few studies to date (Gomes, Faria, and Gonçalves 2013; Singh and Bush 1998; Zhong et al. 2009). Future research is recommended to more closely examine these variables, given that family-related stressors may, to some extent, be confounded with occupational demands and resources.

Consequences of burnout

Consistent with the JD-R model and empirical findings demonstrating the adverse effects of burnout on employee well-being and performance (Maslach, Jackson, and Leiter 1996; Schaufeli and Enzmann 1998), this review also confirmed that higher burnout levels may lead to lower psychological and physical well-being as well as occupational satisfaction in post-secondary faculty. In sum, higher levels of burnout have been found to correspond with greater anxiety, depression, psychological complaints, poor health, disengagement, dissatisfaction, as well as turnover intentions in faculty members (e.g. Barkhuizen, Rothmann,

and van de Vijver 2014; Zhong et al. 2009). This underscores the importance of faculty burn-out with respect to more global measures of well-being and psychological adjustment.

Limitations and directions for future research

This review highlights three main theoretical and methodological limitations of the existing research on faculty burnout. First, in approximately half of the reviewed studies, a theoretical framework for examining burnout was not apparent, with only the Maslach definition of burnout being provided or a more general reference to theories of stress. Given the preva-lence of theories specific to burnout, future research on faculty burnout informed by well-de-veloped theoretical frameworks, such as the Job Demands–Resources model (JD-R), is recommended. The JD-R is a well-known model that accounts for both critical antecedents (job demands and resources) and outcomes (health and performance) of burnout experi-ences; it is generalisable across occupational settings due to not imposing limitations as to specific job demands or resources (Schaufeli and Taris 2014).

The second limitation is primarily methodological in nature and pertains to each of the studies reviewed having used self-report instruments, quantitative methods and correlation or regression analysis for examining burnout. Evaluating more objective measures of work quality and quantity, such as the number of working hours, teaching load and observer ratings of the working conditions (Demerouti et al. 2001), could help reduce self-report bias. Additionally, there exists a paucity of research on the developmental aspect of burnout (Maslach, Schaufeli, and Leiter 2001) with research lacking, at the time of writing, on the progression of burnout over time in post-secondary faculty. Accordingly, qualitative or mixed method designs could provide a deeper understanding of mechanisms and processes on how burnout develops, how different antecedents contribute to experiencing burnout and how burnout leads to negative outcomes.

Additionally, as the majority of studies were cross-sectional in nature, there exists limited empirical evidence as to development of burnout over time in post-secondary faculty. The results of the review, moreover, did not shed light on the causality and directionality of the relationships between burnout and related constructs due to mainly reporting correlational analyses that do not provide evidence of causality. To address this research gap, longitudinal data are also needed to examine more effectively possible reciprocal causality, how aca-demics' burnout changes over time, as well as the mechanisms that underlie observed changes, with such methods also affording more powerful statistical techniques (e.g. latent growth analysis). Although there is a general complexity involved in researching these inter-connected and multifaceted human factors in different populations, longitudinal research with faculty member also presents limitations. Given that recruitment and high attrition represent critical potential drawbacks of longitudinal research with faculty, this develop-mental focus may, thus, be more immediately and efficiently addressed by way of the qual-itative analysis of in-depth interviews and text-mining of detailed responses provided by post-secondary faculty. Finally, the results of the review are limited by the size and scope of the scattered existing research. Thus, future larger scale research is needed to examine the generalisability of the findings observed. Whereas some of the identified themes (e.g. over-load, role conflict, motivation) are consistently related to burnout across countries and educational contexts, other findings concerning other variables examined in single studies (e.g. productivity pressure, work typology) are in need of replication across samples.

The present review suggests potentially valuable directions for future research on faculty burnout. Concerning the antecedents of burnout in faculty, the job demands and resources explored in the studies that were reviewed are largely general in nature and common across occupational settings, and do not adequately capture the multifaceted nature of academic responsibilities and employment. Future studies should, thus, examine factors specific to the academic profession, such as pressure for publications or positive teaching evaluations (e.g. among pre-tenure faculty), as well as institutional policies, and teaching- and service-related demands. Given limited research on the relationship between burnout and interpersonal factors in post-secondary faculty (i.e. instructional dissent; Frisby, Goodboy, and Buckner 2015), there exists a clear need for further study of the influence of interpersonal factors on burnout experiences in academics with respect to both student- and colleague-related demands and resources. Similarly, the influence of factors outside the workplace on faculty burnout, such as work–home conflict (e.g. Singh and Bush 1998; Zhong et al. 2009) and familial obligations, warrants further investigation. Moreover, an important corollary of conducting larger-scale research on this topic is the much-needed use of more advanced statistical techniques in future studies to provide a more nuanced perspective on the specific nature of observed relations between faculty burnout salient correlates (e.g. structural equation modelling, multi-level methods).

