The Battered Apple: An Application of Stressor-Emotion-Control/Support Theory to Teachers' Experience of Violence and Bullying

Suzy Fox and Lamont E. Stallworth

Abstract
This study looked at factors which moderate responses to violence, bullying, and other stressors among public school teachers in the U.S. Grounded in Stressor-Emotion-Control/Support (SEC/S) theory, the study emphasized the relevance of specific forms of control and support to specific stressors in analyzing moderation effects. A total of 779 teachers completed an online survey of their perceptions of their work environments. Pervasive bullying and violent acts were associated with strains in zero-order correlations, but when regressed, pervasive bullying rather than violence were associated with strains. Relations between violent acts and strains were moderated by satisfaction with the administrations' handling of violent acts. This has important implications for the development of public and educational policy. Finally, coworker social support interacted with supervisory/principal bullying, but, contrary to expectations, showed a reverse buffering effect.

Keywords
Conflict: interpersonal, Stress, Workplace bullying, Violence, Support, Teachers

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Teachers in urban public school systems in the United States report extraordinarily high levels of stressors, including acts of violence in and around the school, job conditions that constrain their ability to perform their jobs, and bullying by principals and co-teachers. In conjunction with the teachers union of a major city, a comprehensive online survey was developed and conducted to tap teachers' perceptions of their work environments, including the violence and bullying they experience at school, their administrations' responses to violence, their personal responses to stress, and their recommendations for reducing and managing stress.

This paper looks at teacher stress within a modified stressor-emotion-control/support (SEC/S) framework (Figure 1), based largely on key stress theories and models (e.g., Job Demands-Resources: Bakker et al., 2005; Demands-Control Support Model: Karacek & Theorell, 1990; and the Cognitive-Relational and Transactional approaches: Cox, 1987; Lazarus, 1999) as applied specifically to counterproductive work behavior (Spector & Fox, 2005). The SEC/S framework was developed to integrate aspects of these stress theories at a level of complexity (Mark & Smith, 2008) appropriate to understanding specific issues of counterproductive work behavior, relative to both targets and actors.

While research has examined numerous sources of teacher stress (e.g., Bacharach et al., 1984; Blasé & Blasé, 2003; Friedman, 2000; Russell, Altmaier & Van Velzen, 1987; Sutton, 1984), the current study focuses on workplace bullying and violence experienced by teachers. The theoretical framework conceptualizes stress as a process linking employee perceptions of stressors (informed by the objective work environment and personal factors) to physical, psychological, and behavioral strains, mediated by emotional responses and moderated by control or support (Karasek & Theorell, 1990; Lazarus, 1999; Perrewé & Zellars, 1999). Key to providing empirical support for this framework is conceptualizing and operationalizing forms of control or support that are immediately relevant to the specific stressor in order to obtain moderation effects (Fox & Spector, 2006).

Specifically in this paper, violent acts that take place at school and bullying (by principals and coworkers) were expected to be associated with negative emotions, job attachment, job satisfaction, burnout, and physical symptoms (Spector et al., 1988). The effects of violence were expected to be moderated by teachers' satisfaction with their administrations' support in handling violence. The effects of bullying by principals were expected to be moderated by coworker social support.

Teacher stress

Teacher stress has been studied within the predominant stress models: Transactional Stress (Lazarus, 1999), Demand-Control-Support (Karasek & Theorell, 1990), and Person-Environment Fit theories (Friedman, 2000; Guglielmi & Tatrow, 1998). What these theories have in common is an emphasis on challenges or demands from the environment, combined cognitive-emotional responses, and the individuals' resources (or lack thereof) to manage them. The current paper focuses on the stressors of violence and bullying experienced by teachers, with support and control as resources.

Considerable research has linked both acute and chronic teacher stress to a number of personal consequences. Black (2003) summarizes research demonstrating physiological and longer-term medical effects, as well as psychological effects such as anger, depression, tension, anxiety, confusion, indecisiveness, panic attacks, and feelings of inadequacy. Effects on the learning environment (Guglielmi & Tatrow, 1998) include teachers' detachment, alienation, apathy, cynicism, absenteeism, and turnover.

Black (2003) found principals' leadership style to be a key factor in teachers' experience of stress—generally a negative factor. However, Black also reports on a study of the International Stress Management Association, which found social support by their principals served as an important buffer for teachers in the stress process. Wiley (2000) further argues for the buffering roles of social support, provision of mentors, and control in the form of participation in goal setting and hiring.

A related area of concern is mistreatment and bullying of teachers. Although much attention has been paid in the academic literature and public media to the problem of student bullying, there has been very little research or media coverage of bullying experienced by teachers. One exception is Blasé and Blasé (2003), who report on the experience of fifty teachers who had suffered long-term mistreatment by their principals. They extend existing streams of research on teacher stress and micropolitical studies of principal leadership styles and principal-teacher relationships into teachers' specific experiences of patterned principal abuse. The findings of this study are consistent with research into abusive supervision (Ashforth, 1997; Tepper, 2000) in corporate sectors. Consequences to teachers of long-term bullying by their principals include psychological distress, self-doubt, low self-esteem, fear of losing their jobs and reputations, obsessional thinking and hypervigilance, as well as negative effects on relationships in school, classroom work, participation in decision making, and family life (Blasé & Blasé, 2003).

However, while the Blasé and Blasé (2003) study looked at one component of bullying, abusive supervision, it did not consider bullying of teachers from other sources, such as co-teachers, students, or parents. While it looked at long-term mistreatment by principals, it did not offer a comparison of pervasive (frequent) or chronic mistreatment with less frequent, more acute incidents. The objective of the current study is twofold: 1) to view violence and bullying experienced by teachers within the stressor-emotion/support framework, with an emphasis on the roles of support and control in this stress experience, and 2) to further specify the critical sources of strain and degree of toxicity, by comparing the effects of pervasive bullying relative to rare or occasional incidents of mistreatment, as well as bullying by principals versus co-teachers.

Workplace bullying

Workplace Bullying is broadly defined as "repeated actions and practices that are directed against one or more workers, that are unwanted by the victim, that may be carried out deliberately or unconsciously, but clearly cause humiliation, offence and distress, and that may interfere with job performance and/or cause an unpleasant working environment" (Einarsen et al., 2003, p. 6). Zapf and Einarsen (2005) pinpoint workplace bullying as an extreme type of social stress. Survey-based studies of workplace bullying generally use one of two approaches (Hoel et al., 2004): checklists of specific behaviors (e.g., Keashly, 1998; Leymann, 1996); Namie & Namie, 2000) or direct self-identification by respondents as targets of bullying (e.g., Einarsen & Skogstad, 1996; Rayner, 1997). While items on bullying checklists tend to vary only slightly from study to study, formats differ considerably. Some researchers use frequency response choices ranging from "never" to "daily" or from "never" to "extremely often," while others use "yes/no" or "agree/disagree" formats.

