CONCEPTUAL REVIEW

What Qualitative Research has Taught us about Occupational Stress

Joseph J. Mazzola[1,3]*[†], Irvin Sam Schonfeld[2] & Paul E. Spector[1]

[1]University of South Florida, Tampa, Tampa, FL, USA

[2]City College and the Graduate Center of the City University of New York, New York, NY, USA

[3]Currently at the University of Tulsa, Tulsa, OK, USA

Abstract

While many reviews of job stress and the stressor–strain relationship have been conducted, such reviews typically focus exclusively on quantitative data. In the current paper, we review qualitative studies on occupational stress that met two criteria: (1) the studies employed qualitative methods; (2) the stressors, strains and/or coping strategies were grouped into identifiable, higher-order categories. Results indicated that the nature of the stressors experienced varied by (a) occupation, (b) country, (c) seniority and (d) gender. The review further revealed that organizational constraints, work overload and interpersonal conflict were relatively universal stressors. Anger and annoyance were the most frequently reported psychological strains in the United States and the United Kingdom, while Chinese workers exhibited tension and anxiety and Indian workers exhibited acceptance. Coping strategies also varied by gender, occupation and country. Research on gender differences suggested that, compared to men, women tended to report more interpersonal stressors. Differences in the ways in which the two types of methodologies are applied, as well as their relative strengths and weaknesses, underline the value of qualitative approaches to the study of occupational stress, especially when used in conjunction with quantitative methods in mixed-methods studies. Copyright © 2011 John Wiley & Sons, Ltd.

*Correspondence

Joseph J. Mazzola, 308 Lorton Hall, 800 S. Tucker Drive, Tulsa, OK 74104,USA.

[†]Email: joe-mazzola@utulsa.edu

Researchers have studied occupational stress for several decades, with a primary focus on the stressor–strain relationship. Stressors refer to environmental conditions or situations that elicit an emotional response such as anger or anxiety (Spector, 1998). Strains are individuals' responses to stressors (Jex & Beehr, 1991) and can be physical (e.g. increased blood pressure), psychological (e.g. anger) or behavioural (e.g. smoking). Researchers hope that by identifying stressors they can recommend steps to prevent or limit the strains that stressors elicit. Accumulated research on occupational stress has generated a wealth of knowledge about

the stress process and how stressors affect people in a wide variety of jobs (see reviews by Jex & Beehr, 1991; Kristensen, 1996; Lin, 2003).

The majority of studies on occupational stress have used quantitative methods, which is reflected in the reviews cited above. While studies using quantitative methods have been important to the field, these studies have limitations. One assumption of quantitative research is that the investigator knows what stressors and strains to assess in structured data-collection instruments. This approach may ignore what are the most important stressors and strains for the respondents (Keenan & Newton, 1985). Therefore, qualitative research can play a role in the discovery of stressors, strains and coping behaviours that were not originally thought of by researchers using structured instruments in quantitatively oriented research (Kidd, Scharf, & Veazie, 1996; Schonfeld & Mazzola, in press). Qualitative findings can add depth to quantitative results by detailing the personal experiences of people who work. Compared to quantitative methods, qualitative methods are more difficult to use for the purpose of hypothesis testing, but when carefully structured and paired with complementary methods, they may indeed be useful in testing specific hypotheses (e.g. Grebner, Elfering, Semmer, Kaiser-Probst, & Schlapbach, 2004). Because results from self-report quantitative scales are easy to analyze, research on occupational stress has under-utilized qualitative methods. While not commonly employed, some stress researchers have used qualitative methods to study stressors, strains, coping and other aspects of the stress process (e.g. Keenan & Newton, 1985; Noblet & Gifford, 2002); their findings, however, have rarely been reviewed.

The purpose of this paper is to examine the findings of occupational stress research that employed qualitative methods. One reason we conducted this review is that the studies we targeted were often completed by researchers in a wide variety of fields who publish in a diverse cross section of journals. For example, a qualitative study of job stress in nurses was published in a nursing journal devoted specifically to the care of AIDS patients (Kalichman, Gueritault-Chalvin, & Demi, 2000). It became evident to us that qualitative studies of occupational stress are spread across many journals that occupational stress researchers may not readily encounter (e.g. *Health Education Quarterly, The British Journal of Forensic Practice* and *The Journal of the Asso-*

ciation of Nurses in AIDS Care). Moreover, in order to identify patterns in the literature, this paper examines the most prevalent work-related stressors (as well as strains and coping strategies) compiled over a large number of studies in which participants were asked to report stressful incidents, without constraints on the types of work-related events they could describe. Finally, by presenting the findings of studies using qualitative and mixed methods, this paper provides researchers with examples to help them adapt these methods to their own research on job stress.

It is important to note that this review is limited to studies that coded responses by themes and/or placed them into meaningful and comparable categories. Studies that reported only narrative responses, while an integral part of the qualitative research literature on job stress were excluded because they did not contain analyses that permitted higher-order themes to emerge, enabling comparisons across studies. We also advance the view that the open-ended nature of qualitative methods is a major strength, allowing participants to respond as they see fit, based on their personal experience. We present what has been learned about occupational stress directly from the experiences of people who work, which can in turn help researchers tailor interventions to relevant stressors, strains and coping styles.

Qualitative and quantitative researchers often ask very different questions. While the qualitative studies discussed here mainly sought to describe, categorize and report the frequencies of these stressors and strains, quantitative researchers typically look at stressor 'levels' (e.g. score on a job demands scale), investigating the relationship of stressor levels to other variables. Part of the appeal of qualitative methods is their applicability to the identification and discovery of stressors (Schonfeld & Farrell, 2010), and thus, most qualitative studies that we reviewed here neither made predictions nor drew firm conclusions. That said, the compilation of these studies allowed us to make some basic predictions on what the combined data would say.

We hypothesized that some stressors would occur more frequently than others. Since frequency of stressors is rarely addressed in quantitative research, this prediction is evaluated in terms of the frequency with which stressors were identified in individual qualitative studies, making it difficult to anticipate which would be most prevalent. However, in at least one quantitative

study, workload and organizational constraints (from staffing issues) were found to contribute significantly to stress levels (Lindsay, Hanson, Taylor, & McBurney, 2008). Meanwhile, other stressors, such as role ambiguity and conflict, are not as frequently indicated by participants (Jex & Beehr, 1991). We therefore predicted that workload and constraints would be commonly reported in qualitative research, and role conflict and role ambiguity would not.

We also predicted that stressors would differ depending on the population being investigated. Again, very few studies involving quantitative or qualitative methods compare stressors across occupations (or even organizations), but research on stress levels and frequency suggests that stress experiences differ by job type (Blase, 1986; Lindsay et al., 2008; Narayanan, Menon, & Spector, 1999a). In addition, we examined studies that shed light on cultural differences in stressor and strain frequency. Hofstede (1986) advanced the view that the individualism–collectivism dichotomy reflects pervasive cultural differences that influence human behaviour. We identified qualitative studies that bear on the relation of cultural differences to the occupational stress experience. Finally, we also anticipated that there would be gender differences in stressors. Previous studies using qualitative (Jones & Fletcher, 1996) and quantitative (Antoniou, Polychroni, & Vlachakis, 2006) methods support this contention. However, we did not have any specific a priori expectations regarding the direction of gender differences.

Besides results that bear on the predictions above, many other findings on stressors and the overall stress process were compiled and examined. However, we did not have any prior hypotheses about what would ultimately be found with regard to these other aspects (e.g. strains) of the stress process. Instead, in the spirit of the qualitative researcher, we let the data speak!

We begin with a brief discussion of how studies were chosen for this review and the qualitative research methods that have been used in job stress research. Next, we present some general findings about stressors, followed by a summary of results on the frequencies of different types of stressors in various occupations and nations. Then we present an overview of what qualitative research has found about strains, coping with stressors and gender differences, ending with studies that used mixed methods (qualitative and quantitative methods combined). Finally, we summarize the findings and discuss possible avenues for future stress research related to qualitative and mixed methodology.