The literature that has been reviewed additionally provides evidence concerning the consequences of faculty burnout at the individual level, such as negative effects on well-being and performance. Researchers are, therefore, encouraged to explore other outcomes, such as those of an interpersonal or organisational nature, to understand better the effects of professorial burnout on students, colleagues, and institutions. The present review further indicated that the interaction between personal and external factors was under-examined in existing research, with only seven studies at the time of writing having explored both occupational and personal factors as predictors of faculty burnout. Further research is thus needed to examine how various personal as well as structural and workplace factors interact and combine to influence faculty members' experiences of burnout in academia.

As afforded by an anticipated continued increase in research on faculty burnout, comprehensive meta-analytic analyses of the nature and relative magnitude of emerging relations between predictors of burnout in post-secondary faculty internationally are needed to understand more clearly which factors are most critical to address, so as to develop effective interventions and policy initiatives. Once a substantive and consistent corpus of research on burnout antecedents is available, intensive meta-analysis should prove particularly informative for evaluating the relative strength of presently under-examined predictors (e.g. publication pressure, tenure status) thus serving to better inform the focus of faculty development efforts. Finally, future research on faculty who have successfully avoided burnout and maintained their academic engagement and well-being is warranted (Maslach, Jackson, and Leiter 1996), to provide a more in-depth examination of the coping strategies used by faculty to avoid experiences of burnout. For example, a recent review of emerging research on critical antecedents of subjective well-being in post-secondary faculty by Salimzadeh, Saroyan, and Hall (2017) represents a useful complementary approach to examining faculty development, in terms of predictors of positive outcomes. Similarly, research with post-secondary adult learners suggests that conceptual frameworks examining salient predictors of resilience (e.g. individual differences in traits and coping styles) may also prove beneficial

for informing future research with faculty on how to prevent burnout experiences (Dunn, Iglewicz, and Moutier 2008).

Conclusion

As outlined in the reviewed studies, burnout is experienced by many academics in post-secondary institutions internationally. Findings show various occupational factors, personal characteristics and stressors both within and outside the workplace to contribute to burnout levels, with adverse consequences of burnout observed for individual academics but also bearing potential concern and consequences for students, colleagues and the institution. Although individual-level interventions are, of course, strongly recommended to help academics deal with workplace demands (e.g. effective coping, work management or relaxation techniques), we believe that there is also a need for more fundamental, institutional efforts to deal with faculty burnout. Considering the substantial contribution of occupational factors to burnout levels, interventions that target both individuals as well as the work demands and resources are recommended (Maslach, Schaufeli, and Leiter 2001). The six types of workplace dimensions (workload, control, value, fairness, reward and community) as proposed by Maslach and Leiter (1997) and highlighted in this review may also represent a useful starting point for improving work environments. Finally, a more detailed examination of the effects of context-specific factors in higher education can further inform institutional reform.

Disclosure statement

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Appendix

Table A1. Results of the review of faculty burnout.

Study	Context/sample	Measure of burnout/analysis	Demographic variables	Correlates of burnout	Antecedents of burnout	Outcomes of burnout
Abdi et al. (2012)	Iran/45 faculty members	22-item MBI/correlation		Organisational citizenship behaviours (–): - Conscientiousness - Courtesy - Sportsmanship		
Azeem and Nazir (2008)	India/300 faculty members	MBI-HSS (frequency)/ Mann–Whitney test for difference	Academic status (EE)			
Barkhuizen, Rothmann, and van de Vijver (2014)	South Africa**/595 academic staffs, 49.9% male	MBI-GS (frequency); exhaustion and cynicism)/SEM		- Work engagement (–) - Organisational commitment (–)	- Job demands (Workload and quantitative demands, +) - Job resources (Supervisor support, role clarity, and task characteristics, –) - Dispositional optimism (Indirect effect)	- Health problems (+)
Bilge (2006)	Turkey/194 academic, 39.7% male	22-item MBI/stepwise regression	Academic status (EE, PA), gender (DP)		- Intrinsic satisfaction (–) - Extrinsic satisfaction (PA+)	
Blix et al. (1994)	USA/158 tenure-track faculty, 79% male	MBI-ES (frequency)/ correlation, ANOVA, and chi-square	Years of experience (EE–, DP–)	EE: - Work stress (+) - Health problems (+) - Job change (+) - Coping ability (–) - Satisfaction (–)		
Byrne (1991)	Canada/219 faculty members, 47.5% male	MBI-ES (frequency)/ setwise regression	Gender (EE, PA), age (EE–, PA+), level of students (PA+)			
Byrne et al. (2013)	Ireland/100 faculty members, 55% male	MBI-ES (frequency)/ stepwise regression			Satisfaction with: - Hours of work (EE–) - Promotion prospects (EE–, DP–) - Work undertaken (DP–, PA+)	

