Chapter 3
Consequences of Job Stress for the Mental Health of Teachers

Irvin Sam Schonfeld, Renzo Bianchi, and Peter Luehring-Jones

Abstract This chapter examines research on the relationship between job stressors and mental health (depressive symptoms, burnout, and mental disorders such as depression) in teachers. Teachers are exposed daily to job stressors (e.g., student disruptiveness) that have been linked to adverse mental health effects. Epidemiologic research indicates that when compared to members of other groups, teachers experience higher rates of mental disorder, although some studies question that conclusion. Large-scale studies indicate when compared to members of other occupational groups, teachers are at higher risk for exposure to workplace violence, with its adverse mental health consequences. Longitudinal research has linked teaching-related stressors to depressive and psychosomatic symptoms, alcohol consumption, and burnout. Research on the efficacy of workplace coping has been weak. Recent research suggests that burnout may be better conceptualized as a depressive syndrome than a separate entity.

Keywords Teachers • Stress • Depression • Burnout • Violence • Coping

I.S. Schonfeld (✉)
Department of Psychology, The City College of the City University of New York,
New York, NY, USA

Departments of Educational Psychology and Psychology, The Graduate Center of the City
University of New York, New York, NY, USA
e-mail: ischonfeld@ccny.cuny.edu

R. Bianchi
Institute of Work and Organizational Psychology, University of Neuchâtel,
Neuchâtel, Switzerland
e-mail: renzo.bianchi@unine.ch

P. Luehring-Jones
Department of Psychological and Brain Sciences, Boston University,
Boston, MA, USA
e-mail: pluehrin@bu.edu

Teaching is a popular occupational choice; teachers comprise a little more than 3% of the U.S. civilian workforce (Bureau of Labor Statistics, 2015), yet some epidemiological evidence shows that teachers experience mental health problems at a disproportionately high rate when compared to the rates found in other occupational groups. Whether emanating from students or organizational conditions, work stress has been identified as a contributor to these problems. Among all occupations for which a college degree is required, teaching has among the highest turnover rates, for example, higher than that of nurses (Ingersoll, 2013). However, high rates of turnover have *not* been a function of excess retirements (Ingersoll, 2001; Ingersoll & May, 2012), and more likely reflect the stressfulness of the working conditions many teachers face (Ingersoll, 2001; Ingersoll & May, 2012).

Workplace stressors affect teachers' mental health (MH) *and* turnover intentions. By MH, we refer to both psychological symptoms (e.g., depressed mood) and mental disorders (e.g., major depression). Stressors that affect teachers have consistently been identified in both qualitative and quantitative research. These stressors include: student fighting, disruptiveness, and indifference; unsupportive administrators; and overly prescriptive supervisors who limit teacher autonomy (Finlay-Jones, 1986; Ginsberg, Schwartz, Olson, & Bennett, 1987; Hastings & Bham, 2003; Ingersoll, 2001; Schonfeld, 2006; Schonfeld & Santiago, 1994; Shirom, Oliver, & Stein, 2009; Sinclair, Martin, & Croll, 2002; Younghusband, 2008).

This chapter comprises seven sections. The first examines epidemiologic research on the risk and prevalence[1] of mental disorders and high levels psychological distress in teachers as compared to prevalence estimates in other groups. The second and third sections cover within-occupation research on the relation of workplace stressors to teacher MH and burnout. The fourth section evaluates the *longitudinal* research covered in the previous sections. The fifth underlines ways to improve methodological practices in research on stress and MH. Because workplace stressors are thought to give rise to both burnout and depression, the sixth section examines burnout-depression overlap. Treatment implications of burnout-depression overlap are also discussed. The last section underlines conclusions that can be drawn from the outlined research evidence. The breadth of the research presented in the chapter should be regarded as extensive but not exhaustive, and considered in relation to the other chapters in this book.

3.1 Epidemiologic Findings

Epidemiology is a scientific discipline devoted to the study of the distribution of diseases and their causes in different populations. Epidemiology can provide useful information on how mental disorders vary by occupation and clues to their causes (Eaton,

---

[1] One-year prevalence refers to the proportion of the population that had the disorder in question during the one-year period under study. Six-month prevalence refers to the proportion with the disorder at any time during a six-month period, and so forth.

Anthony, Mandel, & Garrison, 1990). This section examines research that compares the risk of MH problems in teachers to the risk in other groups.

3.1.1 Main Epidemiologic Findings

To our knowledge, the first study (Smith & Hightower, 1948) to link specific occupations to mental disorder was conducted at the Mayo Clinic, using consecutive series of admitted medical patients and the primitive psychiatric nomenclature of the era. Smith and Hightower found that 33% of the enrolled teachers ($n = 122$) were diagnosed with "functional disease" or neurosis, a finding that contrasted with the rates of mental disorder found in physicians (10%), clergy (24%), and control patients (7%). Apart from that first study, additional research on mental disorder in teachers would not emerge for several decades.

Among the studies that indicate a higher-than-average risk of mental disorder (or psychological distress) in teachers is a massive (> 28,000 hospitalized for affective disorder and > 144,000 general population controls) case-control study[2] conducted in Denmark (Wieclaw, Agerbo, Mortensen, & Bonde, 2005). The study team found that female but not male teachers were at above-average risk for hospitalization for affective illness. Research conducted in Finland (Kokkinen, Kouvonen, Koskinen, Varje, & Väänänen, 2014) indicated that a group comprising teachers, social workers, and healthcare workers experienced significantly elevated rates of hospitalization for severe MH problems (31 per 10,000 person years). Kokkinen et al. suggested that the emotional demands of the human interactions required of those job incumbents may have contributed to their elevated rates. Other investigators also estimated the prevalence of disorders in mixed groups of teachers and other professionals. Stansfeld, Rasul, Head, and Singleton (2011), in a study of almost 5500 British workers, found that the point prevalence[3] of the most commonly occurring mental disorders (e.g., depressive disorder, generalized anxiety disorder) in teachers (combined with research professionals) was higher (15%) than average (13%). Lee et al. (2007) found that that the six-month prevalence rates for generalized anxiety disorder (11% v. 8%) and major depression (13% v. 4%) in a sample of Hong Kong teachers ($n >$ 2000) were higher than estimates for the general adult Hong Kong population.

Some studies examined the prevalence with which teachers experienced high levels of symptoms of psychological distress rather than formal diagnoses of mental disorder. Finlay-Jones (1986) found that 17% of his sample ($n > 2000$) of Western Australia teachers experienced severe psychological distress as reflected in very high scores (scores at or above a predetermined threshold) on the General Health

---

[2] A case-control is not the kind of study that can ordinarily yield an estimate of the prevalence of a disorder although it can reveal whether an attribute of individuals such as their occupational title is associated with a disorder.

[3] Point prevalence is a kind of instantaneous prevalence.

Questionnaire[4] (GHQ; Goldberg, 1972), almost double the proportion found in a normative random sample of Australian residents who were administered the same instrument. In another Western Australia study, Tuettemann and Punch (1992) found that 45% of the secondary school teachers sampled ($n = 574$) averaged scores on the GHQ that reflected high levels of distress; the proportion of highly distressed teachers compared very unfavorably to the proportions found in the general Australian population and in other Australian professionals.