The Fox and Stallworth (2005) workplace bullying checklist (WB-C) used in the current study covers six conceptual domains: threatening or intimidating behavior (nonverbal and verbal acts and threats of physical violence); demeaning behavior (e.g., insults and put-downs); isolation (e.g., the "silent treatment", exclusion from work meetings, and failing to return phone

calls and e-mails); work sabotage (including attacking or failing to defend your plans to others and intentionally destroying, stealing, or sabotaging your work materials); harm to reputation (e.g., spreading rumors and taking credit for your work); and abusive supervision (e.g., threatening with job loss or demotion, excessively harsh criticism of job performance, applying rules and punishments inconsistently, and making unreasonable work demands). The WB-C further asks the respondents to identify the primary perpetrator of each behavior by gender and organizational relationship to the target (e.g., coworker, supervisor, or client/student). See Fox and Stallworth (2005) for a description of the development of this scale.

Consequences to the target of workplace bullying and the organization have been demonstrated in numerous studies (Lutgen-Sandvig, 2008; Pearson et al., 2005; Workplace Bullying Institute & Zogby International, 2007; Zapf et al., 1996). Consequences to the individual target may include emotional responses (frustration, stress, anger, confusion, powerlessness, depression, humiliation, fear, self-doubt); self-identity crises; health damage (psychological injury, anxiety, depression, post-traumatic stress disorder); stress-related short- and long-term physical health consequences; negative responses toward the job and the organization (strained relationships with colleagues and clients, isolation, sense of injustice, job dissatisfaction, burnout); counterproductive behavioral responses (retaliation, escalation, avoidance, withdrawal); and income reduction or loss (Hoel et al., 2004; Fox & Stallworth, 2005). Consequences to the organization may include interference with workplace performance (productivity, rise in accidents and mistakes, diminished corporate reputation): withdrawal (high turnover, loss of the brightest, absenteeism); effects on organizational culture and climate (strained loyalty, distrust, sabotage, resentment, uncivil climate, decreased communication, potential escalation to workplace aggression or violence); and direct organizational costs (legal liability, higher workers comp and disability costs) (Hoel et al., 2003).

A major stumbling block to progress in moving from basic research to policy development is the proliferation of definitions of bullying and lack of consensus on a number of delineating characteristics. One point of contention is whether or not the hostility needs to be pervasive to qualify as bullying. The requirement that workplace bullying be defined in a manner which excludes single incidents or "trivial" accusations has been articulated by human resource, employment law, and alternative dispute resolution practitioners, and the courts in the U.S. (Fox & Stallworth, 2008; Yamada, 2000). Most researchers (e.g., Einarson, Hoel, Zapf & Cooper, 2003; Leymann, 1996; Rayner & Keashly, 2005) require behaviors to be repeated, patterned, or persistent (which we here call "pervasive"). However, this pervasiveness criterion is seldom reflected in the scoring of behavioral checklist items. For example, when the total bullying score is a sum of individual item responses from 0 to 4, a participant reporting several bullying behaviors but with very low frequency may score higher than one reporting a very high frequency on one or a few behaviors. Yet it is the latter, not the former score which corresponds to the construct as defined by the bullying research community as described above, that is, frequent, persistent, or repeated acts. This results in a serious disconnect between construct and measurement.

Fox and Stallworth (2008) reanalyzed the data from several prior studies in which corporate employees and university professors reported on their experiences as targets of workplace bullying. Respondents were classified into three groups: those who had answered "never" to all bullying items ("None" group), those who had answered "rarely" or "sometimes" to at least one item, but "quite often" or extremely often" to no items ("Rare" group), and those who had answered "quite often" or "extremely often" to at least one item ("Pervasive" group).

These three groups (those who had experienced no bullying, those who had experienced rare or occasional bullying behaviors but no frequent behaviors, and those who had experienced frequent or pervasive bullying behaviors) were compared with respect to reported job strains.. ANOVA and Tukey comparisons tested for differences in reported strains among the None, Rare, and Pervasive groups. Targets of rare bullying behaviors reported a significantly lower level of strains than targets of pervasive bullying, and for several strains reported no significant differences from non-targets.

For example, in the data from the Fox and Stallworth (2005) study of corporate employees, respondents who reported pervasive bullying reported significantly higher levels of negative emotions than either respondents who reported rare bullying, or those who reported no bullying; respondents who reported rare bullying did not report more strains than those who had not been bullied at all. Additional t-test comparisons of all strains included in that study found no significant differences between respondents who reported rare bullying and those who reported no bullying, while t-test comparisons of all strains found significant differences ($p<.0001$) between respondents who reported rare and those who reported pervasive bullying. Similarly, in the unpublished data from the Fox and Stallworth study of university professors (summarized in Fox & Stallworth, 2008), pervasive bullying was associated with significantly higher levels of negative emotion, burnout, physical symptoms, frustration, and dissatisfaction than was rare bullying; and rare bullying was not associated with higher levels of any of those strains than no bullying.

The above analysis suggests distinct processes between rare (occasional) and pervasive bullying, and perhaps supports the argument that only persistent or repeated acts should be considered bullying. The pervasiveness requirement may also be useful in distinguishing bullying from incidental or unintentional incivility. This is critical to establishing acceptable legal and organizational approaches to preventing and addressing bullying and avoiding frivolous claims, and as such is a criterion insisted upon by employment law and human resource practitioners who are attempting to translate bullying research into the development of organizational and public policy (Fox & Stallworth, 2008). Based on the review of bullying researchers' definitions, evidence of different effect patterns of rare and pervasive bullying, and expressed preferences of employment law, arbitration, and human resource professionals, the current study looks at pervasive bullying only, that is, acts reported by teachers as occurring "quite often" or "extremely often" (see Method section).

Stressor-emotion-control/support (SEC/S) framework

The theoretical framework for this study is the stressor-emotion-control/support (SEC/S) process (Spector & Fox, 2005), which is based upon transactional stress theory (Lazarus, 1999; Perrewé & Zellars, 1999). This framework emphasizes the moderating role of control (Karasek, 1979) and support (Karasek & Theorell, 1990), and is consistent with the Zapf and Einarsen (2005) model of bullying/mobbing. In previous studies we have applied this framework to the specific stressors of violence and bullying to examine stress dynamics experienced by corporate managers, employees, and university professors, and in the current study, public school teachers (see Figure 1).

Transactional stress theory. One of the dominant research approaches to job stress is Lazarus' (1999) transactional stress theory. Perhaps his key contribution was the synthesis of previously separate emotions and stress literatures, in which stress is viewed as a complex cognitive, affective, physiological, and behavioral process in response to stimuli perceived as

threatening or harmful (Lazarus, 1999; Perrewé & Zellars, 1999). Stress is not a response to the objective environment (if such exists), but rather derives from the relational meaning or personal significance of the person-environment relationship. People monitor their environments, and through the appraisal process, interpret situations as stressors, based on such factors as the extent to which the individual perceives a threat to well-being, the degree to which a situation might interfere with goals or ongoing activity, and the individual's attributions about the causes of events (Spector et al., 2005).

