Chronic Work Stress and Depressive Symptoms: Assessing the Mediating Role of Teacher Burnout

Mary A. Steinhardt1*, Shanna E. Smith Jaggars2, Kathryn E. Faulk1 & Christian T. Gloria1

1Kinesiology and Health Education, The University of Texas at Austin, Austin, TX, USA
2Teachers College, Columbia University, New York, NY, USA

Abstract

A conceptual model of the relationship between stress, the mediating role of burnout, and depressive symptoms was examined. Results indicated that teachers (n = 267) experiencing greater stress were more burned out. The subscale emotional exhaustion was moderately related to depressive symptoms, whereas depersonalization and reduced personal accomplishment had small positive relationships. After controlling for burnout and demographics, the relationship between stress and depressive symptoms was small but significant. Emotional exhaustion mediated the association between stress and depressive symptoms. The total effect of stress on depressive symptoms, taking together the direct and indirect effects via burnout, accounted for 43% of the total variance. Copyright © 2011 John Wiley & Sons, Ltd.

Received 9 May 2010; Accepted 16 January 2011; Revised 11 January 2011

Keywords
stressors; chronic work stress; teacher burnout; depressive symptoms

*Correspondence
Mary A. Steinhardt, Department of Kinesiology and Health Education, Bellmont Hall 222, MC: D3700, The University of Texas at Austin, Austin, TX 78710, USA.
1Email: msteinhardt@austin.utexas.edu

Published online 11 February 2011 in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smi.1394

Introduction

Public school teachers experience a great deal of stress throughout their careers with up to one-third indicating that teaching is a ‘very or extremely stressful’ profession (Borg & Riding, 1991; Kyriacou, 2001). Stress, burnout and teacher attrition have reached alarming levels, threatening quality education and subsequent student achievement. Teacher attrition due to work stress is increasing, with 40–50% of new teachers leaving the profession after only 3 years (Ingersoll & Smith, 2003). Stressors that teachers regularly encounter include role overload, disruptive students, non-supportive parents, lack of support from the administration, poor relationships with colleagues, being evaluated and high-stakes student testing (Kyriacou, 2001; Manthei, Gilmore, Tuck, & Adair, 1996; Montgomery & Rupp, 2005). These stressors create and exacerbate stress, burnout and high turnover rates in the teaching profession.

Teacher burnout is recognized as a prolonged exposure to emotional and interpersonal stressors on the job, often accompanied by insufficient recovery, resulting in previously committed teachers disengaging from their work. Burnout represents a response to an intolerable work situation (Cherniss, 1980; Evers, Tomic, & Brouwers, 2004; Hakanen, Bakker, & Schaufeli, 2006; Maslach & Leiter, 2008) and is defined as a psychological syndrome of three interrelated components: emotional exhaustion, depersonalization and reduced personal accomplishment (Maslach, 1993; Maslach, Jackson, & Leiter, 1996; Maslach, Schaufeli, & Leiter, 2001). Emotional exhaustion is the stress component and central quality of burnout. It occurs when a teacher is extremely fatigued and feels overextended by work and drained of emotional and physical resources (Schwarzer & Hallum, 2008). Depersonalization represents the interpersonal component and is described as feeling cynical, irritable and negative towards others. Teachers are more likely to develop an indifferent or cynical attitude and detached response on the job when feeling emotionally exhausted and discouraged (Maslach et al., 2001). The self-evaluation component of reduced personal accomplishment includes feelings of incompetence and a lack of productivity and achievement at work. It is difficult to feel a sense of accomplishment at work when feeling emotionally exhausted and indifferent or cynical towards others (Maslach & Leiter, 2008). Although this burnout syndrome can occur in any profession, it is most common in the helping professions, especially among teachers (Sakharov & Farber, 1983).
Chronic work stress and subsequent burnout syndrome stem from the teachers’ appraisal of demands and the inability to cope effectively with these demands (Kyriacou & Sutcliffe, 1978). The Transactional Model of Stress and Coping (Lazarus, 1966; Lazarus & Folkman, 1984) provides a framework to understand the complex cognitive processes that teachers undergo as they attempt to cope with demands at work. The basic premise is that stressful experiences are construed as transactions between the environment and the individual. The experience of stress results when teachers appraise the environmental demands as threatening and feel they do not have the coping resources available to meet those demands. If stressful situations cannot be alleviated through active and meaning-based coping strategies, defensive coping strategies provide a much needed psychological escape. For example, if empathic and caring teachers remain committed in work situations where failure and disappointment are frequent, the prolonged levels of stress may result in teachers who are emotionally exhausted and who become apathetic, cynical or rigid; if students are ungrateful or even abusive and the teacher’s active coping strategies are ineffective, the teacher–student relationship may become mechanical and distant.