To our knowledge, Eaton et al. (1990) published the first modern study to link occupation to mental disorder in a representative sample of [U.S.] community residents ($n > 11,000$). The study team found that the one-year prevalence of depression among individuals classified as "other teachers" and "counselors" was significantly higher (10%) than the 5% average. The category "other teachers" included pre-kindergarten and special education teachers; the counselors included educational and vocational counselors. The prevalence rate for secondary school teachers (1%), however, was significantly below average; the rate for elementary school teachers was average. Eaton et al. hypothesized that the elevated rate among "other teachers" reflected the impact of a lack of control over the work environment.

Eaton et al.'s finding of both a below-average rate (in secondary school teachers) and an average rate (in elementary school teachers) of MH disorders mirrored results from other epidemiological research. Kovess-Masféty, Sevilla-Dedieu, Rios-Seidel, Nerrière, and Chan Chee (2006) found that the lifetime prevalence of psychiatric disorder (e.g., depression, anxiety disorders; alcohol abuse or dependence) in French schoolteachers was no higher[5] than the prevalence in non-teachers who worked for the French national education system ($n > 5400$); teachers and non-teachers did not differ on mean levels of distress. Fan et al. (2012) in a large ($n > 20,000$) study found the point prevalence of depression in a group comprising Washington State teachers, professors, librarians, and lawyers to be 4%, not significantly different from the state average. Findings from research (Wulsin, Alterman, Timothy Bushnell, Li & Shen, 2014) involving more than 200,000 western Pennsylvania residents indicated that the risk of depressive disorder for those who worked in "educational services" (teachers, librarians, professors) was no higher than average.

Although the majority of the research cited indicates that teachers are at higher-than-average risk of depression and distress, some studies indicate that they are not. Because depression and psychological distress (Bell, Russ, Kivimäki, Stamatakis, & Batty, 2015) are risk factors for suicide, we examined suicide risk in teachers. Epidemiologic studies conducted in New Zealand (Andersen, Hawgood, Klieve, Kõlves, & De Leo, 2010), Japan (Tanaka et al., 2001), Canada (Mustard et al., 2010), Denmark (Agerbo, Gunnell, Bonde, Mortensen, & Nordentoft, 2007), Colorado (Stallones, Doenges, Dik, & Valley, 2013), 21 U.S. states (Stack, 2001), and England and Wales (Meltzer, Griffiths, Brock, Rooney, & Jenkins, 2008) indi-

---

[4] The GHQ, despite a name that suggests physical health, assesses psychological distress. Finlay-Jones used the 30-item version of the GHQ.

[5] One exception was when sociodemographic factors were controlled, male (but not female) teachers had a higher lifetime prevalence of anxiety disorders than male non-teachers.

cate that teachers (or teachers and members of related occupational groups) are at average or lower-than-average risk.

3.1.2 Exposure to Violence

Population-based research is also pertinent in work-related violence exposure. The impact of exposure to violence or its threat is physically and psychologically debilitating (Bloch, 1978). Over a 5-year period, Bloch, who evaluated every officially recognized Los Angeles teacher-victim of student-initiated violence and serious threat (e.g., of murder, rape), found extremely high levels of depressive and anxiety symptomatology as well as PTSD-like symptoms (e.g., high levels of arousal); Bloch labeled the condition "combat neurosis." He found that teachers exposed to threats of violence experienced greater psychiatric morbidity than the victims of actual violence (e.g., assault). Compared to members of most other occupational groups, teachers are victims of violence at higher rates (Harrell, 2011; Hashemi & Webster, 1998; Islam, Edla, Mujuru, Doyle, & Ducatman, 2003; LaMar, Gerberich, Lohman, & Zaidman, 1998; Peek-Asa, Howard, Vargas, & Kraus, 1997; Wieclaw et al., 2006). Moreover, because all these studies relied on officially reported incidents, they likely underestimated the risk (Schonfeld, 2006). Schonfeld and Feinman (2012), in a daily diary study that minimized recall error, found that, over a two-week period, 6.3% of 252 New York City teachers were subject to at least one threat of student-initiated violence and 26.2% observed at least one episode of student-on-student violence; no teacher, however, was assaulted.

3.1.3 Evaluation of the Epidemiologic Evidence

The majority of the epidemiological studies discussed above indicates that teachers experience MH problems (disorders and high levels of distress) at higher rates than members of other groups. Teachers are more exposed to violence than members of other occupational groups, and exposure to violence is a risk factor for MH problems (Schonfeld & Chang, 2017). Problematic aspects of the epidemiologic research include (a) grouping teachers with other professionals in a way that obscures prevalence estimates specific to teachers and (b) grouping elementary and secondary school teachers together although their jobs are different.

There is suggestive evidence (Eaton et al., 1990) that special education teachers are at high risk for depression. The epidemiological evidence, however, does not differentiate among the range of working conditions to which teachers are exposed. Some schools provide less healthful conditions than others (Schonfeld, 2000). The impact of job conditions is discussed in in the next section.

3.2 Within-Occupation Research on Job Stressors and Mental Health

Because job conditions in schools vary, this section is devoted to within-occupation research. Generally, researchers have taken two approaches to evaluating the stressors that affect teachers. In the first approach, studies have catalogued various stressors associated with adverse MH consequences; these include pupil-related difficulties, interpersonal conflicts, and violence or its threat (Schonfeld & Farrell, 2010). The second approach has focused on investigating the validity of psychosocial models that relate occupational stressors to MH outcomes. These theoretical constructions (Guglielmi & Tatrow, 1998; Karasek, 1979) involve concepts such as lack of autonomy, high workloads, and unsupportive colleagues or administrators. The literature reviewed in this chapter is generally of the first approach. Later chapters in this book review research conducted within the framework of those theoretical models.

At least two related explanations (Schonfeld, 2001) underlie the view that school environments in which stressors are most prevalent contribute to the development of MH problems in teachers. The first, which springs from the occupational health psychology literature (e.g., Karasek, 1979), is that some school environments are so chaotic that they thwart teachers' goals and deprive teachers of the autonomy required to work in a meaningful way, giving rise to considerable distress. The second explanation, which owes much to the education literature, is that teachers in many schools become distressed because they are often exposed to aggressive social interactions initiated by students and, sometimes, by supervisors (Blase, 1986).

Given the nature of the literature, we turn to research in which MH symptoms, rather than mental disorders, are the outcomes of interest.

3.2.1 A Brief Look at Cross-Sectional Findings

Cross-sectional studies dominate the published research on the relationship between teaching-specific stressors and MH symptoms. Cross-sectional studies are useful from an actuarial standpoint because they show that stressors covary with psychological symptoms. A meta-analysis of correlational studies (Montgomery & Rupp, 2005) found that the associations between stressors and emotional responses (e.g., depressive and anxiety symptoms) are, on average, low-moderate (r_{mean} = .25).

A limitation of cross-sectional studies is that they are largely unable to provide evidence pertaining to cause and effect. For example, a correlation between student disrespect and concurrent depressive symptoms in teachers cannot establish the temporal priority of the hypothesized cause (disrespect) over the hypothesized effect (symptoms). By contrast, some longitudinal study designs are superior because they are more helpful in establishing temporal priority. Ideally, longitudinal studies should evaluate the relation of working conditions at baseline (time 1) to

later (time 2) symptoms while statistically controlling for time 1 symptoms, thus adjusting for any initial confounding of the stressors and symptoms.