Methods

Literature search and included studies

To locate relevant studies for this review, we conducted an electronic search of bibliographic databases including PsycINFO, ABI, Medline and Dissertation Abstracts International. We searched for published studies that utilized a qualitative methodology (typically open-ended questions, interviews or focus groups; see the following section for a more complete description), and that coded stress data into themes that made it possible to compare results. The following search terms were used: 'qualitative', 'open-ended', 'interview', 'focus group', 'diary', 'observational', 'stressful events', 'occupational stress', 'stressors', 'strains', and 'coping'. The reference sections of the articles were also examined for similar studies. Database searches were also conducted for the most used qualitative measure in occupational stress research, the Stress Incident Record (SIR; Keenan & Newton, 1985). Finally, we emailed relevant listservs for unpublished literature and new work being done.

Our search returned 92 published journal articles, 10 dissertations/theses, four book chapters and three conference presentations. This review covers studies that met two criteria: (1) the data collected in a study included qualitative responses regarding at least one portion of the stress process (stressors, strains or coping), and (2) the responses were coded into useable, higher-order thematic categories, which could then be compared across studies. Several studies were excluded for one of the following reasons: (a) the methods used were not qualitative (e.g. Greiner & Krause, 2006); (b) although the results were reported qualitatively, useable thematic categories were not developed and only narrative descriptions were presented (e.g. Holmes & MacInnes, 2003); or (c) the paper contained no new empirical data (e.g. Van Maanen, 1979). In the end, 37 studies (35 journal articles, one dissertation and one chapter) contained useable data. The findings from those studies are summarized below. It was surprising that only 37 studies could be identified that involved qualitative data collection and utilized a basic coding system, considering the numerous advantages of qualitative methodology and the key role of qualitative research in the discovery and description of phenomena.

Methods in qualitative job stress research

We briefly review various qualitative methods, particularly from the vantage point of a job stress researcher. One such method, which is perhaps the easiest to employ, involves using survey procedures with open-ended questions. The data obtained from these open-ended questions must be content analyzed, a labour-intensive activity, particularly with large numbers of respondents. Multiple raters who are blind to each other's ratings are typically needed (e.g. Narayanan et al., 1999a, 1999b) to establish reliability. Keenan and Newton (1985) developed the paper-and-pencil SIR for the purpose of qualitatively examining stressful events at work. Respondents are asked to 'recall an incident that made you feel anxious, annoyed, upset, or frustrated, or aroused your feelings in some other way.' Respondents provide responses that are constrained only by the time frame, which typically varies between two weeks (Keenan & Newton, 1985) and one month (Guthrie et al., 1995). Respondents are asked to describe the incident and specify exactly why it was a problem for them. Several studies ($n = 9$) covered in the present review utilized the SIR, and several others used a similar open-ended questionnaire format ($n = 12$).

Another method that has been used in job stress research, although infrequently, is the daily diary, where participants give responses to (qualitative) survey questions at certain times of the day or when they experience a stressful event (e.g. Jones & Fletcher, 1996). This method has the advantage of asking people to describe their stress experiences 'in the moment', mitigating memory decay, and allowing researchers to collect multiple incidents over time. Three studies covered in this review utilized daily diaries.

Two other commonly employed qualitative methods used to investigate job stress are interviews (e.g. Kinman & Jones, 2005) and focus groups (e.g. Iwasaki, MacKay, & Ristock, 2004). Interviews allow researchers to obtain detailed information from participants as well as react to the information being provided. For example, a researcher could ask the participant to elaborate on a stressor description or follow up with more probing questions, neither of which is possible with a written survey. On the other hand, since a follow-up question could possibly bias the interviewee's responses towards a favoured hypothesis, it is prudent to use a research assistant who is blind to the study hypotheses and to employ structured or semi-structured interviews when possible and appropriate (Kinman & Jones, 2005). Interviews were employed in nine studies reviewed here.

Focus groups can be characterized as group interviews that allow for discussion among group members. A participant may not recall a particularly stressful incident when questioned in an individual interview; however, if someone else broaches a relevant topic in a focus group, memories could be sparked. Since some people are uncomfortable discussing certain sensitive topics in front of others, both the nature of the topic and relationships among group members should be considered before an investigator decides to use the method. It is also possible to utilize both one-on-one interviews and focus groups in the same study (e.g. Noblet & Gifford, 2002), ensuring that constraints associated with one method (e.g. lack of privacy in focus group) are compensated for by the strength of another method (e.g. privacy in an interview). Focus groups were employed in three of the studies covered in this review.

For the sake of completeness, we mention two additional qualitative methods, first-hand observation and participant observation. Although these methods can provide the investigator with rich descriptions of the daily lives of people who work and have been used to obtain information about job stress (e.g. Sachar, 1991), we could not identify any such studies that also provided identifiable thematic categories.

Results

Stressors

Definition, location and frequency

The first issue addressed is the layperson's conception of the nature of stress, that is, how individuals personally conceptualize job stress. Kinman and Jones (2005), in a UK study of workers in a variety of jobs, found that lay interpretations of stress principally comprised stimulus-response (47%) or stimulus (33%) conceptualizations, that is, the majority of respondents described stress in terms of strain reactions to stressful situations or in terms of the situations themselves. Also, whereas stress researchers have been inclined to focus on adverse effects of stressors, personnel at a UK sales office indicated that their experiences with job stressors precipitated both positive and negative consequences (Dewe, 1989).

Several qualitative studies have investigated the location of stressors across life domains. These studies showed that when respondents were not constrained to identify stressors in the workplace, they more frequently identified workplace stressors than incidents occurring outside of work. Keenan and Newton (1985), in a SIR study, found that UK engineers were almost twice as likely to identify a stressful work event compared to a non-work event. Guthrie, Tattan, Williams, Black and Bacliocotti (1999) found that over three-fourths of the stressful events reported by UK psychiatrists pertained to the work environment. Jones and Fletcher (1996) found that UK men and women were more likely to report daily work events as stressful as compared to home events. Finally, in a study of multiple causes of stress among UK academics, almost 75% of respondents indicated experiencing work-related stressors, while only 45% reported family-related stressors (Abouserie, 1996). In sum, the above-mentioned studies suggest that work stressors, across a variety of jobs, are more commonly reported than stressors in other life domains, at least in research conducted in the United Kingdom.

It would be useful to know how many stressful work events people experience on average; however, we were only able to find one qualitative study that addressed this question. Elfering et al. (2005) found that over 7 days (five working days and 2 days off), an average of 5.2 stressful, work-related events were recorded per person.

Types of stressors—broad categorization

Several studies examining specific occupational populations used methods in which employees were asked to describe a stressful event that occurred at work within a specified time frame. Responses were content-analyzed, and the incidents were coded thematically and assigned to broad categories according to stressor type. Table I summarizes the stressor frequencies from four studies across four occupations, with results combined where the same occupations were included in multiple studies.

Interpersonal conflict appeared to be the most prevalent stressor across all occupations. Work overload was also frequently identified. Time/effort wasted was ranked a little higher than organizational constraints, which was less common, but clearly present in the two occupations where they were coded. It is possible that organizational constraints were reported in the other samples, but coded into different categories or not considered by the coders.