Both chronic stress and burnout negatively influence health status and are significantly related to mental illness, especially depression (Schaufeli & Greenglass, 2001; WHO, 1992). Psychosomatic disorders are among the predominant reasons teachers give for leaving the profession, with depression among the most commonly listed (Weber, Welle, & Lederer, 2002). When work stress reaches an unbearable level, which nearly 20% of teachers admit experiencing (Hammen & deMayo, 1982), exhaustion, poor performance (Ahola et al., 2005) and depression can result (Bakker & Schaufeli, 2000). Because depression in teachers is one of the primary causes for increased teacher absenteeism and high attrition rates, it threatens the quality of our educational system (Hammen & deMayo, 1982; Hastings & Bham, 2003).

Studies have found work stress to be an independent predictor of all three components of teacher burnout (Chan, 2003; Friesen & Sarros, 1989) and of depressive symptoms (Melchior et al., 2007). Although teachers tend to display high levels of emotional exhaustion, the component of burnout most strongly related to depression (Maslach et al., 2001; Schaufeli & Enzmann, 1998), Maslach et al. suggest that the phenomenon of burnout must include all three components. They propose that an exclusive focus on the stress component of emotional exhaustion fails to capture the relationships that teachers have with their work. When teachers are overloaded, they distance themselves emotionally and cognitively from their work in an effort to cope with feelings of exhaustion. Exhausted teachers do not have the capacity to proactively respond to the needs of their students and, as a result, are often indifferent or cynical towards others and find it difficult to feel a sense of accomplishment and pride in their work. They feel victimized, have low self-esteem and have no long-term goals to strive for, often characterized by extended sick leaves or positional transfer requests (Maslach, 1993).

The view of burnout as a psychological syndrome is also supported utilizing principles derived from equity theory. According to this theory, individuals have a tendency to pursue reciprocity in interpersonal relationships and feel distressed when relationships are inequitable. For teachers, their investments of enthusiasm and effort are reciprocated when students respond with attention, respect and gratitude (Blase, 1982, 1986; Blau, 1964). A lack of reciprocity can deplete the teachers’ emotional resources and fuel the development of the burnout syndrome (Bakker et al., 2000; Farber, 1991). Theoretically, chronic work stress leads to teacher burnout and hence to depression (Bakker et al., 2000). We follow this conceptual framework in our study, allowing burnout to mediate the relationship between stress and depression. We also indicate a direct effect from work stress to depressive symptoms as work stress has been identified as a risk factor for the development of major depressive episodes (Wang, 2005) and shown to precipitate the development of anxiety and depression in previously healthy individuals (Melchior et al., 2007).

In addition to the observed relationships among chronic work stress, burnout and depression, a variety of demographic characteristics have been found to relate to burnout and subsequent depression. Although studies are relatively few, and findings are generally inconsistent (see reviews by Chang, 2009; Schaufeli & Enzmann, 1998), these characteristics include sociodemographic (age, gender, ethnicity and education level) and job-related characteristics (grade level taught and years of teaching experience). Age has been most consistently related to burnout, with younger employees reporting higher levels of burnout than older employees (Maslach et al., 2001). With regard to gender, some studies have found no difference in the prevalence of burnout between genders (Ahola et al., 2005; Hastings & Bham, 2003), whereas others suggest that women experience higher levels of emotional exhaustion and men experience higher levels of depersonalization (Lackritz, 2004; Schwarzer & Hallum, 2008). In one study, men who reported serious burnout were three times more likely to experience major depression than women were (Ahola et al., 2005). There have only been a few studies examining ethnicity and burnout, and they have resulted in mixed findings: no difference (Lackritz, 2004), greater burnout among minorities (Dyrbye et al., 2007) and greater burnout among non-minorities (McCarty, Zhao, & Garland, 2007). Similarly, the education level of teachers has an uncertain relationship with burnout. Burnout has been found to occur more frequently in
teachers with lower levels of education (Demir, Ulusoy, & Ulusoy, 2003; Friedman, 1991), higher levels of education (Maslach et al., 2001) or to have no relationship at all with education (Embich, 2001). With regard to job-related characteristics, high school teachers report greater burnout than teachers of lower grades (Beer & Beer, 1992; Russell, Altmaier, & Van Velzen, 1987). Conflicting results have been found for level of teaching experience, with some studies finding that greater experience decreases burnout (Demir et al., 2003; Maslach et al., 2001) whereas others suggest teachers with greater experience are more burned out (Friedman, 1991).