3.2.2   Longitudinal Research Findings

Like the epidemiologic evidence, within-occupation, longitudinal research is international in scope. A study conducted in Australia (Dollard & Bakker, 2010) examined the impact of a pattern of school policies and procedures advanced by upper management and aimed at spreading practices designed to benefit the psychological health of teachers. This pattern of policies, labeled "psychosocial safety climate" (PSC), predicted two kinds of effects one year later: a reduction in the number/intensity of stressors (emotional demands and work pressure) to which teachers (*n* = 209) were exposed and an increase in skill discretion (opportunities for skill development). PSC, however, did not predict decision authority (influence over how work gets done). Other analyses linked job stressors at the one-year follow-up to *concurrent* psychological distress. Brenner, Sörbom, and Wallius, (1985), who followed Swedish teachers (*n* = 72) over a school year, found that pupil-related stressors in the fall and spring terms were *concurrently* related to work overload (Tellenback, Brenner, & Löfgren, 1983) and that overload was *concurrently* related to depressive and psychosomatic symptoms. In a study (Kinnunen, 1988) in which Finnish teachers (*n* = 142) were evaluated 6 times during the fall term, workday stressors (e.g., poor student motivation) in September predicted both workday and weekend symptoms (e.g., depression, irritability, etc.) in December; however, symptom levels in September were not controlled. Other analyses (Mäkinen & Kinnunen, 1986) indicated that fall-term student motivation was inversely related to symptoms during the spring; fall-term symptoms, however, were not controlled.

Three better-controlled longitudinal studies shed more light on the relation of working conditions to MH. In a small (*n* = 36), short-term study (Travers & Cooper, 1994) involving London teachers at the beginning of the school year, management structure (e.g., nonparticipation in decision-making) and job insecurity at baseline predicted an increase in blood indicators of alcohol consumption three months later, although no effects on other symptoms were observed (perhaps owing to ceiling effects and/or lack of statistical power). Shirom et al. (2009) in a study of Israeli high school teachers (*n* = 404) found that stressors assessed at the beginning of the school year (e.g., disciplining students) predicted psychosomatic symptoms at the end of the school year, controlling for initial symptoms. In a one-year, three-wave study involving new female New York City teachers (*n* = 184), Schonfeld (2001) found that episodically occurring stressors (e.g., student disruptions) exerted potent adverse effects on depressive symptoms, self-esteem, job satisfaction, and motivation to remain in the profession, controlling for baseline levels of those factors. He ruled out reverse-causal effects. Schonfeld also found that support from friends and relatives, colleagues, and supervisors had beneficial effects on one or more outcomes.

3.3 Workplace Stressors and Burnout

Burnout has been increasingly used in research on the adverse effects of work stress. The burnout syndrome is often defined as a combination of emotional exhaustion (EE), depersonalization (DP; also called cynicism), and a reduced sense of personal accomplishment (PA) with regard to the job (or lack of professional efficacy). As currently conceived, burnout is assumed to develop in response to a chronic impossibility of coping with workplace adversities (Maslach, Schaufeli, & Leiter, 2001). EE is thought to be burnout's central component. The Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996) embodies this conceptualization (Maslach et al., 2001; Schaufeli, Leiter, & Maslach, 2009). A related, alternative conceptualization holds that burnout comprises EE, physical fatigue, and cognitive weariness, and grows out of chronic exposure to workplace stressors (Shirom & Melamed, 2006). This conceptualization is embodied in the Shirom-Melamed Burnout Measure (SMBM). Burnout is associated with health problems (Toker, Melamed, Berliner, Zeltser, & Shapira, 2012) and worse student outcomes (Brunsting, Sreckovic, & Lane, 2014).

We turn now to the relationship between workplace stressors and burnout.

3.3.1 A Brief Look at Cross-Sectional Findings

Disruptive student behavior is thought to be a central factor in the development of burnout, but lack of support from colleagues, working at schools serving children from economically disadvantaged families, high levels of job demands, insufficient training, and autocratic school administrators are factors that have been concurrently linked to burnout (Chang, 2009). A recent synthesis of research on special education teachers found that fewer years of experience, amount of interaction with students having emotional disturbance as opposed to other disabilities (e.g., intellectual disability), role conflict, and lack of administrative support are risk factors for burnout (Brunsting et al., 2014). A meta-analysis of correlational studies (Montgomery & Rupp, 2005) found low-moderate associations between job stressors and burnout (r_{mean} = .27).

Another arm of the cross-sectional literature has examined personality and burnout. Chang (2009) found that low-hardiness, being a "type A" person, having low levels of self-esteem, being a "feeling type" rather than a "thinking type," and having a neurotic personality are related to increased risk of burnout. A problematic aspect of the above findings is that there is likely construct overlap between burnout and these personality traits. For example, a component of hardiness is resistance to stressful situations, which by definition suggests low levels of burnout.

3.3.2 Longitudinal Research Findings

We mention a number of longitudinal studies that, despite methodological limitations, underline some factors that may influence burnout risk. In a study of 244 Canadian teachers, Burke, Greenglass, and Schwarzer (1996) reported that disruptive students and, to a lesser degree, the extent of school bureaucracy predicted burnout one year later. The findings, however, are problematic because burnout at baseline was not controlled. In a two-year, four-wave study of 79 Australian teachers, Goddard, O'Brien, and Goddard (2006) observed that at wave four, teacher perceptions of the innovativeness of the work environment were inversely, but *concurrently*, related to EE. Innovativeness was also concurrently related to lower DP and a higher PA. In a growth study[6] involving 600 U.S. teachers, Pas, Bradshaw, and Hershfeldt (2012) found that teacher preparedness, collegial leadership (e.g., the principal treats teachers as equals), teacher affiliation (e.g., friendliness among staff), and parent and student involvement predicted lower EE; baseline EE, however, was not controlled.

In a study of 940 Dutch teachers, Taris, Peeters, Le Blanc, Schreurs, and Schaufeli (2001) found no effect of lack of equity at baseline (inequitable relationships with students, colleagues, and management) on the three MBI components one year later. The study team also examined the relationship of job stress (brought about by students, colleagues, and management) to the MBI. The relationship, however, was complicated by artifacts of scale construction (see Kasl, 1978; Schonfeld, Rhee, & Xia, 1995). Job stressor questionnaire items referenced the teacher's feelings and MBI items referenced workplace adversity. Thus the relation of job stress to the MBI was likely influenced by the confounding of the independent and dependent variables. In addition, the path coefficients from baseline student and colleague stressors to later MBI subscales were negative, suggesting that teachers who were more exposed to stressors at time 1 experienced less burnout at time 2 and teachers who were less exposed at time 1 experienced more burnout at time 2, findings that are difficult to reconcile with the bulk of the research literature.

Four longitudinal studies examined the relation of baseline stressors to later burnout, controlling for burnout at baseline. First, in the earlier-mentioned study of Israeli high school teachers, Shirom et al. (2009) found that "heterogeneous classes" (which make it difficult to adapt the level of instruction to each student's instructional needs) were the only baseline stressor that affected burnout. The other stressors (e.g., disciplining students) that predicted psychosomatic symptoms did not predict burnout at follow-up.

Second, Llorens-Gumbau, and Salanova-Soria (2014), in a study of 274 Spanish schoolteachers, found that obstacles to effective teaching such as students' lack of discipline at baseline led to high levels of burnout (exhaustion and cynicism combined) 8 months later, controlling for burnout at baseline. Third, González-Morales,

---

[6] In psychological research, a growth study examines individual change, such as change in scores on a burnout scale, as a function of time.