Not all perceived stressors lead to intense emotions, nor to immediate behavioral responses. It is a fundamental proposition of transactional stress theory that the appraisal of threat to one's well-being and subsequent stress results from the interaction of the person and the environment (Lazarus & Folkman, 1984; Perrewe & Zellars, 1999). Some powerful perceived stressors, such as being screamed at by the principal in front of students, will likely result in immediate anger and anxiety. On the other hand, emotional responses to reduced class preparation time may be quite mild and have a cumulative effect over time, with only gradually increasing fatigue and pressure leading to escalating emotion (Fox & Spector, 2006). Personal factors interact with stressors, cognitive appraisals, and strain outcomes. Emotions play multiple roles in the process. For example, emotional state at a point in time will affect how a person perceives and appraises a given situation. Basic emotional tendencies (e.g., trait anger or trait anxiety; Spielberger & Sydeman, 1994) play a major role in the behavioral outcomes of the process.

Demand-control-support. Two key intermediary factors in the progression of the stress process are control and support. The proposition that control impacts all stages of the individual's perceptions, appraisals, coping choices, and strain responses is central to leading theories of stress–most notably in the work of Karasek (1979) and Lazarus (Lazarus & Folkman, 1984). Social support and instrumental support (arguably a form of control) have more recently been assigned a similar moderating role (Karasek & Theorell, 1990).

Thompson (1981) defines control as the belief that one has at one's disposal a response that can influence the aversiveness of an event. It is argued that the perception of having control over the particular stressors, rather than the exercise of control, is the critical part of the appraisal mechanism, and reduces the likelihood of negative emotional responses and strain. Ganster (1988) provides further support for this notion, based on Miller's (1979) "minimax hypothesis", arguing that an individual who perceives the availability of a control response will be more likely to believe the situation will not become unbearable, and will therefore be able to tolerate higher levels of stressful stimuli.

Karasek's (1979) demand-control (originally demand-decision latitude) model proposes that various kinds of control provide key input at several stages of the stress process. To begin with, a person who feels "in control" is less likely to perceive environmental conditions as threatening. Along with the appraisal of threat, a person considers what might be done about it, that is, coping (Lazarus, 1999). One's sense of being able to cope with the threatening situation, and the manner in which one will cope, also derive in part from appraisal of one's ability to control the environment, oneself, or both. Adverse psychological strain results when the job is simultaneously high in demands and low in control. In contrast, positive outcomes (e.g., motivation and learning) occur when individual occupies an "active" job, including both a high level of psychological demands and high level of control.

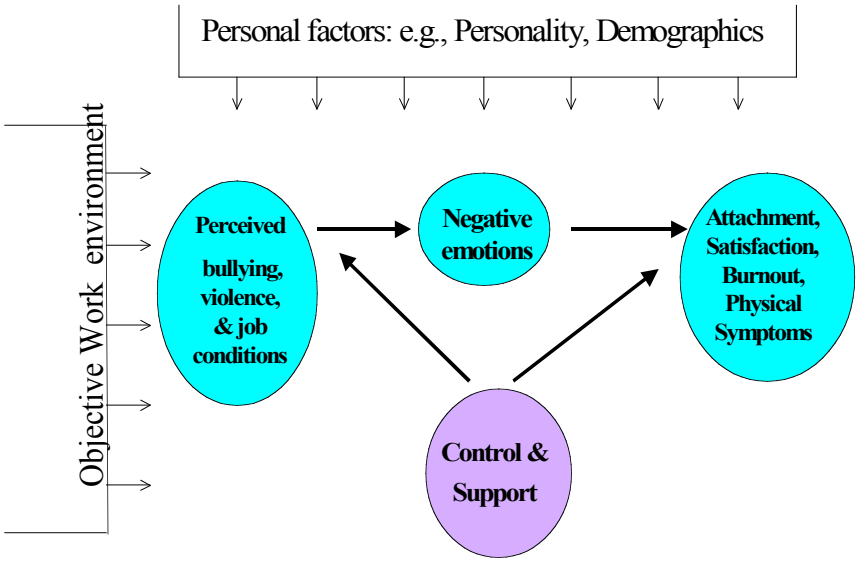
Karasek and Theorell (1990) revised this model as the Demand-Control-Support (DCS) model, including support alongside control as a moderator of the stressor-strain relationship.

They suggest social support on the job may facilitate coping in similar fashion as control beliefs, thereby preventing or ameliorating strain by buffering the stressors found in high-demand jobs. Van Yperen and Hagedoorn (2003) provide evidence that the kind of support and control must match the specific stressors in order to facilitate successful coping. It follows that tests of the SEC/S framework must begin with identification of relevant control or support that matches the specific stressors under consideration.

Current study

The first objective of the current study was to investigate violence and bullying experienced by teachers in a U.S. urban public school system within the SEC/S framework (Figure 1).

Stressor-emotion-control/support model of teacher stress



Interpersonal conflict, including bullying, "mobbing" and "psychological violence", has been shown to be a leading cause of job stress (NIOSH, 2008; Zapf & Einarsen, 2005). In particular, the specific stressors of acts of violence and pervasive bullying are expected to lead to the psychological and physical strains of low levels of job satisfaction and attachment, and high levels of negative emotion, burnout and physical symptoms.

H1. Violent acts and pervasive bullying will be positively associated with negative emotion, burnout, and physical symptoms, and negatively associated with job satisfaction and attachment.

The work of Karacek (e.g., Karasek & Theorell, 1990) emphasizes the moderating role of relevant forms of support and control. Specifically, as seen in Figure 1, coworker social support will moderate the effects of pervasive principal bullying on strains. Control in the form of an instrumentally supportive school administration will moderate the effects of violence and pervasive bullying on strains.

H2. Satisfaction with the way the school administration handles acts of violence will moderate relations between acts of violence and strains. That is, acts of violence will be associated with strains, but only when satisfaction with the school administration's handling of violence is low.

H3. Coworker social support will moderate relations between pervasive bullying by the principal and strains.

H4. Instrumental principal support will moderate relations between pervasive bullying and strains.

The second objective of the current study is to test the expectation of greater toxicity of pervasive bullying relative to rare or occasional incidents of mistreatment. Arguably an act of physical violence is a case of mistreatment of the most acute nature. To demonstrate that pervasive non-physical bullying has greater strain effects than acts of violence would provide strong support for the power of pervasive bullying relative to rare or occasional mistreatment, however acute.

H5. The effects of violent acts on job attachment, job satisfaction, negative emotion, burnout, and physical symptoms will drop out when regressed together with pervasive bullying.

The criticality of the "pervasiveness" criterion is expected to be further demonstrated when targets of pervasive bullying, but who have experienced no acute instances of actual violence, are compared with targets of one or a small number of acute acts of actual violence, but who do not report pervasive bullying.

H6. Teachers who report pervasive bullying but no violent acts will report higher levels of strains than those who report violent acts but no pervasive bullying.

Method

This study was developed with the cooperation of the teachers union of an urban public school system. Participants were solicited with notices on the Union's website, an email blast to the Union membership, and meetings between the researcher and union officials and delegates. Solicitations contained a link to the survey, which was developed with OPINIO application software to provide a secure firewall and anonymity for the respondents. The survey was conducted from September through December, 2006, and participants were asked to answer questions in reference to the previous academic year.

Participants

A total of 779 surveys were completed. As we were informed that teachers typically delete union emails without opening them, we have no way of knowing how many teachers knew of the survey, and therefore no reliable response rate data are available. Approximately 40% of hits on the survey website resulted in completed surveys.

Table 1 summarizes key demographic information, including gender and race/ethnicity of the respondent and the respondent's principal, grade level taught, and years of teaching experience.