While some stressors were consistent across occupations, others were more rare or occupation specific. Stressors such as role conflict and role ambiguity, at one time the most studied stressors in the literature (see meta-analysis by Jackson & Shuler, 1985), were infrequently reported (1.0% to 4.6%). Evaluations and lack of recognition were common stressors among

Table I. Frequencies of stressors across studies using English-speaking samples: Broad-category studies

Stressor	Academic	Clerical	Sales	Engineers
Interpersonal conflict	55 (24.2%)	43 (20.6%)	31 (23.8%)*	26 (16.1%)*
Work overload	40 (17.6%)	50 (23.9%)*	20 (15.4%)	16 (9.9%)
Evaluations/recognition	20 (8.8%)	9 (4.3%)	18 (13.8%)	9 (5.6%)
Lack of control/autonomy	27 (11.9%)	48 (23.0%)*	13 (10.0%)	\
Organizational constraints	25 (11.0%)*	17 (8.1%)	\	\
Time/effort wasted	33 (14.5%)*	21 (10.0%)	24 (18.5%)*	41 (25.5%)*
Role conflicts (including work/family)	5 (2.2%)	4 (1.9%)	6 (4.6%)	7 (4.3%)
Role ambiguity	2 (0.9%)	2 (1.0%)	3 (2.3%)	2 (1.2%)
Conditions of employment	6 (2.6%)	5 (2.4%)	6 (4.6%)	11 (6.8%)
Work underload	\	\	\	22 (13.7%)
Total N	227	209	130	161
# of Studies	2 (Liu et al., 2007; Narayanan et al., 1999a)	2 (Liu et al., 2007; Narayanan et al., 1999a)	1 (Narayanan et al., 1999a)	1 (Keenan & Newton, 1985)

Note: The category of organizational constraints was reported in Liu et al., 2007, but not Narayanan et al., 1999a. For academic and clerical samples, these two categories are based on only one study each. '\' indicates that this category was not measured for this sample. Some categories are not shown in this table due to low responses (e.g. lowered self-esteem, lack of structure), as well as the 'other' category so the individual category amounts may not equal the total *N*.
*Highest reported stressors for that occupation.

salespersons but not other occupations, possibly because they are often paid directly on the basis of their performance. Lack of control was especially salient among clerical workers, who tend to have little autonomy. Finally, incidents of work underload were frequently reported for engineers, but were not represented or categorized in studies of other occupations. Compared to members of other occupational groups, engineers may be more likely to prefer challenging work.

Two studies examined stressors in samples comprising workers across a variety of occupations. Kinman and Jones (2005) content analyzed interviews of English workers. The results were grouped into categories that were more specific (e.g. physical danger associated with work, feeling undervalued and repetitive work) than the broader categories reported in the previously discussed studies. Nonetheless, they identified broad stressor themes such as work overload (represented by time pressures and workload), aspects of interpersonal conflict (conflict with managers/co-workers, dealing with stressed people) and organizational constraints (lack of resources, lack of training, and technology limitations). In addition, job insecurity and boring/repetitive work incidents were commonly indicated. In another study, this time in New Zealand, O'Driscoll and Cooper (1996) found that interpersonal conflict (33.8% combining both within-organization conflict and conflict with individuals outside the organization), work overload (19.6%) and the unavailability or lack of control over resources (12.2%) were frequently reported. However, role conflict (5.4%) and ambiguity (3.4%) were not as common.

Finally, in a large US study of manufacturing workers, Hugentobler, Israel and Schurman (1992) found that the most common stressors were organizational constraints (material/equipment, physical work environment, and organizational practices/policies), interpersonal conflict (problems with people) and work overload.

While the results from all these studies showed that stressors vary by occupation, some work stressors were nearly universal across populations, namely interpersonal conflict, organizational constraints and workload. This theme continues when stressors are grouped into more occupation-specific categories.

Types of stressors—occupation-specific categorization

Some qualitative investigators have coded work stressors into categories that are specific to a particular occupation, for example, patient mortality for nurses (Kalichman et al., 2000) and the professional athlete's worry about life after sports (Paice, Rutter, Wetherell, Winder, & McManus, 2002). These studies, all conducted in English-speaking countries, are presented in Table II.

Qualitative stress researchers have looked at medical professionals, specifically medical students and nurses. Firth and Morrison (1986) found that the most stressful events reported by fourth-year UK medical students include talking with psychiatric patients, effects on private life, and dealing with death. In a study of the stressful incidents of first-year medical students, workload was the most common stressor, as well as dissection of cadavers (Guthrie et al., 1995). Workload was the third most mentioned stressor in a sample of pre-registration house officers (Paice et al., 2002), the UK equivalent to first-year residents; having been given responsibility beyond one's competence, uncaring senior staff members, and unexpected death were also common stressors.

A stressor frequently found across two studies of nurses (Glazer & Gyurak, 2008; Kalichman et al., 2000) was organizational constraints. Kalichman and colleagues (2000) found that stressors included administrative chores, such as tasks related to managed care and moving paper, in US AIDS-care nurses. The most frequently mentioned stressor in an international study involving nurses in the United States and the United Kingdom was lack of staff (Glazer & Gyurak, 2008). Interpersonal conflict, as reflected in conflict with patients and other personnel (Kalichman et al.) and struggles with leadership and co-workers (Glazer & Gyurak) also emerged as a stressor.

In a study of UK psychiatrists, the most frequent workplace stressors included dealing with difficult patients, career threat and administrative problems (e.g. lack of beds; Guthrie et al., 1999). Another UK study of mental health professionals indicated that patient concerns (e.g. difficult patients, patient relapse) constituted the most frequent stressor (Reid et al., 1999a), followed by administrative problems, lack of resources and work overload.

Blase (1986) found that work overload (both quantitative and qualitative), lack of control over time and problems of student disruption were commonly reported among US teachers. Moriarty, Edmonds, Blatchford and Martin (2001), in a study of UK teachers, found that excessive paperwork was a salient

Table II. Top three work stressors by occupations and study in English-speaking populations: Narrow-category studies

	Medical students	Nurses	Mental health	Teachers (pre-college)	Academics	Police
Study 1	1. Talking with psychiatric patients 2. Effects on private life 3. Dealing with death Firth & Morrison (1986)	1. Death (21%) 2. Personnel (20%) 3. Challenging patients (20%) Kalichman et al. (2000)	1. Patients (25.4%) 2. Career threat (22.2%) 3. Administration (22.2%) Guthrie et al. (1999)	1. Overload (36.8%) 2. Control of time (26.7%) 3. Interference with instruction (21.8%) Blase (1986)	1. Time (55%) 2. Relationships with people (44%) 3. Job characteristics (32%) Brown et al. (1986)	1. Difficult civilian (39%) 2. Physical threat to self (23%) 3. Physical threat to co-worker (19%) Kirmeyer & Diamond (1985)
Study 2	1. Workload (16.9%) 2. Dissection (9.3%) 3. Problems with tutoring (8.7%) Guthrie et al. (1995)	1. Lack of staff 2. Leadership of supervisors 3. Quantitative workload Glazer & Gyurak (2008)*	1. Patients 2. Administrative demands 3. Lack of resources Reid et al. (1999a)	1. Excessive paperwork (43%) 2. Changes in education (25%) 3. Time concerns (22%) Moriarty et al. (2001)	1. Research (40.3%) 2. Time (39.6%) 3. Relationships with others (26.8%) Abouserie (1996)	1. Changing roles/jobs (37.1%) 2. Violence (25.7%) 3. Conflict with colleague (17.1%) Dick (2000).
Study 3	1. Responsibility (33.6%) 2. Interpersonal (29.7%) 3. Overwork (17.0%) Paice et al. (2002)	—	—	1. Classroom management problems 2. Lack of support from colleagues, supervisors 3. Violence and security problems Schonfeld & Santiago (1994)	—	—

Note: Percentages are given wherever possible. All other studies are by rank order or those mentioned most often by authors.

* Only US and UK results are summarized in this table.

stressor, along with time restraints and the implementation of new educational initiatives. The combined findings suggest that control over time is a frequently reported stressor for teachers, who typically prefer to devote more time to preparing lessons than completing paperwork. Further qualitative evidence indicates that some teachers can also experience interpersonal conflict with students and experience difficult relationships with supervisors (Schonfeld & Santiago, 1994).