Rodríguez, and Peiró (2010) studied burnout in 444 Spanish schoolteachers. Because the stressor-burnout analyses were not straightforward,[7] one of us used information found in the publication to build an analysis in which time 2 EE was regressed on a number of time 1 factors, including EE, stressors (e.g., student misbehavior), and sociodemographic factors; baseline stressors predicted exhaustion 6 to 9 months later. Finally, in another reanalysis, this one involving data collected by Dollard and Bakker (2010), baseline emotional demands (but not work pressure or resources) predicted EE one year later, controlling for baseline EE. Thus the evidence from the best-controlled longitudinal studies suggests that job stressors contribute to burnout.

3.3.3   Longitudinal Studies Involving Coping and Burnout

Other longitudinal studies have examined coping, a factor that may reduce stressor exposure or mitigate stressor impact on burnout. Although there is more to coping than the following dichotomy, for the purpose of this chapter, we distinguish two types of coping: problem- and emotion-focused. Problem-focused coping involves "taking steps to remove or to evade [a stressor], or to diminish its impact" (Carver & Connor-Smith, 2010, p. 685). Emotion-focused coping refers to behaviors that are used to manage distress resulting from a stressor's impact.

Parker, Martin, Colmar, and Liem (2012), in a one-year,[8] two-wave study of Australian teachers (*n* = 430), observed that problem-focused coping (e.g., sticking to timetable or plan) and emotion-focused coping (e.g., disengaging) did *not* predict later MBI scores. Emotion-focused coping, however, was *concurrently* related to greater burnout and burnout predicted more emotion-focused coping one year later. Emotion-focused coping, as assessed in this study, was likely confounded with the DP subscale. Depersonalization, considered a form of disengagement, is thought to be a means to cope with job stressors (Taris, van Horn, Schaufeli, & Schreurs, 2004).

González-Morales et al. (2010) found that two problem-focused coping strategies (support/advice seeking and taking direct action) assessed at baseline failed to predict EE and DP (PA was not assessed) 6–9 months later. Another longitudinal study involving Spanish schoolteachers (Carmona, Buunk, Peiró, Rodríguez, & Bravo, 2006) found that direct-action coping was related to lower levels of burnout 5–6 months later, controlling for burnout at baseline; however, the absence of measures of job stressors made the results equivocal. A 2-year, 3-wave longitudinal study of Belgian schoolteachers (van den Tooren, de Jonge, Vlerick, Daniels, & Van de Ven, 2011) used coping, as assessed at *wave 3*, to predict *wave 2* outcomes (e.g.,

---

[7] González-Morales et al. regressed time 2 EE on time 1 *and* time 2 stressors, finding that time 2 stressors and EE were concurrently related; the original analyses made it difficult to establish the temporal priority of stressors over EE.

[8] The time lag was inadvertently omitted from the publication, and we thank P. Parker (personal communication, March 8, 2015) for supplying it.

EE). The use of a dependent variable that antedated the predictor was not conducive to developing a realistic evaluation of the impact of coping. A one-year study conducted in the Netherlands (Taris et al., 2004) found that baseline coping in the form of psychological withdrawal was related to a time 2 *increase* in exposure to the stressor inequitable teacher-student exchanges.

3.4 Evaluation of the Longitudinal Findings on Mental Health and Burnout

On balance, though more research is needed, the evidence from high-quality longitudinal studies (e.g., Dollard & Bakker, 2010; González-Morales et al. 2010; Llorens-Gumbau & Salanova-Soria, 2014; Schonfeld, 2001; Shirom et al., 2009; Travers & Cooper, 1994) suggests that exposure to high levels of work-related stressors (especially student-related stressors) adversely affects teacher MH. In a number of longitudinal studies (e.g., Burke et al., 1996; Pas et al., 2012), methodological limitations prevent investigators from drawing firm causal conclusions.

The longitudinal evidence that workplace coping is effective in combatting burnout is largely absent (e.g., González-Morales et al., 2010; Parker et al., 2012). Schonfeld (2001) obtained similar null results in evaluating longitudinally the link between six types of workplace coping (e.g., direct action, advice seeking, discipline use) and depressive symptoms. The findings associated with coping echo an idea raised by Pearlin and Schooler (1978), namely, that in contrast to personally organized roles such as spouse or parent, the impersonality of many work roles makes those roles unaccommodating to individual coping efforts. Evidence from the best controlled longitudinal studies (González-Morales et al.; Parker et al.; Schonfeld) is consistent with that view.

3.5 Recommendations Regarding Research on the Impact of Teachers' Working Conditions on Mental Health and Burnout

Weaknesses of longitudinal research on teachers include (a) not controlling baseline MH/burnout when linking time 1 stressors to later MH/burnout, (b) relying on cross-sectional findings during the last (or any) wave of data collection, and (c) not testing reverse causal hypotheses (e.g., the influence of baseline MH on the occurrence of later stressors). Going forward, Kasl (1983) underlined the view that the timing of longitudinal data collection has to be carefully planned. If too much time elapses between data collection points, such as the five-year intervals in the study by Wilhelm, Dewhurst-Savellis, and Parker (2000), much can occur that obscures the assessment of effects (e.g., forgetting, quitting, etc.).

Kasl (1983) also warned that longitudinal studies that have arbitrary starting points can be problematic, especially regarding research on veteran workers, such as long-serving teachers. He noted that the "causal dynamics between the risk factor and the health outcome have already played themselves out and we only pick up minor temporal fluctuations in the two variables" (p. 90). Furthermore, the "casualties" of stressful conditions are likely to have dropped out of the picture before the researcher arrives at the scene, removing from research samples individuals upon whom stressors have had the greatest impact. Researchers have to consider both when in a career trajectory to launch a longitudinal study (e.g., the beginning) and the timing of data collection (e.g., once per month, once per term, once per year, etc.).

Llorens-Gumbau and Salanova-Soria (2014) and Schonfeld and Feinman (2012) conducted preliminary qualitative research with teachers who helped the investigators figure out what to assess in the landscape of teacher stress. Having teachers team with researchers can be a good idea. Teachers can provide advice regarding the timing of waves of data collection, the types of teachers to target (e.g., novice teachers), the most important stressors, and school-specific protective organizational resources (or harmful organizational conditions). Teacher advisers can also suggest items to add to, or delete from, research instruments and pilot those instruments before they are used in research on job stress.

3.6 Burnout and Depression in Teachers. Different Labels, Same Phenomenon?

Because burnout and depression have generally been studied as different entities, we chose to review research on them separately. In recent years, however, the distinctiveness of burnout with respect to depression has increasingly been questioned (Bianchi, Schonfeld, & Laurent, 2015a, 2015b). This section provides an overview of the extent to which burnout and depression overlap. First, the latest literature on burnout-depression overlap is reviewed. Second, the idea that the singularity of burnout lies in its association with the occupational context is examined. Third, the treatment implications of burnout-depression overlap are outlined.