Table 1. Demographic summary

Total sample = 779	%
Gender	
Male	18.0
Female	82.0
Gender of principal	
Male	36.0
Female	64.0
Race/ethnicity	
Asian	2.5
African American	21.4
Hispanic/Latino	9.3
Caucasian/White	63.4
Other	3.4
Race/ethnicity of principal	
Asian	0.5
African American	44.1
Hispanic/Latino	16.9
Caucasian/White	36.5
Other	2.0
Grade level taught*	
Pre-K / kindergarten	6.0
Grades 1-5	34.3
Grades 6-8	27.9
Grades 9-12	31.9
Years of teaching experience	
Less than 1 or 1	1.7
2-5	20.1
6-10	17.8
Over 10	60.4

*Note: in the school system under study, Pre-Kindergarten, (approximately ages 3-4) and Kindergarten (ages 4-5) as well as Grades 1 – 8 are generally housed together in a single school. Grades 9-12 are considered "high school" and housed separately.

Measures

Measures included established scales of satisfaction (Cammann, Fichman, Jenkins & Klesh, 1979), physical symptoms (Spector & Jex, 1998), burnout (Halbesleben & Demerouti, 2005), job-related emotions (Van Katwyk et al., 2000), and bullying (Fox & Stallworth, 2005). New scales were developed together with union officers to tap specifically relevant aspects of conditions experienced at school, support and control, and the occurrence and handling of acts of violence.

Job satisfaction, job-related emotions, physical symptoms and burnout. Job satisfaction was measured with a scale derived from the Michigan Organizational Assessment Scale (Cammann et al., 1979). The three items, including "All in all, I am satisfied with my job", tap global job satisfaction. Response choices range from 1=Disagree very much to 6=Agree very much.

Job-related emotions were measured with the reduced Job-Related Affective Well-Being Scale or JAWS (Van Katwyk et al., 2000). The JAWS measures a wide range of emotions experienced in response to the job. Each item asks respondents to indicate how often any part of the present job has made them feel a particular emotion (e.g., anxious, enthusiastic, or furious). The five response choices range from 1=almost never to 5=extremely often or always. A positive emotions score was obtained by summing the scores on the 10 positive affect items, with high scores representing high levels of positive emotion on the job. A negative emotions score was obtained by summing scores on the 10 negative affect items, with high scores representing high levels of negative emotion on the job. Only the negative emotions scale is used in the current study, as only negative emotions are included in the model and hypotheses.

Physical health symptoms were assessed with the Physical Symptom Inventory or PSI (Spector & Jex, 1998). Respondents were asked to indicate which of a list of 18 symptoms, such as headaches, upset stomach, trouble sleeping, and fatigue, they had experienced and for which symptoms they had seen a doctor in the past 30 days. In the current study, scores sum symptoms indicated both with and without seeing a doctor.

Burnout was measured with the Oldenburg Burnout Inventory (OLBI). Halbesleben and Demerouti (2005) provide evidence that the OLBI has comparable reliability and construct validity as the more widely-known Maslach Burnout Inventory. Since the copyright-holders of the Maslach inventory refused to permit usage in online surveys, the current study used the OLBI in its place. Response choices for the 16 items range from 1=Disagree very much to 6=Agree very much.

Workplace bullying. Bullying was measured with the Fox and Stallworth (2005) Workplace Bullying Checklist or WB-C. The 24 items cover six categories of bullying behaviors: threatening/intimidating behavior, demeaning behavior, isolation, abusive supervision, work sabotage, and harm to reputation. Response choices range from 1=never to 5=extremely often. In addition, for each item, the respondent is asked whether "the person who stands out in your mind as the main person who DID the behavior to you" was a coworker, principal/administrator, parent, student, or other, and whether the person was a male or female.

As discussed above, most researchers agree that the definition of bullying includes the requirement that behaviors be persistent or repeated. However, most bullying checklists total item scores, including lower incidences of the behavior (such as "rarely" or "sometimes"). To be consistent with the emerging definitional consensus, a separate score for "pervasive bullying" was created, by including in the sums only items endorsed with either 4=Quite often or 5=Extremely often. To obtain "pervasive bullying" scores, responses of "rarely" and "sometimes" were equated to "never", thus counting only behaviors experienced "quite often" or

"extremely often". These "pervasive bullying", "pervasive coworker bullying" and "pervasive principal bullying" variables were used in the analyses in place of total bullying scores.

Measures of violence, coworker social support, and administrative/principal instrumental support. The violence item asked teachers "How many times during academic year 2005-2006 were you personally the target of ACTS of violence or harm in or around your school?" Satisfaction with handling of "threats or acts of violence or harm that occurred in your school" was a single item with response choices ranging from 1=never to 5=always, or N/A=not applicable.

We decided to develop new measures together with union officers for two related reasons. First, in return for their cooperation in conducting this study, we felt obligated to provide the specific kinds of information with which they were most concerned. Second, concerns have been expressed (Fox & Stallworth, 2008) that the checklists and inventories we develop as academics may not fully represent the reality experienced by our research populations.

Separate measures of job conditions, coworker social support, administrative/principal instrumental support, and job attachment were partially based on existing measures of teacher stress (e.g., Bacharach et al., 1990; Fimian, 1984), but developed and refined over the course of several months of face-to-face meetings and email exchanges with union officers. Items were then combined into a single inventory, for which response choices ranged from 1=never to 5=extremely often. Exploratory factor analysis (Table 2) supported the distinction among the four scales, with the exception of five items, which were deleted from analysis. The current paper looks at three of these scales: Coworker social support, administrative/principal instrumental support, and job attachment.

Table 2. Exploratory factor analysis of job conditions, control, support, and attachment items

F1 prin	F2 cond	F3 ssup	F4 atta	
0.62	0.33	0.16	0.12	Teachers at my school have sufficient input regarding school decisions.
0.56	0.40	0.12	0.12	My school adequately follows existing discipline policies
0.81	0.01	0.08	0.23	I have a good relationship with my principal
0.68	0.22	0.20	0.11	Teachers at my school are encouraged to try new/creative solutions for existing problems
0.73	0.19	0.19	0.08	It is easy to contact my principal.
0.66	0.28	0.25	0.13	I receive sufficient administrative support with respect to parents
0.56	0.17	0.29	0.04	My professional development is encouraged
0.80	0.13	0.21	0.18	My principal goes out of his/her way to do things to make my work life easier for me
0.83	0.10	0.20	0.17	My principal can be relied on when things get tough at work
0.17	***0.44***	0.05	0.01	I have an appropriate number of students and classes.
0.31	***0.54***	0.21	0.11	I have adequate resources to do my job (aides/materials)
0.33	***0.51***	0.19	0.08	I am granted sufficient release/prep time
0.25	***0.59***	0.08	0.14	I have sufficient authority over my students.
0.12	***0.38***	0.10	0.16	I get assigned too many non-teaching duties
0.29	***0.46***	0.21	0.03	The facilities at my school (buildings, classrooms, furniture...) are adequately maintained
0.18	***0.41***	0.22	0.11	Parents are involved with their children's education here.
0.11	***0.45***	0.11	0.20	Contacts with parents are often negative
0.00	***0.46***	-0.01	0.24	I have discipline problems in my classroom.
0.16	0.00	***0.49***	0.10	I have good relationships with other teachers
0.32	0.25	***0.52***	0.03	It is easy to contact other teachers at work.
0.26	0.20	***0.44***	0.15	There are days when I have no adults to talk to at school
0.38	0.20	***0.56***	0.04	There is a sense of teamwork among teachers at my school
0.14	0.16	***0.73***	0.06	Other people at work go out of their way to do things to make my work life easier for me
0.08	0.16	***0.76***	0.13	Other people at work can be relied on when things get tough at work
0.35	0.34	0.26	***0.54***	I look forward to going to work each day
0.29	0.27	0.21	***0.79***	I have seriously considered quitting my job
0.43	0.28	0.26	***0.53***	I have seriously considered changing to another school
0.17	0.23	0.18	***0.80***	I have seriously considered leaving the teaching profession
0.31	0.46	0.24	0.36	I have general control of things at my job (deleted)
-0.02	0.11	-0.05	0.12	I lack enough time to get my work done. (deleted)
0.34	0.26	0.38	0.19	I feel isolated in my classroom. (deleted)
-0.02	0.14	0.07	0.03	I receive an adequate salary (deleted)
0.32	0.43	0.16	0.31	I need more status and respect (deleted)