In summary, teachers experiencing burnout feel dissatisfied and exhausted, alienate themselves from fellow teachers and their students, are less productive and experience greater health problems (Chan, 2003; Maslach et al., 2001). Although previous studies have examined the independent relationships between work stress, teacher burnout and depressive symptoms, we know of no study that has examined the chronic nature of teacher stress on burnout and depressive symptoms in a single model while controlling for a variety of demographic characteristics. Therefore, the purpose of this study was to test a conceptual model examining the three burnout subscales (emotional exhaustion, depersonalization and reduced personal accomplishment) as mediators of the association between chronic work stress and depressive symptoms while controlling for a variety of demographic characteristics. Based on previous research, we hypothesized that after controlling for demographic characteristics, (1) chronic work stress would have a significant direct effect on depressive symptoms and each subscale of burnout, (2) each subscale of burnout would have a direct effect on depressive symptoms and (3) each subscale of burnout would mediate the relationship between chronic work stress and depressive symptoms.

**Method**

**Participants and procedure**

**Participants**

The study participants \( (n = 267) \) were primarily female (75%) with a mean age of 45 years, ranging from 23 to 68 years. Demographically, 86% were White, 8% Hispanic or Latino, 3% African-American and less than 1% each of Native American and Asian American. Most teachers had a bachelor’s degree (55%), although 43% held a master’s degree, and 2% had attained a doctorate degree. The majority were high school teachers (75%), with the remaining teaching either middle school (13%) or elementary school (12%). Overall, the sample was highly experienced, with an average of 18 years of teaching experience. Only 12% of the sample had less than 5 years of teaching experience; 69% had over 10 years of experience, and 43% had over 20 years of experience. Further, 22% of the teachers had received a prestigious Teaching Excellence Award from the university conducting the study.

**Procedures**

A cross-sectional self-report survey methodology was used. Researchers obtained a convenience sample of public school teachers who had received teaching awards from an alumni association at a large research institution in Texas. Since 1987, the alumni association has recognized public school teachers representing every school size, from every Texas geographic area, in every subject matter and with degrees from any university in the United States on an annual basis. Each year, school principals can nominate one teacher to represent their school. To be eligible for the award, teachers must be full time, have a minimum of 10 years of classroom teaching experience and return to teaching the following year. Ten high school (grades 9–12) and two elementary or middle school (grades 1–8) teachers are awarded each year; selection of the award-winning teachers is made by a panel composed of former recipients, education faculty, a future teacher and alumni leaders.

Subject recruitment for the current study included sending a survey packet in the mail to all award-winning teachers who were still teaching and had current mailing addresses \( (n = 170) \). The packet contained a cover letter explaining the purpose of the study, six copies of the survey and stamped envelopes for the convenient return of the surveys to the researchers. The award-winning teachers were directed to fill out one survey and distribute the other five packets to fellow teachers that they felt represented a variety of teaching experience and ability. Included in each survey packet was a small deck of inspirational quote cards (valued at $5) that provided a little incentive for completing the survey. To protect the anonymity of each participant, an additional stamped and addressed postcard was included in each survey packet to allow the potential participant to be entered into a draw for the chance to receive an autographed university football (valued at $100), a university T-shirt (valued at $19) or a gift card (valued at $15) for completing the survey. One incentive was awarded for every 10 surveys received. All responses were anonymous and completed at a time and location of the teacher’s convenience. The final sample consisted of \( n = 267 \) teachers, representing a moderate response rate of 26% (Alreck & Settle, 2004).

**Instruments**

The survey included demographic characteristics and self-report measures of perceived chronic work stress, teacher burnout and depressive symptoms. Each of these measures is described below.

**Demographics**

Teachers reported their age, gender, ethnicity, education level, grade level taught, years of teaching experience
and whether they had received a teaching award from the university conducting the study. Because these demographic characteristics may be related to burnout, the current study statistically controlled for them in the estimation of the impacts of chronic work stress and teacher burnout on depressive symptoms. Because of the high correlation between age and years of teaching experience (r = 0.81), age was omitted as a control variable.

**Perceived chronic work stress**

The unrelenting nature of chronic stressors creates more detrimental effects on physical and mental health than acute stressors (Lepore, 1998; McEwen, 2002). Although previous studies have examined the sources of stress in teachers (Kyriacou, 2001; Maslach et al., 2001; Montgomery & Rupp, 2005), none have used a comprehensive chronic stress measure that assesses exposure, appraisal and duration of each stressor. Our perceived chronic work stress measure is a modified version of the Teacher Stress Inventory (Fimian, 1984), adapted to include additional potential stressful situations as well as an assessment of exposure, appraisal and duration of each stressful situation. The modified measure assessed 41 commonly occurring stressful situations and asked whether the teacher had experienced each situation within the past year (coded as 1) or had not experienced the situation (0). If a stressful situation was experienced, the teacher also indicated how negative, undesirable or upsetting the situation was on a Likert scale from 0 (not at all) to 4 (extremely). Finally, teachers reported the number of months that each stressful situation had been experienced during the current academic year, ranging from the beginning of school in September (1 month) to when the survey was completed in March (7 months). Four sample items are included in Table I. To score each item, the exposure rating was multiplied by both the appraisal and duration ratings. The chronic work stress score was then calculated by averaging all the items. The internal consistency of the modified measure was strong (Cronbach’s alpha = 0.93). A copy of the survey may be obtained by contacting the first author. To examine the concurrent validity of our chronic work stress measure, a four-item version of the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) was administered; our measure correlated well (r = 0.54, p < 0.001) with the PSS.