In relation to stressors experienced by university professors in the UK, Abouserie (1996) found that the main sources of stress included conducting research, time management and relationships with others. Brown et al. (1986) also found that among US professors, time concerns, interpersonal relationships and job characteristics (including constraints like red tape and committee work) were the top three stressors. These results are consistent with the findings from Narayanan et al. (1999a) and Liu, Spector and Shi (2007), although Abouserie's data could not be combined with the data from the other studies of academics because of differing coding styles.

Among police officers, Kirmeyer and Diamond (1985) found that stressful situations related to difficult civilians (39%) were most frequently indicated, more so than physical threats to the officers (23%) or their co-workers (19%). In Dick's (2000) study of police officers, the three most salient stressors were changing roles or jobs (37%), dealing with violence (26%) and conflict with colleagues/bosses (17%). The majority of stressors in both of these samples revolved around interpersonal interactions.

Qualitative methods have also been applied to the study of stress in four occupational groups that have rarely been examined by stress researchers: executive nurses, farmers, professional athletes and group therapists. Cohen (1989) found nursing executives indicated that work overload (81%), lack of funding (81%) and understaffing (67%) were the most stressful problems they faced; the latter two can be considered forms of organizational constraints. The most common job stressor themes among a sample of farmers were hazard risks (i.e. equipment, animals), the demands of physical environment and mental demands, which included work overload (Kidd et al., 1996). In a study of Australian professional footballers, Noblet and Gifford (2002) identified stressors that included organizational conditions (e.g. little input into decision-making), very high performance expectations, the task of finding a post-

football career, interpersonal tensions, the demanding nature of the work and problems with work/non-work interface. Finally, Shinn, Rosario, Morch and Chestnut (1984) found that group therapists who worked for organizations experienced work overload, role conflict and problems with incompetent administrators. Lack of recognition, feelings of inadequacy and interpersonal conflict were also commonly experienced stressors.

Finally, we return to the study conducted by Guthrie and colleagues (1999) to highlight a novel comparison. They found differences in the frequency and nature of stressors affecting psychiatrists across different levels of experience, specifically that junior psychiatrists complained of more stressful personal life events (e.g. illness, loss) and patient-related stressors, while more senior psychiatrists reported that administrative problems were the most frequently occurring stressors. In contrast, violent patients and career threat were commonly reported stressors for psychiatrists at all levels of seniority.

Although different stressors were evident between workplaces, the specific-categorization studies, like the broad-categorization studies, showed interpersonal conflict, organizational constraints and work overload to be nearly universal across occupations.

Cross-national comparisons

The SIR was used to investigate cross-national differences in stressors affecting workers in the United States, India (Narayanan et al., 1999a, 1999b) and China (Liu et al., 2007). The results are summarized in Table III.

Interpersonal conflict and organizational constraints were fairly common in all three countries. However, these studies showed that compared to Americans, Chinese and Indian workers were more concerned about evaluations/recognition and organizational constraints. Perhaps the biggest difference among these three countries involved lack of control. For Indians, lack of structure was the stressor mentioned most often, with lack of control not mentioned at all. For Americans, the opposite was observed. In China, control issues were not often mentioned. Work overload was a common stressor in the United States and China; however, no Indian workers reported it.

One cultural difference between the United States, on one hand, and India and China, on the other, reflects individualist versus collectivist values (Hofstede, 1986), which may be one of the factors underlying differences

Table III. Frequencies of stressors in clerical and academic populations in the United States, China and India

Stressor	Clerical			Academic	
	US	China	India	US	China
Interpersonal conflict	43 (20.6%)	20 (25.3%)	16 (12.3%)	55 (24.2%)	18 (16.8%)
Work overload	50 (23.9%)	10 (12.7%)	0 (0.0%)	40 (17.6%)	23 (21.5%)
Evaluations/recognition	9 (4.3%)	6 (7.6%)	21 (16.2%)	20 (8.8%)	15 (14.0%)
Lack of control/autonomy	48 (23.0%)	3 (3.8%)	0 (0.0%)	27 (11.9%)	3 (28%)
Organizational constraints	17 (8.1%)	21 (26.3%)	20 (15.4%)	25 (11.0%)	26 (24.3%)
Time/effort wasted or mistakes at work	21 (10.0%)	11 (13.8%)	9 (6.9%)	33 (14.5%)	11 (10.3%)
Role conflicts (including work/family)	4 (1.9%)	1 (1.3%)	0 (0.0%)	5 (2.2%)	6 (5.6%)
Lack of structure	0 (0.0%)	\	34 (26.2%)	0 (0.0%)	\
Conditions of employment	5 (2.4%)	\	13 (10.0%)	6 (2.6%)	\
Total N	209	80	130	227	107
# of Studies	2 (Liu et al., 2007; Narayanan et al., 1999a)	1 (Liu et al., 2007)	1 (Narayanan et al., 1999b)	2 (Liu et al. 2007; Narayanan et al., 1999a)	1 (Liu et al., 2007)

Note: The category of organizational constraints was reported in Liu et al., 2007, but not Narayanan et al., 1999a. For academic and clerical samples these two categories are based on only one study each. '\' indicates that this category was not measured for this sample. Some categories are not shown in this table due to low responses (e.g. work underload, lack of structure), as well as the 'other' category so the individual category amounts may not equal the total *N*.

Table IV. Top four stressors for nurses by country (Adapted from Glazer & Gyurak, 2008)

US	UK	Italy	Israel	Hungary
1. Lack of staff (30.9%)	1. Lack of staff (37.6%)	1. Lack of staff (28.4%)	1. Quantitative workload (33.3%)	1. Lack of resources (20.2%)
2. Quantitative workload (28.4%)	2. Leadership of supervisors (28.7%)	2. Quantitative workload (22.8%)	2. Lack of staff (31.4%)	2. Death (14.7%)
3. Leadership of supervisors (24.8%)	3. Co-workers (28.7%)	3. Leadership of supervisors (18.3%)	3. Type of patients (23.6%)	3. Certain types of tasks (13.5%)
4. Co-workers (21.3%)	4. Quantitative workload (19.1%)	4. Type of patients (17.5%)	4. Certain types of tasks (18.2%)	4. Leadership (13.3%)

in the extent to which control is perceived as a stressor. In countries in which individualist values are prevalent, people tend to view themselves as autonomous and concentrate on their own interests. In contrast, in collectivistic countries, people are more likely to view themselves as interconnected and experience solidarity with the members of their groups (Hofstede, 1986). We grant that these are idealized conceptions; however, the people of both China and India are considered to be relatively more collectivistic in comparison to Americans (Spector, Cooper, & Sparks, 2001). These cultural differences may at least partly account for the differences in stressors reported across nations. For example, it is possible that individualist Americans likely desired

more personal autonomy, making a lack of control a salient stressor (Spector et al., 2002).

In a Swiss study, Grebner and colleagues (2004) found the two most common work stressors were overload and social stressors (e.g. unreasonably critical colleagues). In another Swiss study, Elfering and colleagues (2005) found that organizational constraints, overload and interpersonal conflict were the most prevalent stressors.

The findings of a cross-national study that examined nurses in five countries (Glazer & Gyurak, 2008) are summarized in Table IV. Lack of staff (i.e. shortages and scheduling problems) and work overload were common stressors in the United States, United Kingdom, Italy

Table V. Psychological reactions to stressors by study and country

Country	US/UK			China	India
Psychological strain	Keenan & Newton (1985)	Liu et al. (2007)	Narayanan et al. (1999a)	Liu et al. (2007)	Narayanan et al. (1999b)
Anger/annoyance	39%	23%	42%	10%	12%
Frustration	26%	12%	29%	0%	15%
Tension/anxiety	8%	11%	11%	35%	11%
Sad/depression/disappointment	\	7%	8%	4%	16%
Acceptance	\	\	0%	\	20%

Note: '\' indicates that this category was not measured for this sample. Some categories are not shown in this table due to low responses.

and Israel. However, nurses in the United States, United Kingdom and Italy considered the leadership styles of supervisors to be a major stressor while Israeli nurses did not. The leading stressors for Israeli nurses included type of patients, perhaps reflecting the fact that 'Israeli nurses were confronted with death and dying of young soldiers far more frequently' (Glazer & Gyurak, p. 62). Hungarian nurses reported a very different pattern, with the most frequently indicated stressors reflecting a lack of resources (e.g. inadequate supplies and funding). The authors attributed this finding to large-scale economic dislocations in Hungary accompanying the fall of communism. With the exception of Hungary, many nursing-related stressors appeared to be transnational; organizational constraints (e.g. lack of staff), interpersonal conflict (e.g. conflict with leadership, co-workers and/or patients) and quantitative workload occurred in most or all the countries studied.