Note. F1 = principal/administrative control and support. F2 = job conditions. F3 = coworker social support. F4 = job attachment

Coworker social support was measured by six items, including "It is easy to contact other teachers at work" and "Other people at work can be relied on when things get tough at work." Administrative/principal instrumental support was measured by nine items, including "I receive sufficient administrative support with respect to parents" and "My principal can be relied on when things get tough at work". Job attachment was measured by four items, including "I look forward to going to work each day" and "I have seriously considered quitting my job."

Results

The results largely supported study hypothesis H1. The prevalence of violence and bullying is reported in Table 3. Noteworthy is that almost 65% of the respondents reported being targets of pervasive bullying, that is, "quite often" or "extremely often". 45.6% reported being targets of pervasive bullying by their administrators/principals. Over 21.4% of the respondents had been the target of at least one act of violence during the prior academic year, and 6.2% had experienced three or more acts of violence.

Table 3. Prevalence of violence and bullying: Percentage of respondents

Violent acts	
At least 1 Violent act	21.4%
>2 Violent Acts	6.2%
Bullying (any incidents reported)	
Total	94.7%
By supervisors	81.5%
By coworkers	67.6%
By students	62.4%
Pervasive bullying (reported as occurring "quite often" or "extremely often"	
Total	64.8%
By supervisors	46.5%
By coworkers	19.6%
By students	29.1%
Satisfied with handling of violence	
N/A	21.7%
Never	22.5%
Very seldom	19.8%
Sometimes	19.1%
Most of time	10.0%
Always	6.8%

Table 4 presents Ns, means, standard deviations, and zero-order correlational analysis of the study variables. Cronbach alphas, shown on the diagonal, range from .80 to .92. Violent acts and bullying, particularly by principals, were associated with all four strains.

Table 4. Correlations of study variables

	N	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Violent acts	748	.61	2.4	*N/A*										
2. Pervasive Bullying	779	9.36	13.6	.29	*.92*									
3. Bullying by principal	779	5.44	11.0	.22	.88	*.92*								
4. Bullying by co-teachers	779	1.39	4.2	.13	.45	.16	*.92*							
5. Negative emotions	763	29.56	8.9	.17	.46	.39	.14	*.90*						
6. Satisfied violence handled	732	1.94	1.5	.01	-.13	-.13	-.01	-.16	*N/A*					
7. Co-teacher social support	764	3.66	0.7	-.15	-.26	-.23	-.19	-.36	.14	*.80*				
8. Job attachment	765	3.15	1.1	-.13	-.43	-.37	-.16	-.69	.15	.46	*.88*			
9. Satisfaction	759	4.13	1.5	-.14	-.39	-.33	-.13	-.67	.15	.46	.79	*.90*		
10. Burnout	759	3.56	1.0	.15	.37	.28	.16	.71	-.13	-.43	-.77	-.79	*.91*	
11. Physical symptoms	779	7.23	4.1	.19	.30	.21	.18	.52	-.04	-.27	-.46	-.40	.52	*.85*

Note: Correlations above .117 are significant at $p<.01$. Cronbach alphas are in italics on the diagonal.

Moderator analysis was conducted to test Hypotheses 2 through 4 (see Table 5). For job attachment, satisfaction, negative emotions, and physical symptoms (but not burnout), there were significant interactive effects of violent acts with satisfaction in the handling of violence by the school. That is, experiencing violent acts predicted strains, but only when satisfaction with how violence was handled was low, supporting Hypothesis 2. These effects are depicted graphically in Figures 2a-2e (Jose, 2003).