(Continued)

Table A1. (*Continued*)

Study	Context/sample	Measure of burnout/analysis	Demographic variables	Correlates of burnout	Antecedents of burnout	Outcomes of burnout
Doyle and Hind (1998)	UK/582 Psychology faculty members, 55.7% male	MBI-ES (frequency)/stepwise regression	Gender (DP)		- Job demands (EE+, DP+) - Job control (EE− DP−, PA+) - Self-determination (EE−, DP−, PA+) - Job control* self-determination (for high self-determined)	
Fernet, Guay, and Senécal (2004)	Canada/398 faculty members, 70.3% male	22-item MBI (frequency)/ hierarchical moderated regression	Age (EE−) gender (EE), rank (EE)			
Frisby, Goodboy, and Buckner (2015)	USA/113 faculty members, 34.5%	EE from a Modified MBI (frequency)/correlation		- Instructional dissent (+)		
Ghorpade, Lackritz, and Singh (2007)	USA**/263 faculty members, 54% male	MBI-ES (frequency)/ hierarchical regression	Gender (EE, DP), academic status (EE, DP, PA), age (EE−)		- The big five personality characteristics (−)	
Ghorpade, Lackritz, and Singh (2011)	USA**/263 faculty members, 54% male	MBI-ES (frequency)/stepwise regression	Gender (EE, DP), academic status (EE, DP, PA), age (EE−)		- Role conflict (EE+, DP+) - Role ambiguity (PA−) - The big five personality: - Extraversion (EE−) - Emotional stability (EE−, PA+) - Agreeableness (DP−, PA+) - Role ambiguity*openness to experience (EE) - Role ambiguity*openness to experience (DP) - Extraversion*Role conflict - Conscientiousness*Role ambiguity (PA)	
Gomes, Faria, and Gonçalves (2013)	Portugal/333 faculty members, 38.7% male	MBI-ES (frequency)/SEM			- Stress (Work overload, the need to increase scientific productivity, and the home–work interface, work conditions) - Cognitive appraisals (mediator)	

Gonzalez and Bernard (2006)	USA/37 department chair and 156 full time undergraduate faculty, 71.2% male	MBI-ES/categorical regression	Age (DP-), years experience (EE-)	EE: - Workload intensity (+) - Academic workload typology (-) - Years in service were predictors (-)
Jamal (1999a)	Canada and Pakistan Canada**/420 college faculty, 57% male Pakistan**/335 college faculty, 65% male	22-item MBI (Likert)/correlation		Canada and Pakistan: - Stress (+) - Intrinsic motivation (-) - Turnover intention (+) Pakistan: - Job involvement (-)
Jamal (1999b)	Canada and Pakistan Canada**/420 college faculty, 57% male Pakistan**/335 college faculty, 65% male	22-item MBI (Likert)/correlation, moderated regression for Type A		Canada and Pakistan: - Turnover intention (+) - Type-A behaviour (+) - Job satisfaction with pay, work, and supervisor (-) Pakistan: - Job satisfaction with co-workers (-) Stress*type-A behaviours
Jamal and Baba (2001)	Canada**/420 college faculty, 57% male	22-item MBI (Likert)/correlation		- Type-A behaviour (+) - Social support (-) - Job satisfaction (-)
Lackritz (2004)	USA**/265 faculty members, 54% male	MBI-ES (frequency)/correlation, t-test	Gender (EE, DP), academic status (EE, DP, PA), age (EE-)	- Total number of students (EE+, DP+) - Number of graduate students (EE+, DP+) - Teaching load (EE+) - Time grading (EE+) - Service time (EE+) - Time in work (EE+, PA+) - Student evaluation (DP-, PA+) - Office hours (PA+)

Table A1. (*Continued*)

Study	Context/sample	Measure of burnout/analysis	Demographic variables	Correlates of burnout	Antecedents of burnout	Outcomes of burnout
Li, Li, and Sun (2013)	China/268 faculty in HSS, 51.5% male	MBI-GS/correlation	Teaching experience (E), professional area (E, CY), level of education (E), age (CY, PA)	- Turnover (+) - Satisfaction (−) - Motivation (−)		
McClenahan, Giles, and Mallett (2007)	UK/166 faculty member, 63.2% male	MBI-GS (frequency; exhaustion and cynicism)/ hierarchical linear regression	Job contract	- Psychological distress and anxiety (+) - Satisfaction (−)	- Demands (+) - Support (−)	
Meier (1984)	USA/320 faculty members, 43.4% male	MBI-HSS (frequency and intensity)/correlation		- Depression (+) - Order (−)		
Navarro et al. (2010)	Spain/193 research faculty, 65.8% male	22 item MBI Spanish version/ maximum likelihood estimation			EE: - Overload (+) - Role conflict (+) - Over qualification DP: - EE (+) PA: - DP (−)	- Stress symptoms (+)
Otero-López, Mariño, and Bolaño (2008)	Spain/813 faculty members, 55% male	MBI-ES (frequency)/stepwise regression			- Friend support (EE−, DP−) - Family support (DP−, PA+) - Daily hassles (EE+, PA−) - Optimism (EE−, DP−, PA+) - Work hours (EE+, DP+) - Type-A behaviours (EE+) - Hardiness (EE+, PA−) - Life events (EE+)	
Pretorius (1994)	South Africa/94 faculty members, 69% male	22-item MBI/regression			- Role conflict (EE+) - Number of students (EE+, DP+) - Role ambiguity (DP+) - Decision-making (PA+)	
Rothmann and Barkhuizen (2008)	South Africa**/595 academic staffs, 49.9% male	MBI-GS and DP from MBI-ES/ MANOVA	Age (E−, PA+)			