**Teacher burnout**

The Maslach Burnout Inventory-Educators Survey (MBI-ES) assessed burnout among the teachers (Maslach et al., 1996). The MBI-ES measures all three subscales of burnout: emotional exhaustion, depersonalization and reduced personal accomplishment. The teachers were asked how often they experienced emotional exhaustion (nine items), depersonalization (five items) and reduced personal accomplishment (eight items) on a Likert scale ranging from 0 (never) to 6 (every day). Sample subscale items included ‘I feel emotionally drained from my work’, ‘I don’t really care what happens to some students’ and ‘I deal very effectively with the problems of my students.’ The score for each subscale was the mean across the items for that particular subscale, with higher scores indicating greater burnout. Reliability was strong for emotional exhaustion (α = 0.90) and acceptable for depersonalization (α = 0.75) and reduced personal accomplishment (α = 0.76).

**Depressive symptoms**

The Center for Epidemiological Studies Depression Scale (CES-D) measured depressive symptoms such as a depressed mood, feelings of guilt, worthlessness, helplessness, loss of appetite and restless sleep (Radloff, 1977). The teachers responded to 20 items that asked how often they felt or behaved according to each item during the past week. Sample items included ‘I was bothered by things that usually don’t bother me’ and ‘I felt depressed.’ Responses ranged from 0 (rarely or none of the time, less than 1 day) to 3 (most or all of the time, 5–7 days) and were averaged across items for

### Table I. Sample items for the perceived chronic work stress measure

<table>
<thead>
<tr>
<th>Experienced?</th>
<th>If Yes, how negative, undesirable or upsetting?</th>
<th>If Yes, how long?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>How many months experienced?</td>
</tr>
<tr>
<td></td>
<td>Not at all A little Moderately Very Extremely</td>
<td>&lt; 1 to 7 months</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>0</td>
</tr>
<tr>
<td>1. Not enough time to get things done</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Too much paperwork</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Administration not supportive enough</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Attending to students who are poorly motivated</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
a total score. A CES-D mean score of 0.8 or greater is considered a moderately severe level of depressive symptoms (Radloff, 1977). The reliability of the CES-D for the current study was strong (α = 0.92).

**Analysis**

We performed a path analysis to test the relationships depicted in Figure 1 while controlling for demographic variables (gender, minority status, years of teaching experience, whether the teacher was an award winner and whether the teacher was employed at a high school versus an elementary or middle school). In Figure 1, the relationship between chronic work stress and depressive symptoms is mediated by three different subscales of burnout. Thus, the model tests several types of effects: the direct effects of chronic work stress on depressive symptoms and each of the three subscales of burnout, and of the three subscales of burnout on depressive symptoms; the specific indirect effect of chronic work stress on depressive symptoms through each subscale of burnout (or the unique mediating effect of each component of burnout controlling for the other two components of burnout as well as the demographic controls); the total indirect effect of chronic work stress on depressive symptoms (or the sum of each of the three specific indirect effects); and the total effect of work stress on depressive symptoms (or the sum of the direct and total indirect effect).

Social science researchers have traditionally estimated a given indirect effect through a series of regression models (Baron & Kenny, 1986) and tested its significance using the well-known Sobel (1982, 1986) test or other tests relying on the standard normal distribution (e.g. MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). However, the assumption of a normal sampling distribution for the indirect effect is typically violated with relatively small sample sizes such as the one in this study. Accordingly, many methodologists now recommend a bootstrapping approach, which does not rely on a standard normal distribution, to calculate the standard errors of indirect paths (e.g. Briggs, 2006; Williams & MacKinnon, 2008).