Figure 2a. Moderator analysis: Job attachment

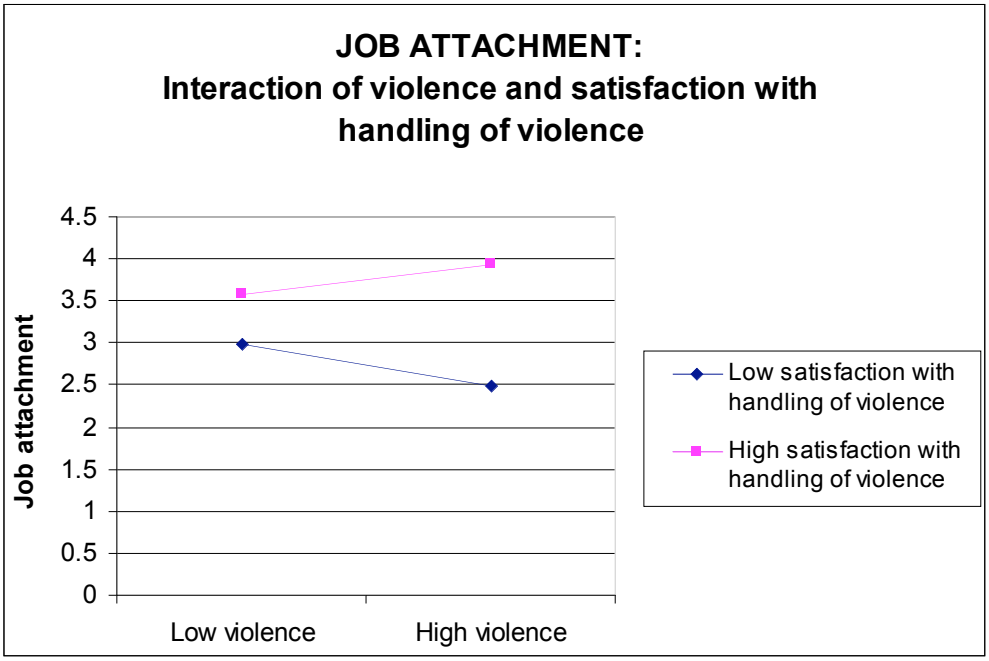


Figure 2b. Moderator analysis: Job satisfaction

Figure 2c. Moderator analysis: Negative emotions

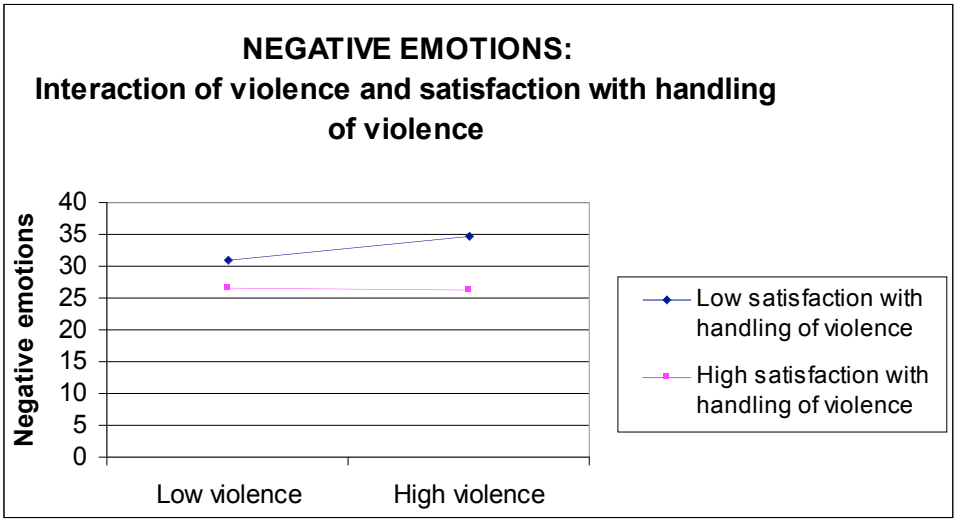


Figure 2d. Moderator analysis: Burnout

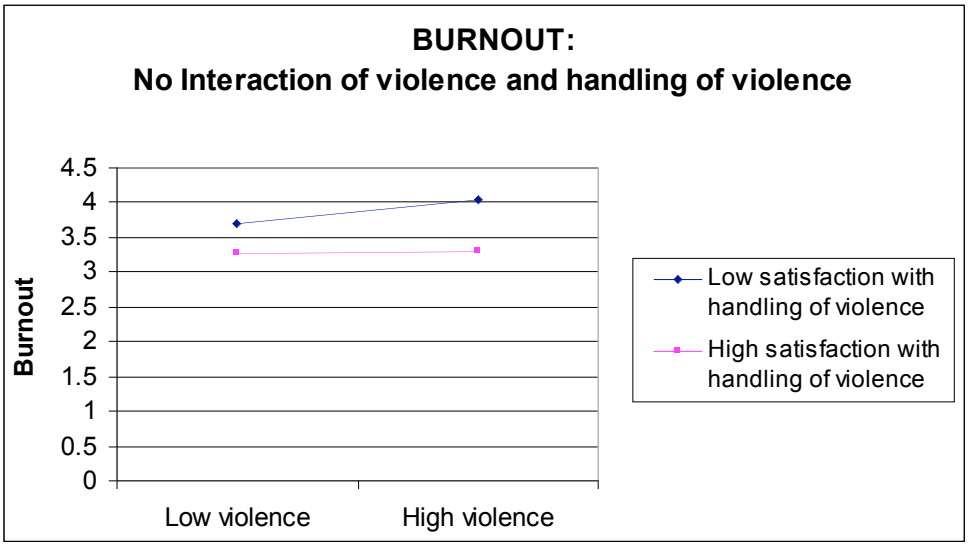
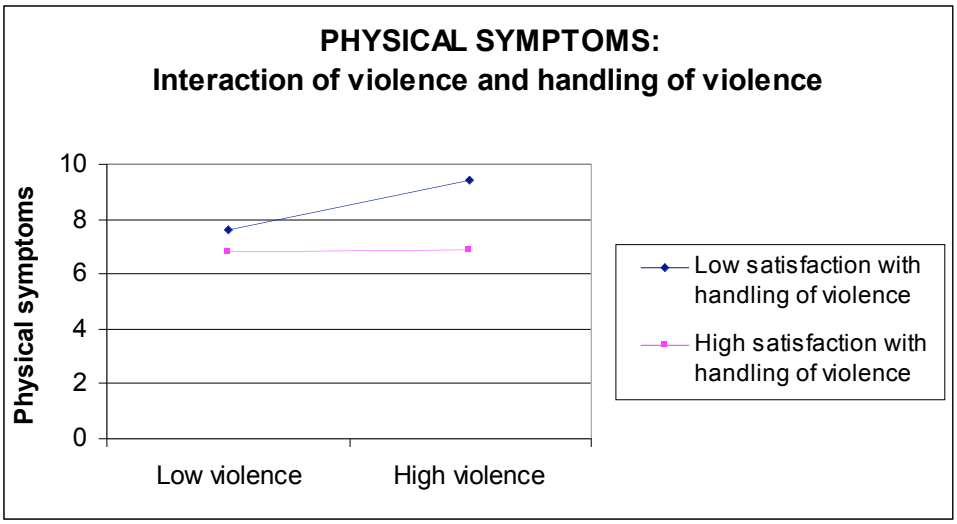


Figure 2e. Moderator analysis: Physical symptoms



Hypothesis 3, the interaction of co-teacher social support with pervasive principal bullying, was supported for job attachment, satisfaction (marginally), negative emotions, and burnout (marginally). However, the moderating effect of social support for those strains was opposite the predicted direction. That is, as principal bullying increased, job attachment and satisfaction decreased and negative emotions and burnout increased; however these relations were stronger for participants who reported higher levels of co-teacher social support.

A similar pattern emerged in support of Hypothesis 4. Interactive effects were found between pervasive bullying and instrumental administrative/principal support, for all five strains. However they were in the opposite direction than predicted. Pervasive bullying increased all five strains, but the increase was greater for participants who reported higher levels of instrumental administrative/principal support.

Table 5. Moderation: Interaction of violent acts with satisfaction in handling of violence, principal bullying with co-teacher social support, pervasive bullying with principal instrumental support, and job conditions with principal instrumental support.

Strains *Stressors and moderators*	Job attachment Std β	Job satisfaction Std β	Negative emotions Std β	Burnout Std β	Physical symptoms Std β
Violent acts	-.375 **	-.359 **	.343 **	.259 **	.352 **
Satisfied handling	.132 **	.130 **	-.136 **	-.123 **	-.029ns
Acts*sathand	.275 **	.240 **	-.188 *	-.123ns	-.175 *
Principal bullying	.290*	.024ns	-.056ns	-.050ns	-.062ns
Social support	.466**	.439**	- .351**	-.421**	-.276**
Prinbully*ssupp	-.573**	-.267+	.376*	.245+	.215ns
Pervasive bullying	.123ns	-.006ns	.068ns	-.111ns	.027ns
Principal support	.570**	.572**	-.431**	-.497**	-.231**
Pervbul*prinsupp	-.349**	-.159*	.232**	.299**	.184*

** p<.01 * p<.05 + p<.10

Hypothesis 5 predicted that when violence is regressed on strains together with pervasive bullying, violence would drop out as a predictor of negative emotions, job satisfaction, job attachment, burnout, and physical symptoms. To test this hypothesis, violent acts were regressed on each strain in step 1. Pervasive bullying was added to the regression in step 2. Table 6 demonstrates that, except for a modest association remaining for physical symptoms, violent acts become nonsignificant in step 2. That is, bullying rather than the actual experience of violence accounted for strains, supporting Hypothesis 5 (except for physical symptoms).