Study	Sample	Measure/analysis	Predictors/correlates	Outcomes
Rothmann, Barkhuizen, and Tytherleigh (2008)	South Africa/270 academic staff, 48.9% male	MBI-GS (frequency; exhaustion and cynicism)/SEM, MANOVA	- Job demands (+) - Resources (−) - Optimism (−)	- Ill health (+)
Sahu and Misra (1995)	India/120 female college faculty	MBI-HSS/correlation	- Family related stress (EE+, DP+, PA−) - Total life stress (EE+, DP+) - Society related stress (DP+)	
Siegall and McDonald (2004)	USA/135 faculty members, 61% male	22-item MBI (intensity)/correlation, mediation	- Job satisfaction (EE−, DP−, PA+) - Person–organisation value congruence (EE−, DP−, PA+) - Intention to leave (EE+, DP+, PA−) - Less non-work activities (EE+, DP+, PA−)	- Satisfaction (−) - Less time on teaching and professional development (+)
Singh and Bush (1998)	USA/258 tenured marketing faculty, 88% male	22-item MBI/correlation, polar extreme approach	Age (EE), number of children at home (EE+) - Research burnout (EE+, DP+) - Intrinsic motivation (EE−, DP−) - Lack of performance contingent rewards (EE+, DP+) - Work–home conflict (EE+, DP+) - Social support (EE−, DP−, PA+)	
Singh and Bush (1998)	USA/328 Faculty members, 80% male	Research-related burnout measure (by authors)/SEM	Tenure status - Intrinsic motivation (−)	- Job satisfaction (only for non-tenured, −)

(Continued)

Table A1. (*Continued*)

Study	Context/sample	Measure of burnout/analysis	Demographic variables	Correlates of burnout	Antecedents of burnout	Outcomes of burnout
Teven (2007)	USA/48 college faculty, 56% male	21-item MBI (Likert)/correlation		- Teacher motivation (EE–, DP–) - Job satisfaction (EE–, DP–) - Caring (EE–, DP– PA+) - The big five personality (–)	Lack of perceived rewards (+, only for tenured)	
Tümkaya (2007)	Turkey/283 faculty members, 65.7% male	22-item MBI (intensity)/ t-test, stepwise regression	Gender (EE), age (EE–, DP–), rank (EE)	- Adaptive humour (EE–, DP–; PA+),	- Maladaptive humour (EE+, DP+, PA–) - Coping humour (PA+)	
Van Emmerik (2002)	Netherlands/1067 academic staffs, 62.2% male	EE from the Dutch MBI/ moderated regression	Gender (interaction effect)		- Role clarity (+) - Work pressure (+) - Support of work superior and colleagues (–) - Gender*supportive departmental culture - Gender*practical assistance in department	
Vera, Salanova, and Martín (2010)	Spain/170 faculty members, 60% male	MBI-GS and DP from MBI-ES/ANOVA		- Intrinsic satisfaction (–) - Engagement (–)		
Zhang and Zhu (2008)	China/164 college faculty, 22.6% male	22-item MBI (Likert)/ correlation, multiple regression		- Job satisfaction (–)	- Deep acting (EE–, DP–, PA+) - Surface acting (DP+)	
Zhong et al. (2009)	China/300 faculty members, 51.7% male	MBI-GS/path analysis			- Stress (factors intrinsic to the job, management role, relationships with others, career and achievement, organisational structure and climate, work–home interference, +)	- Depression (+) - Poor Health (+)

**These samples have been analysed in more than one study.
Note: MBI = Maslach Burnout Inventory, MBI-ES = Maslach Burnout Inventory-Educational Survey, MBI-GS = Maslach Burnout Inventory-General Survey, MBI-HSS = Maslach Burnout Inventory-Human Services Survey, EE = Emotional Exhaustion, E = Exhaustion, CY = Cynicism, SEM = Structural Equation Modelling, + = Positive relationship, – = Negative relationship.