In simple multiple-mediation models such as the one under study, it is sensible to assume a saturated model, which then allows the researcher to test the unique effects of each mediating variable (Preacher & Hayes, 2008). Saturated mediation models including only observed variables may be estimated through either the traditional regression-based approach or a structural equation modelling package; provided that standard errors are appropriately calculated via bootstrapping, the two approaches yield the same results. Accordingly, we conducted our analysis via the traditional regression-based approach with bootstrapped standard errors for the indirect effects, using an SPSS macro (SPSS Inc., Chicago, IL, USA) explicitly designed to estimate multiple-mediation models (Preacher & Hayes, 2008). For indirect paths, this analysis produces point estimates and three varieties (percentile, bias-corrected, and bias-corrected and accelerated) of bootstrapped 95% confidence intervals; the analysis also allows the researcher to conduct pairwise comparisons of the indirect effects to determine whether a particular mediator has a significantly stronger unique indirect effect in comparison to another mediator. All variables were standardized distribution (e.g. MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). However, the assumption of a normal sampling distribution for the indirect effect is typically violated with relatively small sample sizes such as the one in this study. Accordingly, many methodologists now recommend a bootstrapping approach, which does not rely on a standard normal distribution, to calculate the standard errors of indirect paths (e.g. Briggs, 2006; Williams & MacKinnon, 2008).

In simple multiple-mediation models such as the one under study, it is sensible to assume a saturated model, which then allows the researcher to test the unique effects of each mediating variable (Preacher & Hayes, 2008). Saturated mediation models including only observed variables may be estimated through either the traditional regression-based approach or a structural equation modelling package; provided that standard errors are appropriately calculated via bootstrapping, the two approaches yield the same results. Accordingly, we conducted our analysis via the traditional regression-based approach with bootstrapped standard errors for the indirect effects, using an SPSS macro (SPSS Inc., Chicago, IL, USA) explicitly designed to estimate multiple-mediation models (Preacher & Hayes, 2008). For indirect paths, this analysis produces point estimates and three varieties (percentile, bias-corrected, and bias-corrected and accelerated) of bootstrapped 95% confidence intervals; the analysis also allows the researcher to conduct pairwise comparisons of the indirect effects to determine whether a particular mediator has a significantly stronger unique indirect effect in comparison to another mediator. All variables were standardized distribution (e.g. MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). However, the assumption of a normal sampling distribution for the indirect effect is typically violated with relatively small sample sizes such as the one in this study. Accordingly, many methodologists now recommend a bootstrapping approach, which does not rely on a standard normal distribution, to calculate the standard errors of indirect paths (e.g. Briggs, 2006; Williams & MacKinnon, 2008).

In simple multiple-mediation models such as the one under study, it is sensible to assume a saturated model, which then allows the researcher to test the unique effects of each mediating variable (Preacher & Hayes, 2008). Saturated mediation models including only observed variables may be estimated through either the traditional regression-based approach or a structural equation modelling package; provided that standard errors are appropriately calculated via bootstrapping, the two approaches yield the same results. Accordingly, we conducted our analysis via the traditional regression-based approach with bootstrapped standard errors for the indirect effects, using an SPSS macro (SPSS Inc., Chicago, IL, USA) explicitly designed to estimate multiple-mediation models (Preacher & Hayes, 2008). For indirect paths, this analysis produces point estimates and three varieties (percentile, bias-corrected, and bias-corrected and accelerated) of bootstrapped 95% confidence intervals; the analysis also allows the researcher to conduct pairwise comparisons of the indirect effects to determine whether a particular mediator has a significantly stronger unique indirect effect in comparison to another mediator. All variables were standardized distribution (e.g. MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). However, the assumption of a normal sampling distribution for the indirect effect is typically violated with relatively small sample sizes such as the one in this study. Accordingly, many methodologists now recommend a bootstrapping approach, which does not rely on a standard normal distribution, to calculate the standard errors of indirect paths (e.g. Briggs, 2006; Williams & MacKinnon, 2008).

In simple multiple-mediation models such as the one under study, it is sensible to assume a saturated model, which then allows the researcher to test the unique effects of each mediating variable (Preacher & Hayes, 2008). Saturated mediation models including only observed variables may be estimated through either the traditional regression-based approach or a structural equation modelling package; provided that standard errors are appropriately calculated via bootstrapping, the two approaches yield the same results. Accordingly, we conducted our analysis via the traditional regression-based approach with bootstrapped standard errors for the indirect effects, using an SPSS macro (SPSS Inc., Chicago, IL, USA) explicitly designed to estimate multiple-mediation models (Preacher & Hayes, 2008). For indirect paths, this analysis produces point estimates and three varieties (percentile, bias-corrected, and bias-corrected and accelerated) of bootstrapped 95% confidence intervals; the analysis also allows the researcher to conduct pairwise comparisons of the indirect effects to determine whether a particular mediator has a significantly stronger unique indirect effect in comparison to another mediator. All variables were standardized
prior to inclusion in the analysis, yielding standardized coefficients for all effects (reported below and in Figure 1). The mediation analysis approach required us to drop seven teachers with partially missing data from the analysis, resulting in a final sample size of \( n = 260 \). Bivariate relationships, however, were almost identical between this complete-data subsample and the full sample of \( n = 267 \).