Table 6. Regression of violent acts (step 1) and pervasive bullying (step 2) on strain outcomes

Dep. Vbl.	Violent acts Std β	Pervasive bullying Std β	R^2 at each step	$R^2\Delta$
Job attachment				
Step 1	-.13*		.02*	
Step 2	.01ns	-.44*	.19*	.17
Satisfaction				
Step 1	-.14*		.02*	
Step 2	-.03ns	-.39*	.16*	.14
Negative emotions				
Step 1	.17*		.03*	
Step 2	.04ns	.46*	.22*	.19
Burnout				
Step 1	.15*		.02*	
Step 2	.04ns	.36*	.14*	.12
Physical symptoms				
Step 1	.19*		.04*	
Step 2	.12*	.25*	.10*	.06

* $p<.01$

Hypothesis 6 takes this one step further, comparing mean scores on strains of two groups of respondents: targets of pervasive bullying without violent acts, versus targets of violent acts without pervasive bullying, shown in Table 7.

Table 7. T-tests of mean strain scores: Comparison of teachers reporting pervasive bullying without violent acts with teachers reporting violent acts without pervasive bullying

Stressors Strains	Pervasive bullying but no violent acts	Violent acts but no pervasive bullying
Pervasive bullying total		
Job attachment	2.862	3.250
Job satisfaction	3.882	4.381
Negative emotions	31.533**	26.714
Burnout	3.768+	3.364
Physical symptoms	7.741**	5.182
Pervasive bullying by co-teachers		
Job attachment	2.842	2.781
Job satisfaction	3.846	3.714
Negative emotions	31.962	31.938
Burnout	3.782	3.831
Physical symptoms	8.283	7.797
Pervasive bullying by administration/principal		
Job attachment	2.711**	3.336
Job satisfaction	3.660**	4.486
Negative emotions	32.638**	28.138
Burnout	3.868**	3.381
Physical symptoms	7.782*	6.542

** p<.01 * p<.05 + p<.10

Looking at total pervasive bullying, targets of pervasive bullying without violent acts reported significantly higher levels of negative emotions, burnout (marginally), and physical symptoms than targets of violent acts without pervasive bullying. To delve deeper into this relationship, pervasive bullying is broken down by source of the bullying. Note that the report of violent acts is not broken down by source, but rather is an estimate of total number of violent acts experienced over the academic year. There are no significant differences between the two groups (targets of pervasive bullying without violent acts, versus targets of violent acts without pervasive bullying) when the source of the bullying is co-teachers (i.e. coworker bullying). However, when the source of the bullying is the administration or principal (i.e., supervisory bullying), bullying targets suffer significantly higher levels than targets of violent acts on all study strains.

Discussion

The results of this study support several predictions of the Stressor-Emotion-Control/Support (SEC/S) framework. Most interesting are the mixed results regarding moderating roles of various forms of control and support.

The importance of serious attention to organizational policy on workplace violence is highlighted by the findings linking administrative handling of violence with violence itself in accounting for strain. Although there is much discussion in the public media of the violence faced by public school teachers, it appears that teachers themselves perceive the more damaging stressor to be pervasive bullying, particularly by their principals. Furthermore, it is not violence itself that appears to predict job strains, but rather being the target of violence and perceiving that the school is not adequately handling such incidents.

Arguably, teachers perceive effective handling of violence as a form of instrumental support by their administrations, and even as a form of control over their environment. Conversely, when teachers are not given the backup they seek, they may feel defenseless against the pervasive threat of violence, and experience even isolated violent acts as extreme environmental challenges with which they are powerless to cope. As such, this finding is consistent with the moderating role of control and support in stress theory (e.g., Karasek & Theorell, 1990).

The predicted buffering effect of co-teacher social support against the stressor of bullying was not supported by the data. To remove the confound of coworker support and coworker bullying items, the moderation hypothesis was tested separately for principal bullying. However, for job attachment, satisfaction, negative emotions, and burnout (the strains for which interactions were found), the direction of the interaction was opposite that expected. For example, job attachment decreased as principal bullying increased, but this decrease was greater for higher rather than lower levels of co-teacher social support. Teachers who reported more social support suffered greater stress as a result of principal bullying, which has been termed a "reverse buffering" effect (Fenlason & Beehr, 1994).

One possible explanation is that teachers who reported having deeper social networks were individuals who were more sensitive to interpersonal relationships, and were thus more sensitive to mistreatment by their principals. In addition, those who are exposed to a high stressor and consequently show high strain may receive high support, whereas those exposed to high stressors but show low strain receive less support because it does not seem necessary. In this case, support rather than strain becomes the dependent variable.

An alternative explanation might be that the forms of support measured failed to match the characteristics of the stressors (matching hypothesis: Semmer et al., 2008). That is, either the types of support, or the manner in which support was given, were not found by targets to be helpful in ameliorating the effects of bullying. Semmer et al. (2008) found that when people under stress receive social support, that support may have negative effects on the recipient's well-being. Even instrumental or problem-solving support is likely to carry emotional meaning for the recipient; the support is perceived to carry a message about the relationship between the individuals giving and receiving support. In some cases, the emotional interpretation of support may be negative, as when the support is perceived as being a lecture or reproach, and as such may be considered "dysfunctional social support" (p. 246).

Another possible explanation is that discontent and psychological strains increased when teachers shared gripes about their administration with their social peers. This could be explained as emotional contagion (Barsade, 2002) and/or sensemaking processes (e.g., social information

processing: Salancik & Pfefer, 1978; social accounts: Sitkin & Bies, 1993; third-party sensemaking in conflicts: Volkema et al., 1996), resulting in higher levels of negative evaluations and emotions and subsequent strains. Fenlason and Beehr (1994) suggest that this "reverse buffering" effect of social support may occur when a supportive other appraises a situation as actually worse than the stressed individual had initially thought. Similarly, Lewis (2003) discusses the perception and meaning of being bullied as highly influenced by work colleagues, looking at a social construction process in the self-identification as being a target of bullying.

On the other hand, this might simply be an artifactual finding: main effects of principal bullying on all strains except job attachment became non-significant when regressed together with social support and the interaction term, which may be explained by the overwhelming strength of the social support effect.

A similar counterintuitive directionality of interaction emerged with total pervasive bullying (which includes bullying by parents, students, and coworkers) and instrumental administrative/principal support. This is consistent with findings that the types of tangible, instrumental support failed to match the perceived stressors, as discussed above (Semmer et al., 2008). Specifically, teachers may distinguish the sources of their stressful working conditions between those attributed to the individual principal, and those attributed to the larger school system and the dysfunctional socio-economic-political environment in which the schools are embedded. In their narrative responses to open-ended questions, teachers were highly critical not only of their individual principals, but also of the Board of Education, their union, parents, the media, and public perceptions about public school teachers. Thus, some teachers experiencing high levels of stressors may view their principals quite sympathetically, as engaging in Sisyphusian endeavors to support their teachers in the face of extreme resource constraints and a dysfunctional school and social system. Alternatively, as discussed above with respect to coworker social support, instrumental support from principals may be accompanied with contradictory or negative emotional messages. Finally, artifactual explanations might apply here as well.