3.6.1 Burnout-Depression Overlap: Recent Empirical Findings

Research has increasingly questioned the relevance of a distinction between burnout and clinical and subclinical forms of depression. Teachers with high levels of burnout symptoms have been found to report as many depressive symptoms as clinically depressed patients (Bianchi, Boffy, Hingray, Truchot, & Laurent, 2013). In a study of

5575 French schoolteachers, 90% of those categorized as burned out[9] met criteria for provisional diagnoses of depression (Bianchi, Schonfeld, & Laurent, 2014). Schonfeld and Bianchi (2016), in a study of 1386 U.S. teachers, found that 86% of teachers categorized as burned out met criteria for provisional diagnoses of depression. When MBI-assessed burnout and depression were treated dimensionally, the correlation between them, when corrected for measurement error, was .79 (Bianchi et al., 2014). The corrected correlation between SMBM and depressive symptom scores was .84 (Schonfeld & Bianchi, 2016). The correlation between the SMBM and the MBI (Shirom & Melamed, 2006) is comparable to the correlation between depressive symptoms and either the SMBM or the MBI. In addition, burnout has been linked to depressive cognitions (Bianchi & Schonfeld, 2016) and attentional alterations found in depression (Bianchi & Laurent, 2015). Recent research using advanced factor analytic methods indicates that symptoms of depression (and anxiety) and EE reflect the same construct (Schonfeld, Verkuilen, & Bianchi, 2017). The above findings underscore the problem of construct redundancy involving burnout vis-à-vis depression.

The inseparability of burnout and depression was further documented in two longitudinal studies. In these studies, burnout and depressive symptoms were observed to cluster, and increase or decrease synchronously over time (Ahola, Hakanen, Perhoniemi, & Mutanen, 2014; Bianchi, Schonfeld, & Laurent, 2015c). Ahola et al. concluded that "burnout could be used as an equivalent to depressive symptoms in work life" (p. 35)—in agreement with earlier, isolated views of burnout-depression overlap (Schonfeld, 1991).

These recent findings suggest that burnout may be better conceived of as a depressive syndrome. Remarkably, Freudenberger (1974), the originator of the burnout construct, noted that the burned-out person "looks, acts and seems depressed" (p. 161). Based on current knowledge, it can be hypothesized that the burned-out person looks, acts, and seems depressed because he or she *is* depressed.

3.6.2 Burnout as a Job-Related Syndrome

In order to distinguish burnout from depression, some have argued that burnout is etiologically anchored in the occupational context, whereas depression is context-free (e.g., Maslach, Schaufeli, & Leiter, 2001). At least three problems undermine this view.

First, the "job-relatedness" of a given condition is not nosologically discriminant. For example, a job-related depression remains a depression. The involvement of a specific domain in the etiology of an illness does not imply that a new nosological category should be introduced (Bianchi et al., 2015a, 2015b).

---

[9] Burnout, like depression, has been treated both as a continuous factor and nosologically (Schonfeld & Bianchi, 2016). The *International Classification of Diseases* (*ICD-10*) identifies burnout as a state that influences health status.

Second, a definition that limits burnout to the occupational domain is arbitrary *and* self-fulfilling (Bianchi, Truchot, Laurent, Brisson, & Schonfeld, 2014). Some investigators (e.g., Kristensen, Borritz, Villadsen, & Christensen, 2005) proposed context-free conceptions of the syndrome. However, in the MBI-related conceptualization, the definition of burnout, which links it to the occupational domain, is self-fulfilling; the very items of the MBI *a priori* confine burnout to work.

Third, even when burnout is assessed with the MBI, it remains linked to non-occupational factors such as stressful life events and a history of mood disorders (Bianchi et al., 2014; Dyrbye et al., 2006; Schonfeld & Bianchi, 2016). At the same time, work stress can play an important role in the etiology of depression (Schonfeld, 2001; Stansfeld & Candy, 2006; Tennant, 2001). In summary, the idea that the nosological singularity of burnout lies in its job-relatedness is not viable.

3.6.3   Treatment Implications

The association of burnout with a depressive clinical picture suggests how burnout should be treated. There have been many more high-quality clinical trials to assess the efficacy of treatments for depression than trials to assess the efficacy of treatments for burnout. Research has identified effective psychotherapeutic and pharmacologic treatments for depression (Gitlin, 2009; Hollon & Dimidjian, 2009). Such treatments may help teachers suffering from burnout in (a) the short run, by re-energizing sufferers and re-triggering motivation for action (i.e., combating anhedonia and dysphoria), and (b) the long run, by helping to lift the despair that can be an impediment to developing effective classroom strategies. In terms of primary prevention, it is important to identify depressogenic aspects of occupational environments to protect teachers from burnout/depression. For example, some supervisors, by setting unreachable objectives for teachers, sentence teachers to repeated feelings of failure and experiences of unresolvable stress that are at the heart of depression.

Overall, the emergence of burnout/depression involves environmental factors and factors internal to the teacher. Some teachers are exposed to considerable disrespect and student-on-student violence (Schonfeld, 2006; Schonfeld & Feinman, 2012), conditions that are normatively stressful (Schonfeld & Farrell, 2010). On the other hand, internal dispositions (e.g., idiosyncratic appraisals) also contribute to burnout/depression (Alarcon, Eschleman, & Bowling, 2009; Swider & Zimmerman, 2010). In order to restore adaptive balance, changes must be considered at both the level of the individual and the organization.

3.7   Conclusions

A number of studies (Dollard & Bakker, 2010; González-Morales et al., 2010; Llorens-Gumbau & Salanova-Soria, 2014; Schonfeld, 2001; Shirom et al., 2009; Travers & Cooper, 1994) are sufficiently well-designed to allow us to conclude that

high levels of job stressors (e.g., student disruptiveness) adversely affect teachers' MH. Although the epidemiologic findings are mixed, population-based research indicates that teachers are at above-average risk for exposure to violence, with its own adverse effects on MH (Bloch, 1978). Longitudinal evidence that teachers' coping efforts are effective, however, is weak (González-Morales et al., 2010; Parker et al., 2012; Schonfeld, 2001).

Research also underlines burnout-depression overlap, whether both are treated dimensionally *or* nosologically. Although construct overlap is a fundamental problem in scientific research (Cole, Walter, Bedeian, & O'Boyle, 2012), we believe the overlap has a positive side because extensive clinical trials have shown that therapies are effective in helping depression sufferers recover and may thus benefit "burnout" sufferers.

3.7.1 Wider Ramifications

The problem of stressful working conditions affecting teacher MH has far-reaching ramifications. People do not ordinarily leave jobs that they find psychologically satisfying. When teachers leave their jobs, they mostly find work that pays them less and requires them to work more hours (Frijters, Shields, & Price, 2004), suggesting that earnings are not an important driver of attrition. Often, it is the most qualified teachers who leave (Boyd, Lankford, Loeb, & Wyckoff, 2005). Why do teachers leave? Stressful job conditions have a corrosive effect on MH and job satisfaction, and reduce teachers' motivation to remain in the profession (Schonfeld, 2001). The number of student-related disciplinary events to which teachers are exposed predicts attrition independently of other factors including the percentage of impoverished students in schools (Feng, 2010). High rates of teacher attrition adversely affect student achievement (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2008).

Although the purpose of this chapter is not prescriptive, we provide some closing thoughts about improving teacher MH. Based on the research findings we described, we outline two broad approaches. First, school districts have to take steps to ensure the safety of teachers. These steps include ensuring accuracy in the reporting of crimes *and* threats against teachers, even if the reporting is an embarrassment to administrators and school districts. Otherwise there is no credible basis for implementing measures to reduce teacher victimization. A number of violence prevention programs, although not perfect, have been shown to be somewhat effective (Schonfeld, 2006). Administrators and teachers can jointly decide what type of program is most appropriate for their schools. Second, school administrators have to do more to reduce teachers' exposures to other depressogenic aspects of the school environment such as endemically disrespectful behavior initiated by students.