While the exact results differed across nations, interpersonal conflicts, work overload and situational constraints were commonly reported in all countries (with the noted exception of work overload in India).

Strains

While stressors have been linked to higher levels of both physical (Frankenhaeuser & Johansson, 1986; Nixon, Mazzola, Bauer, Spector, & Krueger, in press) and psychological strains (Jackson & Schuler, 1985; Kaufmann & Beehr, 1989) in numerous quantitative studies, they have also been studied qualitatively. When asked what they thought the outcomes of occupational stress were, participants in Kinman and Jones' (2005) study were evenly split among emotional (29%), behavioural

(26%), physical (23%) and cognitive (22%) outcomes. Many qualitative studies, especially those utilizing the SIR, asked participants to describe their emotional or psychological response to workplace stressors, the results of which are summarized in Table V.

The most frequent psychological strains in the United States and the United Kingdom were anger and/or annoyance. It is plausible that anger and annoyance are the most common primary response, but when given an opportunity for a second response, respondents also reported anxiety. Frustration was another common reaction to stressful events, found in over a quarter of the participants in two studies (Keenan & Newton, 1985; Narayanan et al., 1999a). In China (Liu et al., 2007) and India (Narayanan et al., 1999b), workers in both countries reported fewer incidents in which anger and annoyance were provoked. Chinese workers reported tension and anxiety as the most common psychological strain. Indian workers indicated acceptance as the most frequent reaction, which was not coded in any other sample.

Mazzola, Jackson, Shockley and Spector (in press) coded the emotional reactions to the specific stressful events of graduate assistants. In this sample, work overload was associated with a range of different reactions, but most commonly anxiety and feeling overwhelmed. Interpersonal conflict was most often associated with anger and frustration. Frustration was by far the most commonly mentioned psychological strain when participants reported an organizational constraint, while evaluations and recognition were linked to anxiety, frustration and anger equally.

Only two qualitative studies examined physical strains in response to stressors. Maki, Moore, Grunberg

and Greenberg (2005) found that in companies undergoing downsizing, sleep disturbances were frequently reported among managers. Liu, Spector and Shi (2008) found that tiredness, physical tension and 'being sick' were the most prevalent of physical strain responses among US college faculty and support staff.

Coping

People can potentially mitigate the adverse effects of stressors through coping. Coping strategies refer to the specific efforts, both behavioural and psychological, that people employ to master, tolerate, eliminate or minimize stressful events or their impact. Research on coping has almost entirely involved quantitative methods (e.g. Ganster, Mayes, Sime, & Tharp, 1982; Lazarus & Folkman, 1994), which assumes that investigators' instruments cover the great majority of coping strategies workers use.

In one of the first qualitative investigations of coping, Newton and Keenan (1985) coded 159 coping strategies employed by engineers. The strategies, in order of prevalence, included talking to others, taking direct action, withdrawal behaviour and preparatory action (such as getting information or problem appraisal). Shinn et al. (1984) found that among group therapists focusing on family, friends and hobbies was very common, as well as efforts to improve competence and withdrawal behaviours. Among UK mental health workers, Reid et al. (1999b) found that talking to others and time management techniques were most frequently employed as stress-reducing activities. Other coping strategies included exercise and music (which could both be considered withdrawal behaviours). Cohen (1989) found the three most frequently reported strategies employed by executive nurses were planful problem solving (98%), confrontive behaviours (93%) and positive reappraisal (93%). Brown et al. (1986) found faculty and staff coped through self-care (e.g. exercise, relaxation) and taking action (e.g. time management, reduction of responsibilities).

Managers, in comparison to their subordinates, exercise greater power in an organization and may have a distinct set of coping strategies. In a study of Canadian managers, McDonald and Korabik (1991) found that the most common response to a stressor was direct action, followed by preparatory action. Occasionally managers coped by seeking revenge or by being passive,

and when dealing with their feelings, engaging in avoidance/withdrawal and talking to others.

Qualitative stress research also suggested important occupational and national differences in workplace coping. Narayanan et al. (1999a) found academics reported most often talking to their boss or taking direct action, while clerical workers reported talking to co-workers or friends. Sales professionals reported most often talking to family or friends. Of the three occupations, academics reported taking direct action most often, which probably reflects their greater autonomy and higher status in comparison to clerical and sales workers. These latter occupations mainly sought support in dealing with problematic situations. Comparing support-seeking responses across nations, Americans talked to their co-workers more than Indians (31% to 11%) while Indians talked to family members more often than did Americans (35% to 17; Narayanan et al., 1999b). Workers in New Zealand commonly indicated they solved the problem themselves (20.0%) or consulted supervisors or others in the organization (18.8% and 18.1%, respectively; O'Driscoll & Cooper, 1996).

Very few studies were able to ascertain which coping strategies were frequently used in response to specific workplace stressors, since sample sizes for individual stressor categories are typically small. Paice et al. (2002), however, found that novice physicians, in response to patient death and terminal illness, 'concentrated on something good' that could emerge from the stressful experience, sought support and employed other problem-focused coping strategies. Wishful thinking, support seeking and changing something about themselves were used in response to interpersonal conflicts. Refusing to believe the situation occurred and wishing the situation would go away were common strategies in response to overwork.

Overall, these results suggest that talking to others, taking action to prevent stressors from occurring, and withdrawing into non-work activities are commonly occurring coping strategies in response to workplace stressors.

Gender differences

Qualitative researchers have also investigated gender differences in the experience of workplace stress. Narayanan et al. (1999a) found that, compared to their male counterparts, both female professors and sales

personnel reported more incidents involving interpersonal conflict. Jones and Fletcher (1996) found that compared to men, women reported more adverse interpersonal work events (e.g. criticism by colleagues).

Iwasaki and colleagues (2004) found that female managers reported more 'emotional stress' owing to expectations regarding their responsibility for others. However, this theme emerged exclusively in female-only groups. Men discussed the negative effects of stressors on their physical health, in male-only, but not mixed-gender, groups. These results suggest that women and men are uncomfortable expressing ideas about responsibility for others and stress-related health effects with members of the opposite sex. Furthermore, male managers tended to focus on themselves, while women responded more about caring for others.

In a study of coping among US academics, Narayanan et al. (1999a) found that compared to their female counterparts, male professors were more likely to report taking direct action (33% versus 17% for men and women, respectively). Women, by contrast, reported talking more frequently to co-workers (16% versus 9%) and family (16% versus 7%). In regard to physical strains, Maki et al. (2005) found that women more often reported weight gain and migraines.

Mixed methodology

Some studies have combined qualitative with quantitative methods. Jex, Adams, Elacqua and Lux (1997) found that there was a moderate relationship between quantitative measures of stress and qualitative severity ratings, indicating some convergence between the results derived from both methods. However, the two methods can yield critically different findings. For example, in their comparison of American and Chinese workers, Liu et al. (2007) obtained quantitative data on stressor and strain levels in addition to qualitative data. Americans scored significantly higher on a quantitative scale for organizational constraints, but did not report more incidents involving organizational constraints than did the Chinese. A close examination of the qualitative findings suggested that the type of constraint differed by country, with Chinese workers complaining more about lack of training and conditions of employment and Americans complaining more about lack of team coordination as a performance hindrance.