Limitations of the current study

The main limitation was that the sample was not random nor necessarily representative of all teachers in the school system. Because participants responded to solicitation to participate from their union, it is possible that teachers who were more discontent or even adversarial with respect to their school administrations self-selected into the study. Union members who opened union emails (such as the solicitation to participate in this study) were likely to be more active in the union and more engaged in articulating negative job attitudes than colleagues who did not respond. However the argument of pro-union/anti-administration biases may be countered by the 250 pages of narrative submitted in response to open-ended questions, in which teachers were also highly critical of their union's response to stress and bullying (further analysis of these narratives is beyond the scope of the current paper).

A key methodological issue is the choice to score only "pervasive" bullying behaviors reported on the Workplace Bullying Checklist. The dilemma was the need to balance the potential threat of contamination by problematic psychometric properties such as unequal response choice intervals, versus the overriding objective of achieving a closer match between the construct as defined and its operationalization. We chose the "pervasive bullying" scoring approach, because the defining characteristic of frequency or persistence is neglected in most measures, and incorporating this delineation of bullying was a primary objective of the study.

Furthermore, the original Workplace Bullying Checklist (WB-C) was intentionally constructed (and scored) in the same manner as the Counterproductive Work Behavior scales that are now commonly used in that broader research stream. Spector et al., (2005) have argued that these measures are behavior checklists rather than effect indicators (such as a job satisfaction scale), and that some psychometric characteristics of effect indicators may not apply. For example, it is appropriate to include a count of indicated behaviors when some but not all 24 items are responded to, rather than assigning "missing value" to the checklist sum, because the measure itself is the sum of experience of the individual behaviors. As a result, we find no missing values on the bullying variable, even if not every individual behavioral item is rated.

Recommendations for further research

It is demonstrated in Table 1 that the racial/ethnic breakdown of the current sample is somewhat unrepresentative of the population of teachers in this particular school system: Of the 779 respondents, 3% were Asian, 21% African-American, 9% Latino/Hispanic, 63% white, 3% other, while the actual demographic breakdown of the population of teachers in this school system is 3% Asian, 36% African American, 13% Latino/Hispanic, and 47% white. The respondents' principals were reported to be 1% Asian, 44% African-American, 17% Latino/Hispanic, and 36% white, while the actual breakdown of principals in this school system is 1% Asian/Pacific Islander, 54% African-American, 13% Latino/Hispanic, and 31% white. Similarly the sample is overwhelmingly female, and respondents' principals are also women in the majority. These demographics contrast sharply with bullying studies in corporate and higher academic contexts. This has major implications for our understanding of stress, violence, and bullying, and relationships between these phenomena and social and organizational power dynamics. This is beyond the scope of the current paper, but based upon previous studies (e.g., Cortina, 2008; Fox & Stallworth, 2005), further analysis of data from the current study and additional studies are underway investigating bullying in the context of gender, race/ethnicity and power. Clearly work needs to be undertaken in this direction.

Workplace bullying is a complex personal, social, and political phenomenon, embedded in layers of individual, interpersonal, and cultural perceptual and sensemaking processes. It has become almost a truism in stress and counterproductive work behavior research that untangling these complex processes requires psychologists to develop complex new research designs that integrate quantitative and qualitative approaches. At the same time, if our goal is to go beyond psychological understanding, we must find ways to implement our findings in the development of organization and public policy addressing workplace violence and bullying. Particularly in the ideological, legal, and economic environment in the U.S., empirical research must be conducted and framed in the context of risk management, organizational survival, and financial ramifications if our insights are to inform organization and public policy. This speaks for the collection of "hard" prevalence and financial data, which can be framed in the language of management, economics, and politics.

Contributions and implications for practice

Many of the relationships demonstrated in this study confirm findings of the body of European, Australian, and U.S. research on job stress and bullying in general and among teachers in particular. However, the current study offers a focused framework (SEC/S), which integrates several leading stress theories in the specific context of the targets' perspective of Counterproductive Work Behavior (Fox & Spector, 2005). The study then uses the SEC/S

framework to address several specific practical problems in delineating, measuring, interpreting, and resolving teachers' experiences of violence and bullying.

One contribution of the current study was support for the clarification and operationalization of the definition of bullying by requiring behaviors to be persistent, patterned, or repeated (i.e., "pervasive"). A second contribution was the somewhat unexpected finding that the effects of pervasive bullying by principals overshadow actual acts of violence as sources of stress. A third contribution was confirmation of the key premise of theories in which perceptions of control and support are central to people's psychological and behavioral responses to their environment (e.g. Van Yperen & Hagedoorn, 2003; but see also Ajzen & Fishbein´s Theory of Planned Behavior, 2000), namely that moderating effects by control and/or support require specific forms of control and/or support that are directly relevant to the specific stressors in question. These interactions are quite complex and not always consistent with our theoretical or intuitive expectations, as in the reverse buffering role of co-teacher social support in teachers' responses to bullying by their principals.

Perhaps the most practical contribution was the finding that teachers' satisfaction with their administrations' handling of violence moderates their experience of violent acts, and in fact, overshadows the effects of violence. This has important implications for the development of public and educational policy. While violence in the schools may be inextricably linked to broader social, economic, and political problems, there are steps that can be taken immediately by public school boards, unions, and individual school administrations to protect teachers from some of the psychological and physical consequences of working in a threatening environment.

There are several potential approaches to preventing and redressing workplace bullying: individual solutions (e.g., therapy, turnover); organizational solutions (e.g., internal policies and programs, alternative dispute resolution); union intervention; and public policy solutions (e.g., Healthy Workplace legislation). Unfortunately, in the United States, while there exists a growing body of common law and statutory protections against "status-based" mistreatment (i.e., discrimination based on race, gender, age, etc.), the available public mechanisms have been ineffective or considered irrelevant against "status-blind" workplace bullying (Yamada, 2000). Efforts to draft and enact legislation that would provide protection, self-help mechanisms, relief, compensation or restoration for the targets and/or punishment for the bullies have failed to date, and show no sign of passing in the foreseeable future.

Yamada (2000) cites the decline of union membership and influence as one possible source of the apparent rise in incivility and bullying in today's workplace. However, here the population of teachers tapped in this study may enjoy an advantage, in that they have a strong and active union, which by commissioning and collaborating on this study, has demonstrated awareness and concern with these issues. Here the unions would benefit from the experiences of UNISON, the largest trade union organization in the U.K., which has developed and implemented elaborate and effective organizational anti-bullying policies (Richards & Daley).

Finally, as results and applicability of studies such as the current one are demonstrated to organizational policy-makers and human resource and employment law professionals, policies and programs can be tailored to the specific context of the occupational sector and socio-political-legal-cultural context in which the organizations are embedded. The current study underscores that, even in the face of pervasively violent and threatening work environments located in violent and threatening social communities, the development of effective policies to protect teachers and address the violence they experience and consistent implementation of these policies may go a long way in ameliorating teachers' distress.

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