References

Agerbo, E., Gunnell, D., Bonde, J. P., Mortensen, P. B., & Nordentoft, M. (2007). Suicide and occupation: the impact of socioeconomic, demographic and psychiatric differences. *Psychological Medicine, 37*, 1131–1140. doi:10.1017/S0033291707000487.

Ahola, K., Hakanen, J., Perhoniemi, R., & Mutanen, P. (2014). Relationship between burnout and depressive symptoms: A study using the person-centred approach. *Burnout Research, 1*, 29–37. doi:10.1016/j.burn.2014.03.003.

Alarcon, G., Eschleman, K. J., & Bowling, N. A. (2009). Relationships between personality variables and burnout: A meta-analysis. *Work and Stress, 23*, 244–263. doi:10.1080/02678370903282600.

Andersen, K., Hawgood, J., Klieve, H., Kõlves, K., & De Leo, D. (2010). Suicide in selected occupations in Queensland: evidence from the State suicide register. *Australian and New Zealand Journal of Psychiatry, 44*, 243–249. doi:10.3109/00048670903487142.

Bell, S., Russ, T. C., Kivimäki, M., Stamatakis, E., & Batty, G. D. (2015). Dose-response association between psychological distress and risk of completed suicide in the general population. *JAMA Psychiatry, 72*, 1254–1256. doi:10.1001/jamapsychiatry.2015.2107.

Bianchi, R., Boffy, C., Hingray, C., Truchot, D., & Laurent, E. (2013). Comparative symptomatology of burnout and depression. *Journal of Health Psychology, 18*, 782–787. doi:10.1177/1359105313481079.

Bianchi, R., & Laurent, E. (2015). Emotional information processing in depression and burnout: An eye-tracking study. *European Archives of Psychiatry and Clinical Neuroscience, 265*, 27–34. doi:10.1007/s00406-014-0549-x.

Bianchi, R., & Schonfeld, I. S. (2016). Burnout is associated with a depressive cognitive style. *Personality and Individual Differences,* 100, 1–15. doi:10.1016/j.paid.2016.01.008

Bianchi, R., Schonfeld, I. S., & Laurent, E. (2014a). Is burnout a depressive disorder? A re-examination with special focus on atypical depression. *International Journal of Stress Management, 21*, 307–324. doi:10.1037/a0037906.

Bianchi, R., Schonfeld, I. S., & Laurent, E. (2015a). Burnout-depression overlap: A review. *Clinical Psychology Review, 36*, 28–41. doi:10.1016/j.cpr.2015.01.004.

Bianchi, R., Schonfeld, I. S., & Laurent, E. (2015b). Is it time to consider the "burnout syndrome" a distinct illness? *Frontiers in Public Health, 3*, 158. doi:10.3389/fpubh.2015.00158.

Bianchi, R., Schonfeld, I. S., & Laurent, E. (2015c). Is burnout separable from depression in cluster analysis? A longitudinal study. *Social Psychiatry and Psychiatric Epidemiology, 50*, 1005–1011. doi:10.1007/s00127-014-0996-8.

Bianchi, R., Truchot, D., Laurent, E., Brisson, R., & Schonfeld, I. S. (2014b). Is burnout solely job-related? A critical comment. *Scandinavian Journal of Psychology, 55*, 357–361. doi:10.1111/sjop.12119.

Blase, J. J. (1986). A qualitative analysis of sources of teacher stress: Consequences for performance. *American Educational Research Journal, 23*, 13–40. doi:10.2307/1163040.

Bloch, A. M. (1978). Combat neurosis in inner-city schools. *American Journal of Psychiatry, 135*, 1189–1192. doi:10.1176/ajp.135.10.1189.

Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2008). *Who leaves? Teacher attrition and student achievement* (NBER Working Paper No. 14022). Cambridge, MA: National Bureau of Economic Research. doi:10.3386/w14022

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005). Explaining the short careers of high-achieving teachers in schools with low-performing students. *American Economic Review, 95*, 166–171. doi:10.1257/000282805774669628.

Brenner, S., Sörbom, D., & Wallius, E. (1985). The stress chain: A longitudinal confirmatory study of teacher stress, coping and social support. *Journal of Occupational Psychology, 58*, 1–13. doi:10.1111/j.2044-8325.1985.tb00175.x.

Brunsting, N. C., Sreckovic, M. A., & Lane, K. L. (2014). Special education teacher burnout: A synthesis of research from 1979 to 2013. *Education and Treatment of Children, 37*, 681–711. doi:10.1353/etc.2014.0032.

Bureau of Labor Statistics. (2015). *Occupational employment statistics. May 2014 National occupational employment and wage estimates*. Washington, DC: U.S. Department of Labor. Accessed July 2015.

Burke, R. J., Greenglass, E. R., & Schwarzer, R. (1996). Predicting teacher burnout over time: Effects of work stress, social support, and self-doubts on burnout and its consequences. *Anxiety, Stress, and Coping, 9*, 261–275. doi:10.1080/10615809608249406.

Carmona, C., Buunk, A. P., Peiró, J. M., Rodríguez, I., & Bravo, M. J. (2006). Do social comparison and coping styles play a role in the development of burnout? Cross-sectional and longitudinal findings. *Journal of Occupational and Organizational Psychology, 79*, 85–99. doi:10.1348/096317905X40808.

Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology, 61*, 679–704. doi:10.1146/annurev.psych.093008.100352.

Chang, M.-L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*, 193–218. doi:10.1007/s10648-009-9106-y.

Cole, M. S., Walter, F., Bedeian, A. G., & O'Boyle, E. H. (2012). Job burnout and employee engagement: A meta-analytic examination of construct proliferation. *Journal of Management, 38*, 1550–1581. doi:10.1177/0149206311415252.

Dollard, M. F., & Bakker, A. B. (2010). Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee engagement. *Journal of Occupational and Organizational Psychology, 83*, 579–599. doi:10.1348/096317909X470690.

Dyrbye, L. N., Thomas, M. R., Huntington, J. L., Lawson, K. L., Novotny, P. J., Sloan, J. A., et al. (2006). Personal life events and medical student burnout: A multicenter study. *Academic Medicine, 81*, 374–384. doi:10.1097/00001888-200604000-00010.

Eaton, W. W., Anthony, J. C., Mandel, W., & Garrison, R. (1990). Occupations and the prevalence of major depressive disorder. *Journal of Occupational Medicine, 32*, 1079–1087. doi:10.1097/00043764-199011000-00006.

Fan, Z. J., Bonauto, D. K., Foley, M. P., Anderson, N. J., Yragui, N. L., & Silverstein, B. A. (2012). Occupation and the prevalence of current depression and frequent mental distress, WA BRFSS 2006 and 2008. *American Journal of Industrial Medicine, 55*, 893–903. doi:10.1002/ajim.22094.

Feng, L. (2010). Hire today, gone tomorrow: New teacher classroom assignments and teacher mobility. *Education Finance and Policy, 5*(3), 278–316.

Finlay-Jones, R. (1986). Factors in the teaching environment associated with severe psychological distress among school teachers. *Australian and New Zealand Journal of Psychiatry, 20*, 304–313. doi:10.3109/00048678609158878.

Freudenberger, H. J. (1974). Staff burnout. *Journal of Social Issues, 30*, 159–165. doi:10.1111/j.1540-4560.1974.tb00706.x.

Frijters, P., Shields, M.A., & Price, S.W. (2004). To teach or not to teach? Panel data evidence on the quitting decision. *IZA Discussion Paper No. 1164*. Bonn, Germany.