In addition to using the two methodologies to describe variables separately, some studies integrated qualitative and quantitative components of the research such that both the qualitative and quantitative data entered into the statistical analyses (e.g. Elfering et al., 2005; Kalichman et al., 2000). Kalichman et al. (2000) collected open-ended descriptions of workplace stressors and used a standard checklist to ascertain coping strategies. The frequencies of different strategies employed by nurses were partly a function of the nature of the stressful situation. Nurses reporting "workplace stressors" (e.g. staff conflict) used significantly more planful problem solving, wishful thinking and avoidance. By contrast, those reporting patient-care stressors were more likely to use acceptance, probably because such stressors cannot be controlled, making acceptance the only realistic strategy.

Elfering et al. (2005) obtained daily qualitative information on episodically occurring job stressors. The stressfulness of each episode, the extent to which coping was utilized in response to the episode and the situational well-being associated with the episode were assessed with quantitative measures. Situational well-being in the aftermath of a daily stressor was inversely related to the intensity of chronic stressors. Calming down in the aftermath of the daily stressors was directly related to job control. In other words, the backdrop of chronic stressors and job control (both were assessed quantitatively) set the stage for the impact of the episodic stressors reported in the qualitative component of the study. In a similar study, Grebner et al. (2004) found that job control predicted calming down in the aftermath of a daily stressor. Chronic job stressors (measured quantitatively) predicted the occurrence of daily stressors (measured qualitatively). We believe that the Elfering et al. and the Grebner et al. studies are especially important because they strategically coordinate qualitative and quantitative methods such that the combined methods provide a powerful means for examining the stress process at work.

Guthrie and colleagues (1995) found that medical students who, in the qualitative component of the study, reported having experienced a stressful medical-school-related event in the previous month scored higher than their non-reporting peers on the General Health Questionnaire, a quantitative measure of psychological distress. The specific type of stressful incident, however, was not related to psychological distress. Similarly, Mazzola et al. (in press) found that compared to non-reporting peers, graduate assistants who reported a school-related stressful event in the qualita-

tive component of the study scored higher on a physical symptoms checklist.

Discussion

This review has summarized findings from qualitative studies that inform occupational stress research. Stressors at work were reported more frequently than stressors associated with other role areas. An implication of this finding is that work is a major source of stressors for employed people, and that research on occupational stress is especially relevant to efforts aimed at reducing overall stress levels. The one (Swiss) study that examined the overall frequency of stressful events suggests that workplace stress can be an almost daily occurrence. Additional diary research is needed to estimate the number of work-related stressors that occur in a given time frame (i.e. per day, week or year) and further explain how work and non-work stressors interact with each other, different coping strategies and various types of strains within a person's daily life.

Across all occupations, no stressor was found to be more pervasive than interpersonal conflict. Some form of interpersonal conflict was present in almost every occupation summarized here. The sources of these conflicts included customers, patients, co-workers, supervisors, subordinates and students. As hypothesized, organizational constraints and overload were frequently occurring stressors, with role conflict and role ambiguity rarely reported. Organizational constraints are visible in policies that are too stringent or arbitrary and when adequate resources are not available, causing employees to perform less than optimally (Peters & O'Connor, 1980). Employees frequently reported overload, a situation that also makes it difficult to complete all assigned work, especially at high performance levels (Jex & Beehr, 1991).

As expected, the results also show important differences in stressors as a function of occupation, nation and gender. For example, time/effort wasted was found to be a more commonly reported stressor in sales and engineering than in the other occupations. Workers from more collectivist cultures (India and China) experienced more stressors involving evaluation and recognition, organizational constraints and lack of structure (only India). Workers from more individualist cultures were more likely to experience work overload and lack of autonomy. Women routinely reported more interpersonal events than men, and given the importance of

interpersonal conflict shown throughout this review, this gender difference may warrant further investigation. Additionally, Guthrie et al. (1999) demonstrated that stressors can also vary by level of experience within the same occupation and organization. It is likely that early in careers, balancing home (and young children) and work and learning the job are the paramount sources of stress, but as workers gain experience and their children grow up, other stressors, such as administrative problems, enter the foreground. Because the study by Guthrie et al. was the only qualitative study to examine within-occupation, seniority-related differences, more research is needed to determine if parallel findings hold for occupations other than psychiatry.

Qualitative research also sheds light on reactions to stressors, including both strains and coping responses. With regard to psychological reactions, anger and annoyance were more common in English-speaking countries. In China, tension and anxiety were more readily found while acceptance was common among Indian participants. Psychological strains were reported by participants relatively more frequently, but qualitative researchers could ask more specific questions regarding physical and behavioural strains. Reported coping strategies varied greatly (e.g. Narayanan et al., 1999a; Shinn et al., 1984) and were affected at least in part by the type of stressor experienced. Talking to someone (social support), dealing directly with the situation (problem-focused coping) and wishful thinking or ignoring the stressor (emotion-focused coping) were all frequently reported strategies. It should be noted that these studies identified the most prevalent reported coping strategies and did not (and could not) determine which were effective.

In some ways, the qualitative findings are consistent with results from quantitative studies (Jex & Beehr, 1991), especially with regard to the importance of workload and organizational constraints as stressors. However, the differences between the quantitative and qualitative results are valuable to researchers. Since the qualitative results showed that a few stressors occur across occupations (e.g. interpersonal conflict, organizational constraints and workload), it may be useful for researchers and practitioners to concentrate on these more prevalent stressors. Nonetheless, researchers and practitioners should exercise caution, and resist the temptation to ignore stressors that are less prevalent, especially if evident in a particular occupation. For example, role ambiguity and role conflict were shown

to be fairly uncommon and may not need to be investigated unless sufficient evidence exists to underline their importance in a population of specific interest to researchers or practitioners.

Organizations may have the ability to prevent the occurrence of many of these common stressors and/or mitigate their effects by incorporating certain prevention interventions when possible. Qualitative data are especially helpful in informing researchers and practitioners about workers' thoughts and complaints. Murphy (1995) advanced the principle that successful stress prevention programmes are those designed to specifically address the occupational stressors to which employees on a particular job are exposed. An organization can employ qualitative methods to identify stressors that are most prevalent among its workers. Given the prevalence of workload, organizational constraints and interpersonal conflict, organizations may take steps to ensure that they are properly staffed, supplied with adequate resources, and furnished with proper channels for resolving employee conflicts.

Limitations

Although we combined information already present in the literature, we could not include results from qualitative studies in which investigators did not code stressors and strains in a manner that enabled comparisons across studies. As with all self-report measures, both qualitative and quantitative, we cannot be certain if the reported behaviours are the enacted behaviours. For example, this could be a problem when examining the coping strategies reported, and whether the participants truly used them in response to the stressors described. However, evidence adduced by Schonfeld and Mazzola (in press) underlines the realism in workers' reports.

Additionally, almost all studies coded only one stressful event into a single stressor category. Several stressors can be present simultaneously in an employee's life, and many stressors reflect more than one thematic category (i.e. an argument with a co-worker, while clearly an incident of interpersonal conflict, may also create an organizational constraint if interactions with that person are necessary for task completion). It is difficult to know exactly how results would differ if more events were collected or stressors were coded into multiple categories.

No method is perfect for all situations, and qualitative methods have limitations that need to be under-

stood and addressed by researchers. Qualitative research is often conducted on unrepresentative convenience samples and is biased towards participants who are willing to devote enough time to describe the details of their experiences. This limitation frequently applies to quantitative studies as well but is nonetheless a concern in qualitative research. In some of the research we reviewed, investigators obtained reasonably large samples (e.g. Liu et al., 2008; Narayanan et al., 1999b). Qualitative research is by its nature interpretative, which could undermine the reliability of qualitative findings, especially in terms of inter-rater agreement. Reliability in the sense familiar to quantitative researchers is not an important part of the qualitative research tradition (Kirk & Miller, 1986), although Schonfeld and Farrell (2010) advanced the view that the coefficient kappa (Fleiss, Levin, & Paik, 2003) should be more widely employed to help ensure the reliability of the thematic categories that emerge in qualitative research. Some confidence in the reliability of the findings is gained because of cross-study convergence in identifying a number of stressors (e.g. interpersonal conflict).