**Results**

**Descriptive analysis**

For all data analyses, years of teaching experience was retained as a continuous variable. Multiple-category demographic variables were collapsed into binary variables in order to construct appropriately sized groups for analysis: award (0 = did not receive a teaching excellence award, 1 = received an award), high school (0 = teaches primary or middle school, 1 = teaches high school), female (0 = male, 1 = female), minority (0 = nonminority, 1 = minority) and advanced degree (0 = bachelor’s degree, 1 = master’s or doctorate).

Table II displays the means, standard deviations and correlations for all study variables. Each of the burnout subscales was significantly correlated with the other subscales, the highest correlation being between the emotional exhaustion and depersonalization subscales. Chronic work stress was strongly correlated with both emotional exhaustion and depressive symptoms. Mean scores for teacher burnout and depressive symptoms were slightly higher than those in similar studies on teacher burnout (Bakker et al., 2000; Brenninkmeyer, Van Yperen, & Buunk, 2001; Grayson & Alvarez, 2008).

The strongest association among the control variables was between winning an award and years of teaching experience; also, teachers with an advanced degree had more years of teaching experience and were more likely to have won an award. Control variables were not strongly related to chronic work stress, burnout or depressive symptoms; although there were some significant correlations, they were small in size. More experienced and award-winning teachers reported less burnout and depressive symptoms, teachers in high school reported greater depressive symptoms and reduced personal accomplishment and females reported greater chronic work stress and emotional exhaustion (Table II).

**Path analysis**

In terms of the standardized direct effects shown in Figure 1, teachers who experienced high degrees of stress were more burned out in terms of emotional exhaustion (\( b = 0.61, p < 0.001 \)), depersonalization (\( b = 0.38, p < 0.001 \)) and reduced personal accomplishment (\( b = 0.28, p < 0.001 \)). Of the three components of burnout, emotional exhaustion was moderately and positively related to depressive symptoms (\( b = 0.38, p < 0.001 \)), whereas depersonalization (\( b = 0.13, p < 0.05 \)) and reduced personal accomplishment (\( b = 0.11, p < 0.05 \)) had only small positive relationships with depressive symptoms. After controlling for the three components of burnout, as well as the set of demographic controls, the direct relationship between chronic work stress and depressive symptoms was small (\( b = 0.13, p < 0.05 \)). Variables included as controls (not shown in Figure 1) had small to negligible relationships with depressive symptoms; only high school had a significant relationship (\( b = 0.10, p < 0.05 \)), indicating that high school teachers experienced slightly more depressive symptoms than primary and middle school teachers.

In terms of specific indirect effects, the indirect effect of chronic work stress on depressive symptoms via emotional exhaustion was moderate and positive (\( b = 0.23 \), with all three types of confidence intervals

<table>
<thead>
<tr>
<th>Variable</th>
<th>( M )</th>
<th>SD</th>
<th>CWS</th>
<th>Burnout</th>
<th>DS</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EE</td>
<td>DP</td>
<td>RPA</td>
<td>Emotional exhaustion (EE)</td>
<td>Depersonalization (DP)</td>
<td>Reduced personal accomplishment (RPA)</td>
</tr>
<tr>
<td>Chronic work stress (CWS)</td>
<td>6.55</td>
<td>4.63</td>
<td>—</td>
<td>2.64</td>
<td>1.22</td>
<td>0.63*** —</td>
</tr>
<tr>
<td>Emotional exhaustion (EE)</td>
<td>1.31</td>
<td>1.14</td>
<td>0.38***</td>
<td>0.63**</td>
<td>—</td>
<td>0.29*** —</td>
</tr>
<tr>
<td>Depersonalization (DP)</td>
<td>1.03</td>
<td>0.81</td>
<td>0.29***</td>
<td>0.43***</td>
<td>—</td>
<td>0.46*** —</td>
</tr>
<tr>
<td>Reduced personal accomplishment (RPA)</td>
<td>0.53</td>
<td>0.45</td>
<td>0.47***</td>
<td>0.61***</td>
<td>0.49***</td>
<td>0.39*** —</td>
</tr>
<tr>
<td>Depressive symptoms (DS)</td>
<td>0.03</td>
<td>0.07</td>
<td>0.08</td>
<td>0.11</td>
<td>0.13*</td>
<td>0.15* 0.00</td>
</tr>
<tr>
<td>Years taught</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Award</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>High school</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Female</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Minority</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01, ***p < 0.001.

indicating a significant effect. However, indirect effects via depersonalization ($b = 0.05$) and reduced personal accomplishment ($b = 0.03$) were negligible, with all three types of confidence intervals indicating lack of significance. Pairwise comparisons of the three indirect effects indicated that the mediating effect of emotional exhaustion was significantly stronger than the mediating effects of either depersonalization or reduced personal accomplishment. Taking together the direct and indirect effects via burnout, the total effect of stress on depressive symptoms was strong and positive ($b = 0.44$, $p < 0.001$). The overall model accounted for 43% of the total variance in depressive symptoms.