Ginsberg, R., Schwartz, H., Olson, G., & Bennett, A. (1987). Working conditions in urban schools. *The Urban Review, 19*, 3–23. doi:10.1007/bf01108421.

Gitlin, M. J. (2009). Pharmacotherapy and other somatic treatments for depression. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (2nd ed., pp. 554–585). New York: Guilford Press.

Goddard, R., O'Brien, P., & Goddard, M. (2006). Work environment predictors of beginning teacher burnout. *British Educational Research Journal, 32*, 857–874. doi:10.1080/01411920600989511.

Goldberg, D.P. (1972). *The detection of psychiatric illness by questionnaire*, Maudsley Monograph No. 21. Oxford: Oxford University Press.

González-Morales, M. G., Rodríguez, I., & Peiró, J. M. (2010). A longitudinal study of coping and gender in a female-dominated occupation: Predicting teachers' burnout. *Journal of Occupational Health Psychology, 15*, 29–44. doi:10.1037/a0018232.

Guglielmi, R. S., & Tatrow, K. (1998). Occupational stress, burnout, and health in teachers: A methodological and theoretical analysis. *Review of Educational Research, 68*, 61–99. doi:10.3102/00346543068001061.

Harrell, E. (2011). *Special report: Workplace violence, 1993-2009.National Crime Victimization survey and the Census of Fatal Occupational injuries*. Washington, DC: U.S. Dept. of Justice, Bureau of Justice Statistics.

Hashemi, L., & Webster, B. S. (1998). Non-fatal workplace violence workers' compensation claims (1993–1996). *Journal of Occupational and Environmental Medicine, 40*(6), 561–567.

Hastings, R. P., & Bham, M. S. (2003). The relationship between student behaviour patterns and teacher burnout. *School Psychology International, 24*, 115–127. doi:10.1177/0143034303024001905.

Hollon, S. D., & Dimidjian, S. (2009). Cognitive and behavioral treatment of depression. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (2nd ed., pp. 586–603). New York: Guilford Press.

Ingersoll, R. (2013, May). Why schools have difficulty staffing their classrooms with qualified teachers? United Federation of Teachers Fact Finding Hearing. New York City.

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal, 38*, 499–534. doi:10.3102/00028312038003499.

Ingersoll, R. M., & May, H. (2012). The magnitude, destinations, and determinants of mathematics and science teacher turnover. *Educational Evaluation and Policy Analysis, 34*, 435–464. doi:10.3102/0162373712454326.

Islam, S. S., Edla, S. R., Mujuru, P., Doyle, E. J., & Ducatman, A. M. (2003). Risk factors for physical assault: State-managed workers' compensation experience. *American Journal of Preventive Medicine, 25*, 31–37. doi:10.1016/s0749-3797(03)00095-3.

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly, 24*(2), 285–308.

Kasl, S. V. (1978). Epidemiological contributions to the study of work stress. In C. L. Cooper & R. L. Payne (Eds.), *Stress at work* (pp. 3–38). Chichester, UK: Wiley.

Kasl, S. V. (1983). Pursuing the link between stress life experiences and disease: A time for reappraisal. In C. L. Cooper (Ed.), *Stress research* (pp. 79–102). New York: Wiley.

Kinnunen, U. (1988). Origins of teacher stress at different points of the autumn term. *Scandinavian Journal of Educational Research, 32*, 153–162. doi:10.1080/0031383880320401.

Kokkinen, L., Kouvonen, A., Koskinen, A., Varje, P., & Väänänen, A. (2014). Differences in hospitalizations between employment industries, Finland 1976 to 2010. *Annals of Epidemiology, 24*, 598-605.e1. doi:10.1016/j.annepidem.2014.05.013

Kovess-Masféty, V., Sevilla-Dedieu, C., Rios-Seidel, C., Nerrière, E., & Chan Chee, C. (2006). Do teachers have more health problems? Results from a French cross-sectional survey. *BMC Public Health, 6,* 101. doi:10.1186/1471-2458-6-101

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work and Stress, 19*, 192–207. doi:10.1080/02678370500297720.

LaMar, W. J., Gerberich, S. G., Lohman, W. H., & Zaidman, B. (1998). Work-related physical assault. *Journal of Occupational and Environmental Medicine, 40*(4), 317–324. doi:10.1097/00043764-199804000-00005.

Lee, S., Tsang, A., & Kwok, K. (2007). Stress and mental disorders in a representative sample of teachers during education reform in Hong Kong. *Journal of Psychology in Chinese Societies, 8*(2), 159–178.

Llorens-Gumbau, M., & Salanova-Soria, M. (2014). Loss and gain cycles? A longitudinal study about burnout, engagement and self-efficacy. *Burnout Research, 1*, 3–11. doi:10.1016/j.burn.2014.02.001.

Mäkinen, R., & Kinnunen, U. (1986). Teacher stress over a school year. *Scandinavian Journal of Educational Research, 30*, 55–70. doi:10.1080/0031383860300201.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.

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.

Meltzer, H., Griffiths, C., Brock, A., Rooney, C., & Jenkins, R. (2008). Patterns of suicide by occupation in England and Wales: 2001–2005. *British Journal of Psychiatry, 193*, 73–76. doi:10.1192/bjp.bp.107.040550.

Montgomery, C., & Rupp, A. A. (2005). A meta-analysis for exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education, 28*, 458–486. doi:10.2307/4126479.

Mustard, C. A., Bielecky, A., Etches, J., Wilkins, R., Tjepkema, M., Amick, B. C., et al. (2010). Suicide mortality by occupation in Canada, 1991–2001. *Canadian Journal of Psychiatry, 55*(6), 369–376.

Parker, P. D., Martin, A. J., Colmar, S., & Liem, G. A. (2012). Teachers' workplace well-being: Exploring a process model of goal orientation, coping behavior, engagement, and burnout. *Teaching and Teacher Education, 28*, 503–513. doi:10.1016/j.tate.2012.01.001.

Pas, E. T., Bradshaw, C. P., & Hershfeldt, P. A. (2012). Teacher- and school-level predictors of teacher efficacy and burnout: Identifying potential areas for support. *Journal of School Psychology, 50*, 129–145. doi:10.1016/j.jsp.2011.07.003.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2–21. doi:10.2307/2136319.

Peek-Asa, C., Howard, J., Vargas, L., & Kraus, J. F. (1997). Incidence of non-fatal workplace assault injuries determined from employer's reports in California. *Journal of Occupational and Environmental Medicine, 39*, 44–50. doi:10.1097/00043764-199701000-00009.

Schaufeli, W. B., Leiter, M. P., & Maslach, C. (2009). Burnout: 35 years of research and practice. *Career Development International, 14*, 204–220. http://dx.doi.org/10.1108/13620430910966406.

Schonfeld, I. S. (1991). *Burnout in teachers: Is it burnout or is it depression?* (Report No. 335329). Washington, DC: Education Resources Information Center.

Schonfeld, I. S. (2000). An updated look at depressive symptoms and job satisfaction in first-year women teachers. *Journal of Occupational and Organizational Psychology, 73*, 363–371. doi:10.1348/096317900167074.

Schonfeld, I. S. (2001). Stress in 1st-year women teachers: The context of social support and coping. *Genetic, Social, and General Psychology Monographs, 127*(2), 133–168.