Future research

Qualitative findings can not only replicate or extend quantitative results, but can also add depth to quantitative findings by detailing the personal experiences of the participants. Being able to examine job stressors from different perspectives can provide a deeper understanding of the stress process. While this review used mostly categorical qualitative data, qualitative methodologies also provide rich narratives for researchers and practitioners that could not be obtained through the use of quantitative data. Qualitative methods can be particularly informative when investigators set out to understand the nature of stressors in occupations previously not included in job stress research (Kidd et al., 1996).

It would be prudent for future researchers to combine methods when possible so that the weaknesses of one method are complemented by the strengths of the others. For example, qualitative research can be helpful in discovering important stressors within a workplace that have previously gone unrecognized by the research community. Quantitative methods could then be used to measure specific aspects of those stressors, possibly in larger, more representative samples of workers. Given the exploratory nature of qualitative methods, hypothesis testing may be extremely difficult (Schonfeld &

Farrell, 2010). However, innovations involving mixed methodologies can pave the way for hypothesis testing (e.g. Elfering et al., 2005; Grebner et al., 2004), and future researchers should look to combine these methods in whole new ways. Mixed methodology allows researchers to examine the stress process in ways not possible using either type of method alone.

There are numerous ways that qualitative methods can be used in the future to improve our understanding of stress in the workplace. One such use is for investigators to continue to collect qualitative data from job incumbents whose jobs differ on any number of characteristics. As previously shown, stressors differ by job, level of experience on the job and cultural or national group; more information is needed to ascertain how these patterns of job stressors may emerge. Additionally, the results regarding gender differences underline gender-related processes in the response to job stressors. Researchers could examine differences in the types of stressors affecting men and women in similar work roles (e.g. do women encounter more interpersonal conflict?) and the coping behaviours in which they engage (e.g. use of direct action strategies). In addition to gender differences, researchers could examine differences related to age, ethnicity, education and other demographic variables. Another avenue of research would entail assessing the frequency of stressful incidents across occupations that differ on some fundamental job characteristic, such as autonomy.

Qualitative research could also be employed in more cross-national and cross-cultural research. Open-ended questionnaires allow workers to report what was stressful to them without being constrained by the structure of pre-existing scales or the investigator's preconceptions. Researchers who conduct cross-national research on occupational stress may not be able to understand specific stress experiences without directly asking probing questions of workers. National and ethnic differences in stressful work experiences could be examined along the dimension of a key cultural value, such as individualism-collectivism or uncertainty avoidance (Hofstede, 1986).

Cohen's (1989) study of California nursing directors was, to our knowledge, the only qualitative study to allow participants to describe multiple coping strategies used in response to a specific work stressor. Using this study as a model, future researchers could conduct qualitative studies in order to identify multiple coping strategies used by job incumbents confronting a critical

work stressor that commonly occurs in any one occupation. Qualitative studies using theoretical sampling methods described by Glaser and Strauss (1967) could guide the development of hypotheses, for example, about types of stressors associated with, say, older versus younger employees or between several different demographic groups. With those qualitative studies serving as a starting point for hypothesis generation (Schonfeld & Farrell, 2010), future researchers can develop quantitatively organized studies to assess the capacity of coping strategies to modify the impact of the work stressor on health, well-being and job performance.

To accomplish these goals, researchers need to work further towards a common nomenclature for stressors, strains and coping, as labels often differ between studies. If researchers utilize the stressor categorizations generally reported in the literature (or thoroughly describe the nature of their categories and/or responses for readers), the task of comparing the results of any one study to the findings of other qualitative and quantitative studies would be facilitated, and the structure of the knowledge base of research on job stress enhanced.

In conclusion, qualitative methods are a valuable but underutilized resource in occupational stress research. The results of the current review suggest that there are important benefits to be gained from qualitative research that complement those obtained from quantitative research. Qualitative (and mixed methods) research can and should be a vital part of research on the stress process at work.

REFERENCES

*Abouserie, R. (1996). Stress, coping strategies and job satisfaction in university academic staff. *Educational Psychology*, 16(1), 49–56.

Antoniou, A.-S., Polychroni, F., & Vlachakis, A.-N. (2006). Gender and age differences in occupational stress and professional burnout between primary and high school teachers in Greece. *Journal of Managerial Psychology*, 21, 682–690.

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

*Brown, R.D., Bond, S., Gerndt, J., Krager, L., Lukin, M., & Prentice, D. (1986). Stress on campus: An interactional perspective. *Research in Higher Education*, 24(1), 97–112.

*References marked with an asterisk indicate studies included in the analysis.

*Cohen, J.H. (1989). *Nurse executives' psychological well-being. The relationships among stress, social support, coping, and optimism* (Unpublished doctoral dissertation). University of California, San Francisco, US.

*Dewe, P.J. (1989). Examining the nature of work stress: Individual evaluations of stressful experiences and coping. *Human Relations*, *42*(11), 993–1013.

*Dick, P. (2000). The social construction of the meaning of acute stressors: A qualitative study of the personal accounts of police officers using a stress counselling service. *Work & Stress*, *14*(3), 226–244.

*Elfering, A., Grebner, S., Semmer, N.K., Kaiser-Freiburghaus, D., Lauper-Del Ponte, S., & Witschi, I. (2005). Chronic job stressors and job control: Effects on event-related coping success and well-being. *Journal of Occupational and Organizational Psychology*, *78*, 237–252.

*Firth, J., & Morrison, L. (1986). What stresses health professionals? A coding system for their answers. *British Journal of Clinical Psychology*, *25*(4), 309–310.

Fleiss, J.L., Levin, B., & Paik, M.C. (2003). *Statistical methods for rates and proportions* (3rd edn.). New York, NY: Wiley.

Frankenhaeuser, M., & Johansson, G. (1986). Stress at work: psychobiological and psychosocial aspects. *International Review of Applied Psychology*, *35*, 287–299.

Ganster, D.C., Mayes, B.T., Sime, W.E., & Tharp, G.D. (1982). Managing organizational stress: A field experiment. *Journal of Applied Psychology*, *67*(5), 533–542.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine.

*Glazer, S., & Gyurak, A. (2008). Sources of occupational stress among nurses in five countries. *International Journal of Intercultural Relations*, *32*, 49–66.

*Grebner, S., Elfering, A., Semmer, N., Kaiser-Probst, C., & Schlapbach, M.L. (2004). Stressful situations at work and in private life among young workers: An event sampling approach. *Social Indicators Research*, *67*, 11–49.

Greiner, B.A., & Krause, N. (2006). Observational stress factors and musculoskeletal disorders in urban transit operators. *Journal of Occupational Health Psychology*, *11*(1), 38–51.

*Guthrie, E.A., Black, D., Shaw, C.M., Hamilton, J., Creed, F.H., & Tomenson, B. (1995). Embarking on a medical career: Psychological morbidity in first year medical students. *Medical Education*, *29*(5), 337–341.

*Guthrie, E., Tattan, T., Williams, E., Black, D., & Bacliocotti, H. (1999). Sources of stress, psychological distress and burnout in psychiatrists: Comparison of junior doctors, senior registrars, and consultants. *Psychiatric Bulletin*, *23*(4), 207–212.

Hofstede, G. (1986). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations* (2nd ed.). Thouand Oaks, CA: Sage.

*Holmes, S., & MacInnes, D. (2003). Contributors to stress among prison service staff. *The British Journal of Forensic Practice*, *5*(2), 16–24.