**Discussion**

The literature suggests that high levels of work stress precipitate depression (Melchior et al., 2007; Wang, 2005). The current cross-sectional study provides further support for this relationship such that chronic work stress has a direct relationship with depressive symptoms and an indirect effect on depressive symptoms via burnout, in a sample of highly experienced public school teachers. Although we expected that each of the three components of burnout would carry a unique mediating effect, only emotional exhaustion served as a significant mediator between chronic work stress and depressive symptoms after controlling for the other two components of burnout. The study also supports the relationship between work stress and teacher burnout. Of the three components of burnout, chronic work stress was most related to higher levels of emotional exhaustion, followed by depersonalization and reduced personal accomplishment.

The connection between work stress and burnout suggests that the alleviation of stressors or the adoption of effective coping strategies could aid in reducing the prevalence of burnout in the teacher population. For example, organizational stressors have repeatedly been found to determine levels of emotional exhaustion, especially when support is lacking (Leiter, 1991a, 1991b), suggesting that the coping strategy of enhanced support could moderate the negative impact of chronic stress on emotional exhaustion. The fact that emotional exhaustion is defined as the stress component of the burnout syndrome helps explain why teachers typically exhibit higher levels of emotional exhaustion than the other two components (Maslach et al., 2001; Schaufeli & Enzmann, 1998).

The positive relationships between each of the three components of burnout and depression support the assertion that burnout may be a phase in the development of depression, with the probability of a depressive disorder rising with the level of burnout experienced (Ahola et al., 2005; Wang, 2005). Of the three components of burnout, emotional exhaustion was most strongly connected to depressive symptoms, with depersonalization and reduced personal accomplishment related to a much lesser degree. This finding aligns with the work of Bakker and Schaufeli (2000), in which emotional exhaustion and depression share symptoms, such as decreased energy, low motivation and negative attitudes (Schaufeli & Enzmann, 1998).

One potential mechanism by which emotional exhaustion and depression may be linked is via individual personality factors such as neuroticism. Depression is part of the neurotic personality (McCrae & John, 1992), and emotional exhaustion and neuroticism are correlated (Cano-García, Padilla-Munoz, & Carrasco-Ortiz, 2005; Piedmont, 1993; Tönjes, Dickhäuser, & Kröner, 2008). Neurotic individuals express more negative emotions and greater stress reactions, leaving them more susceptible to both burnout and psychopathology (Watson, Clark, & Harkness, 1994). A meta-analytic study (Pfenning & Husch, 1994 in Schaufeli & Enzmann, 1998) found that anxiety, a factor of neuroticism, correlated most highly with emotional exhaustion, followed by depersonalization and reduced personal accomplishment. Similarly, Deary et al. (1996) found that neuroticism correlated most strongly with emotional exhaustion, followed by depersonalization and reduced personal accomplishment. Neuroticism also may moderate the relationship between daily hassles and emotional exhaustion, with neurotic police officers experiencing higher levels of emotional exhaustion than their less neurotic colleagues (Hills & Norvell, 1991). Given the evidence linking neuroticism to both emotional exhaustion and depression, it is possible that neuroticism is an underlying cause of both.

Although chronic work stress was related to each component of burnout and each component of burnout was in turn related to depressive symptoms, only emotional exhaustion served as a significant mediator between chronic work stress and depressive symptoms. This finding strengthens the notion that emotional exhaustion is the central component that makes burnout ‘real’ to the teacher and serves as the emotional vector translating feelings of stress into depression. It is important to note, however, that emotional exhaustion alone does not embody the burnout syndrome (Maslach, 1993). Rather, burnout is a self-perpetuating syndrome in which all three components must be present. When stress accumulates to an unbearable level, teachers begin to feel emotionally exhausted and withdraw themselves from their work. Depersonalizing as a coping mechanism enables the teacher to continue in the profession, albeit functioning at a minimum (Holt, Fine, & Tollefsen, 1987). Given that teachers list their sense of achievement as a primary reward for teaching (Engelking, 1986), functioning at a minimum may in turn exacerbate withdrawal and a sense of exhaustion. Because this self-perpetuating process is difficult to stop once it begins, the current study’s finding points to the need to address the prolonged exposure to stressful situations, frequently accompanied by insufficient recovery, that teachers often experience and that initially lead to emotional exhaustion.
From a practical standpoint, interventions targeted to reduce burnout and the depressive symptoms of teachers might be most effective if designed to focus primarily on stress prevention and stress-related growth and secondarily on stress management. A proactive stress prevention approach would assist teachers in building personal resources and broadening their coping skills in order to diminish the connection between chronic stress and emotional exhaustion. In this approach, personal and environmental resources (e.g. locus of control, self-esteem, coping strategies, positivity, support from colleagues and administrators) would be identified, strengthened and used to help reduce initial perceptions of stress, build resilience (O’Leary & Ickovics, 1995) and enhance job engagement (Maslach & Leiter, 2008). Further, it has been suggested that growth occurs as a result of stressful situations when individuals have a sufficient foundation of personal resources yet sufficient distress to merit an examination of current beliefs and feelings in the context of past stressors and adaptations (Carver, 1998). As such, depressive symptoms may serve as a catalyst to disrupt and then help constructively reshape the basic beliefs about oneself and one’s job (Dolbier, Smith Jaggars, & Steinhardt, 2010).