Schonfeld, I. S. (2006). School violence. In E. K. Kelloway, J. Barling, & J. J. Hurrell (Eds.), *Handbook of workplace violence* (pp. 169–209). Thousand Oaks, CA: Sage.

Schonfeld, I. S., & Bianchi, R. (2016). Burnout and depression: Two entities or one. *Journal of Clinical Psychology, 72*, 22–37. doi:10.1002/jclp.22229.

Schonfeld, I. S., & Chang, C.-H. (2017). *Occupational health psychology: The study of work, stress, and health*. New York: Springer.

Schonfeld, I. S., & Farrell, E. (2010). Qualitative methods can enrich quantitative research on occupational stress: An example from one occupational group. In D. C. Ganster & P. L. Perrewé (Eds.), *Research in occupational stress and wellbeing series. Vol. 8. New developments in theoretical and conceptual approaches to job stress* (pp. 137-197). Bingley, UK: Emerald. doi:10.1108/s1479-3555(2010)0000008007

Schonfeld, I. S., & Feinman, S. J. (2012). Difficulties of alternatively certified teachers. *Education and Urban Society, 44*, 215–246. doi:10.1177/0013124510392570.

Schonfeld, I. S., Rhee, J., & Xia, F. (1995). Methodological issues in occupational-stress research: Research in one occupational group and its wider applications. In S. L. Sauter & L. R. Murphy (Eds.), *Organizational risk factors for job stress* (pp. 323–339). Washington, DC: American Psychological Association. doi:10.1037/10173-020.

Schonfeld, I. S., & Santiago, E. A. (1994). Working conditions and psychological distress in first-year women teachers: Qualitative findings. In L. C. Blackman (Ed.), *What works? Synthesizing effective biomedical and psychosocial strategies for healthy families in the 21st century* (pp. 114–121). Indianapolis, IN: University of Indiana Press.

Schonfeld, I. S., Verkuilen, J., & Bianchi, R. (2017, June 7–10). Confirmatory factor analysis of burnout and depressive symptoms. In *12th International conference on work, stress, and health,* Minneapolis, MN.

Shirom, A., & Melamed, S. (2006). A comparison of the construct validity of two burnout measures in two groups of professionals. *International Journal of Stress Management, 13*, 176–200. doi:10.1037/1072-5245.13.2.176.

Shirom, A., Oliver, A., & Stein, E. (2009). Teachers' stressors and strains: A longitudinal study of their relationships. *International Journal of Stress Management, 16*, 312–332. doi:10.1037/a0016842.

Sinclair, R. R., Martin, J. E., & Croll, L. W. (2002). A threat-appraisal perspective on employees' fears about antisocial workplace behavior. *Journal of Occupational Health Psychology, 7*, 37–56. doi:10.1037/1076-8998.7.1.37.

Smith, H. L., & Hightower, N. J. (1948). Incidence of functional disease (neurosis) among patients of various occupations. *Occupational Medicine, 5*(2), 182–185.

Stack, S. (2001). Occupation and suicide. *Social Science Quarterly, 82*, 384–396. doi:10.1111/0038-4941.00030.

Stallones, L., Doenges, T., Dik, B. J., & Valley, M. A. (2013). Occupation and suicide: Colorado, 2004–2006. *American Journal of Industrial Medicine, 56*, 1290–1295. doi:10.1002/ajim.22228.

Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health—a meta-analytic review. *Scandinavian Journal of Work, Environment & Health, 32*, 443–462. doi:10.5271/sjweh.1050.

Stansfeld, S. A., Rasul, F. R., Head, J., & Singleton, N. (2011). Occupation and mental health in a national UK survey. *Social Psychiatry and Psychiatric Epidemiology, 46*, 101–110. doi:10.1007/s00127-009-0173-7.

Swider, B. W., & Zimmerman, R. D. (2010). Born to burnout: A meta-analytic path model of personality, job burnout, and work outcomes. *Journal of Vocational Behavior, 76*, 487–506. doi:10.1016/j.jvb.2010.01.003.

Tanaka, H., Nishio, N., Murakami, E., Mukai, M., Kinoshita, N., & Mor, I. (2001). Mortality and causes of death among Japanese school personnel between 1992 and 1996. *Journal of Occupational Health, 43*, 129–135. doi:10.1539/joh.43.129.

Taris, T. W., Peeters, M. C., Le Blanc, P. M., Schreurs, P. J., & Schaufeli, W. B. (2001). From inequity to burnout: The role of job stress. *Journal of Occupational Health Psychology, 6*, 303–323. doi:10.1037/1076-8998.6.4.303.

Taris, T. W., van Horn, J. E., Schaufeli, W. B., & Schreurs, P. G. (2004). Inequity, burnout and psychological withdrawal among teachers: A dynamic exchange model. *Anxiety, Stress, and Coping, 17*, 103–122. doi:10.1080/1061580031000151620.

Tellenback, S., Brenner, S., & Löfgren, H. (1983). Teacher stress: Exploratory model building. *Journal of Occupational Psychology, 56*, 19–33. doi:10.1111/j.2044-8325.1983.tb00106.x.

Tennant, C. (2001). Work-related stress and depressive disorders. *Journal of Psychosomatic Research, 51*, 697–704. doi:10.1016/S0022-3999(01)00255-0.

Toker, S., Melamed, S., Berliner, S., Zeltser, D., & Shapira, I. (2012). Burnout and risk of coronary heart disease: A prospective study of 8838 employees. *Psychosomatic Medicine, 74*, 840–847. doi:10.1097/PSY.0b013e31826c3174.

Travers, C. J., & Cooper, C. L. (1994). Psychophysiological responses to teacher stress: A move toward more objective methodologies. *European Review of Applied Psychology, 44*(2), 137–146.

Tuettemann, E., & Punch, K. F. (1992). Psychological distress in secondary teachers: Research findings and their implications. *Journal of Educational Administration, 30*(1), 42–54.

van den Tooren, M., de Jonge, J., Vlerick, P., Daniels, K., & Van de Ven, B. (2011). Job resources and matching active coping styles as moderators of the longitudinal relation between job demands and job strain. *International Journal of Behavioral Medicine, 18*, 373–383. doi:10.1007/s12529-011-9148-7.

Wieclaw, J., Agerbo, E., Mortensen, P., Burr, H., Tüchsen, F., & Bonde, J. (2006). Work related violence and threats and the risk of depression and stress disorders. *Journal of Epidemiology and Community Health, 60*, 771–775. doi:10.1136/jech.2005.042986.

Wieclaw, J., Agerbo, E., Mortensen, P. B., & Bonde, J. P. (2005). Occupational risk of affective and stress-related disorders in the Danish workforce. *Scandinavian Journal of Work, Environment & Health, 31*, 343–351. doi:10.5271/sjweh.917.

Wilhelm, K., Dewhurst-Savellis, J., & Parker, G. (2000). Teacher stress? An analysis of why teachers leave and why they stay. *Teachers and Teaching: Theory and Practice, 6*, 291–304. doi:10.1080/713698734.

Wulsin, L., Alterman, T., Timothy Bushnell, P., Li, J., & Shen, R. (2014). Prevalence rates for depression by industry: A claims database analysis. *Social Psychiatry and Psychiatric Epidemiology, 49*, 1805–1821. doi:10.1007/s00127-014-0891-3.

Younghusband, L. J. (2008, March). *Violence in the classroom: The reality of a teacher's workplace*. Paper presented at the Work, Stress, and Health 2008 Conference, Washington, DC