Hugentobler, M.K., Israel, B.A., & Schurman, S.J. (1992). An action research approach to workplace health: Integrating methods. *Health Education Quarterly*, *19*, 55–76.

*Iwasaki, Y., MacKay, K.J., & Ristock, J. (2004). Gender-based analyses of stress among professional managers: An exploratory qualitative study. *International Journal of Stress Management*, *11*(1), 56–79.

Jackson, S.E., & Schuler, R.S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes*, *36*, 16–78.

Jex, S.M., & Beehr, T.A. (1991). Emerging theoretical and methodological issues in the study of work-related stress. In G.R. Ferns, & K.M. Rowland (Eds.), *Research in personnel and human resources management*, Vol. 9 (pp. 311–365). Greenwich, CT: JAI Press.

*Jex, S.M., Adams, G.A., Elacqua, T.C., & Lux, D.J. (1997). A comparison of incident-based and scale measures of work stressors. *Work and Stress*, *11*(3), 229–238.

*Jones, F., & Fletcher, B. (1996). Taking work home: A study of daily fluctuations in work stressors, effects on moods and impacts on marital partners. *Journal of Occupational and Organizational Psychology*, *6*, 89–106.

*Kalichman, S.C., Gueritault-Chalvin, V., & Demi, A. (2000). Sources of occupational stress and coping strategies among nurses working in AIDS care. *Journal of the Association of Nurses in AIDS Care*, *11*(3), 31–37.

Kaufmann, G.M., & Beehr, T.A. (1989). Occupational stressors, individual strains, and social support among police officers. *Human Relations*, *42*(2), 185–197.

*Keenan, A., & Newton, T.J. (1985). Stressful events, stressors and psychological strains in young professional engineers. *Journal of Occupational Behaviour*, *6*, 151–156.

*Kidd, P., Scharf, T., & Veazie, M. (1996). Linking stress and injury in the farming environment: A secondary analysis of qualitative data. *Health Education Quarterly*, *23*(2), 224–237.

*Kinman, G., & Jones, F. (2005). Lay representations of workplace stress: What do people really mean when they say they are stressed? *Work & Stress*, *19*(2), 101–120.

Kirk, J., & Miller, M. (1986). *Reliability and validity in qualitative research*. Beverly Hills, CA: Sage.

*Kirmeyer, S.L., & Diamond, A. (1985). Coping by police officers: A study of role stress and Type A and Type B behavior patterns. *Journal of Organizational Behaviour*, *6*, 183–195.

Kristensen, T.S. (1996). Job stress and cardiovascular disease: A theoretical critical review. *Journal of Occupational Health Psychology*, *1*(3), 246–260.

Lazarus, R.S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York, NY: Springer.

Lin, S. (2003). Occupational stress research: A review. *Psychological Science (China)*, *26*(3), 494–497.

Lindsay, R., Hanson, L., Taylor, M., & McBurney, H. (2008). Workplace stressors experienced by physiotherapists working in regional public hospitals. *Australian Journal of Rural Health*, *16*, 194–200.

*Liu, C., Spector, P.E., & Shi, L. (2007). Cross-national job stress: A quantitative and qualitative study. *Journal of Organizational Behavior*, *28*, 209–239.

*Liu, C., Spector, P.E., & Shi, L. (2008). Use of both qualitative and quantitative approaches to study job stress in different gender and occupational groups. *Journal of Occupational Health Psychology*, *13*(4), 357–370.

*Maki, N., Moore, S., Grunberg, L., & Greenberg, E. (2005). The responses of male and female managers to workplace stress and downsizing. *North American Journal of Psychology*, *7*, 295–312.

*Mazzola, J.J., Jackson, E.M., Shockley, K.M., & Spector, P.E. (in press). Examining stress in graduate assistants: An integration of qualitative and quantitative methods. *Journal of Mixed Methods Research*.

*McDonald, L.M., & Korabik, K. (1991). Sources of stress and ways of coping among male and female managers. *Journal of Social Behavior and Personality*, *6*, 185–198.

*Moriarty, V., Edmonds, S., Blatchford, P., & Martin, C. (2001). Teaching young children: Perceived satisfaction and stress. *Educational Research*, *43*(1), 33–46.

Murphy, L. (1995). Occupational stress management: Current status and future directions. In C. Cooper, & D. Rousseau (Eds.), *Trends in organizational behavior*, Vol. 2 (pp. 1–14). New York, NY: Wiley.

*Narayanan, L., Menon, S., & Spector, P.E. (1999a). Stress in the workplace: A comparison of gender and occupations. *Journal of Organizational Behavior*, *20*, 63–73.

*Narayanan, L., Menon, S., & Spector, P.E. (1999b). A cross-cultural comparison of job stressors and reactions among employees holding comparable jobs in two countries. *International Journal of Stress Management*, *6*(3), 197–212.

*Newton, T.J., & Keenan. A. (1985). Coping with work-related stress. *Human Relations*, *38*(2), 107–126.

Nixon, A.E., Mazzola, J.J., Bauer, J., Spector, P.E., & Krueger, J. (in press). Can work make you sick? A meta-analysis of job stressor-physical symptom relationships. *Work & Stress*.

*Noblet, A.J., & Gifford, S.M. (2002). The sources of stress experienced by Australian footballers. *Journal of Applied Sport Psychology*, *14*(1), 1–13.

*O'Driscoll, M.P., & Cooper, C.L. (1996). A critical incident analysis of stress-coping behaviours at work. *Stress Medicine*, *12*, 123–128.

*Paice, E., Rutter, H., Wetherell, M., Winder, B., & McManus, I.C. (2002). Stressful incidents, stress and coping strategies in the pre-registration house officer year. *Medical Education*, *36*, 56–65.

Peters, L.H., & O'Connor, E.J. (1980). Situational constraints and work outcomes: The influence of a frequently overlooked construct. *Academy of Management Review*, *5*, 391–397.

*Reid, Y., Johnson, S., Morant, N., Kuipers, E., Szmukler, G., Thornicroft, G. . . . Prosser, D. (1999a). Explanations for stress and satisfaction in mental health professionals: A qualitative study. *Social Psychiatry and Psychiatric Epidemiology*, *34*, 301–308.

*Reid, Y., Johnson, S., Morant, N., Kuipers, E., Szmukler, G., Bebbington, P. . . . Prosser, D. (1999b). Improving support for mental health staff: a qualitative study. *Social Psychiatry and Psychiatric Epidemiology*, *34*, 309–315.

Sachar, E. (1991). *Shut up and let the lady teach: A teacher's year in a public school*. New York, NY: Poseidon Press.

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

Schonfeld, I.S., & Mazzola, J.J. (in press). Strengths and limitations of qualitative approaches to research in occupational health psychology. In L. Tetrick, R. Sinclair, & M. Wang (Eds.), *Research methods in occupational health psychology: State of the art in measurement, design, and data analysis*. London: Routledge.

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

*Shinn, M., Rosario, M., Morch, H., & Chestnut, D.E. (1984). Coping with job stress and burnout in the human services. *Journal of Personality and Social Psychology*, *46*(4), 864–876.

Spector, P.E. (1998). A control theory of the job stress process. In C.L. Cooper (Ed.). *Theories of*

Organizational Stress (pp. 153–169). London: Oxford University Press.

Spector, P.E., Cooper, C.L., & Sparks, K. (2001). An international study of the psychometric properties of the Hofstede Values Survey Module 1994: A comparison of individual and country/province level results. *Applied Psychology: An International Review*, *50*(2), 269–281.

Spector, P.E., Cooper, C.L., Sanchez, J.I., O'Driscoll, M., Sparks, K., Bernin, P., ... Yu, S. (2002). Locus of control and well-being at work: How generalizable are Western findings? *Academy of Management Journal*, *45*(2), 453–466.

Van Maanen, J. (1979). Reclaiming qualitative methods for organizational research: A preface. *Administrative Science Quarterly*, *24*, 520–526.