In addition to proactive interventions that focus on stress prevention and stress growth, secondary interventions could help teachers deal more effectively with prolonged exposure to chronic emotional and interpersonal stressors, accompanied by insufficient recovery, burnout and decreased health (Wood & McCarthy, 2002). Such approaches include more traditional reactive stress management programmes, which help burned-out teachers cope more effectively in an attempt to buffer against negative health outcomes, including depressive symptoms. Both teachers and administrators should be made aware of the characteristics of burnout and how to identify burnout in themselves and others. If support can be provided to teachers experiencing burnout, it is possible that the burnout can be managed prior to the development of depression or other negative health outcomes.

Interventions designed to reduce the syndrome of burnout should have a primary focus on the emotional exhaustion component, given that it is the stress component of burnout and a significantly stronger mediator of depressive symptoms than either depersonalization or reduced personal accomplishment. Indeed, programmes that have been shown to decrease burnout in medical residents (McCue & Sachs, 1991), health care workers (Hyman, 1993) and members of human resource management teams (Golembiewski, Hilles, & Daly, 1987) reported a reduction in the subcomponent emotional exhaustion. These programmes addressed burnout as a syndrome, emphasizing practices that help individuals to de-stress as well as to successfully manage stressful situations by harnessing effective coping strategies and building social support networks. Undoubtedly, individuals who utilize more problem-focused coping skills and receive more social support from their supervisors and colleagues are less likely to experience high levels of emotional exhaustion (Ito & Brotheridge, 2003; McCarthy, Kissen, Yadley, Wood, & Lambert, 2006; Wilk & Moynihan, 2005).

With regard to demographics, previous studies have shown that age, gender, ethnicity, education level, grade level taught and level of work experience may affect burnout and depression. As such, the present study controlled for these six factors in the estimation of the impacts of chronic work stress and burnout on depression. Importantly, teachers with more teaching experience or who had received a teaching award reported stress levels similar to the entire sample yet were more likely to report lower levels of depressive symptoms, suggesting that they were handling the stress more effectively. Finally, teachers that taught at the high school level were found to have more depressive symptoms than elementary and middle school teachers. This finding aligns with that of Beer and Beer (1992), who found that high school teachers experienced more stress, burnout and depression than grade school teachers. Future qualitative research should help determine the reason for the heightened depressive symptoms that high school teachers experience.

The implications for this study should be viewed in light of several limitations. Firstly, the study was cross-sectional in nature, and therefore causal inference and temporal precedence cannot be determined. It is possible that other variables account for some of the observed relationships or that depressive symptoms reciprocally contribute to chronic work stress and teacher burnout. Future research should use a prospective design to further examine the nature of the predictive relationships between chronic work stress, burnout and depressive symptoms across time. Likewise, a prospective design would allow for assessment of the stress levels teachers experience over the course of the academic year, as there is some evidence that it may vary (Travers & Cooper, 1996). Better procedures for assessing the chronic nature of stressors (e.g. exposure, appraised as stressful, unrelenting) are needed. Secondly, the use of self-report survey data has inherent limitations, such as the potential for untruthful or inaccurate responses due to lack of self-awareness. Although the use of anonymous surveys enhanced the strength of the study, future research should include objective observations of chronic work stressors, burnout and verifiable depression. The study’s response rate of 26% was only moderate, and information is not available about the non-respondents. Additionally, the rather selective sampling procedure of asking one teacher to select five other teachers to complete the survey resulted in a sample that did not represent any definable population. Our sample was highly experienced with an average of 18 years of teaching, and 22% had received a prestigious teaching excellence award; therefore, the results may not be
REFERENCES


Stress, Burnout and Depressive Symptoms

M. A. Steinhardt et al.


