

A Meta-Analysis of the Relationship Between Job Burnout and Secondary Traumatic Stress Among Workers With Indirect Exposure to Trauma

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The study provides a systematic review of the empirical evidence for associations between job burnout and secondary traumatic stress (STS) among professionals working with trauma survivors, indirectly exposed to traumatic material. Differences in the conceptualization and measurement of job burnout and STS were assumed to moderate these associations. A systematic review of literature yielded 41 original studies, analyzing data from a total of 8,256 workers. Meta-analysis indicated that associations between job burnout and STS were strong (weighted $r = .69$). Studies applying measures developed within the compassion fatigue framework (one of the conceptualizations of job burnout and STS) showed significantly stronger relationships between job burnout and STS, indicating a substantial overlap between measures (weighted $r = .74$; 55% of shared variance). Research applying other frameworks and measures of job burnout (i.e., stressing the role of emotional exhaustion) and STS (i.e., focusing on symptoms resembling posttraumatic stress disorder or a cognitive shift specific for vicarious trauma) showed weaker, although still substantial associations (weighted $r = .58$; 34% of shared variance). Significantly stronger associations between job burnout and STS were found for: (a) studies conducted in the United States compared to other countries; (b) studies using English-language versions of the questionnaires compared to other-language versions, and (c) research in predominantly female samples. The results suggest that, due to high correlations between job burnout and STS, there is a substantial likelihood that a professional exposed to secondary trauma would report similar levels of job burnout and STS, particularly if job burnout and STS were measured within the framework of compassion fatigue.

Keywords: secondary trauma, secondary exposure, secondary traumatic stress, job burnout, meta-analysis, compassion fatigue

The concept of job burnout was originally developed to assess negative consequences of work-related exposure to a broad range of stressful situations experienced by human services employees (Freudenberger, 1974; Maslach, 1976; Maslach, Schaufeli, & Leiter, 2001). In particular, the provision of care to traumatized populations may be infused with high levels of burnout among mental health care providers and mental health care administrators (Newell & MacNeil, 2011). Burnout among health care providers

relates to their well-being, the quality of life of their patients, and caring effectiveness (Cheung & Chow, 2011).

Recent research on mental health providers has extended the focus beyond job burnout to investigate the consequences of exposure to specific stressors, such as contact with people who have experienced traumatic events, exposure to graphic trauma content (reported by the survivor), or exposure to people's cruelty to one another (Pearlman & Saakvitne, 1995). These job-related

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stressors, specific to human service professionals working with trauma victims or survivors, have been labeled with several terms, such as *secondary exposure* or *indirect exposure to trauma*.

Professionals exposed to trauma indirectly, through their work, may suffer from consequences or symptoms unique to this occupational group, compared to other occupations (Beck, 2011). These specific consequences of indirect trauma exposure have been conceptualized as secondary or vicarious traumatization (McCann & Pearlman, 1990), secondary posttraumatic stress disorder (PTSD) (Bride, Robinson, Yegidis, & Figley, 2004), and compassion fatigue (Figley, 2002). Significant elevation of symptoms of compassion fatigue may be expected among mental health providers, including those working in the public sector setting (Newell & MacNeil, 2011).

Secondary trauma or secondary PTSD may occur due to work-related indirect exposure and in the context of family-related indirect exposure. Besides human services workers, populations at risk for indirect exposure include family members or intimate partners of survivors of various types of trauma, for example, veterans or active duty soldiers, motor vehicle trauma survivors, or abuse survivors (cf. Lambert, Engh, Hasbun, & Holzer, 2012). The present study focused on consequences of work-related exposure and, therefore, our analyses excluded family-related indirect exposure.

The ongoing discussion about the constructs of burnout, compassion fatigue, and secondary traumatization (Jenkins & Baird, 2002) has shown that although there are subtle differences between them, they are also partially overlapping. So far, the debate has been dominated by narrative analyses of these differences with limited empirical evaluation (R. E. Adams, Boscarino, & Figley, 2006; Jenkins & Baird, 2002; Sabo, 2011; Thomas & Wilson, 2004). In contrast, comprehensive analyses empirically testing similarities and differences between respective constructs, and thus providing overarching conclusions across the recent research, are clearly needed. To fill this void, our meta-analysis investigated the relationships among job burnout and psychosocial consequences of a secondary exposure to trauma (i.e., compassion fatigue, secondary PTSD, or vicarious trauma; collectively, secondary traumatic stress [STS]) in professionals working with trauma survivors.

Job Burnout

Job burnout may be defined as a prolonged three-dimensional response to job stressors, encompassing exhaustion, cynicism, and inefficacy (Maslach et al., 2001). In contrast to the proposal of Maslach et al. (2001), three related approaches suggest that job burnout might be reduced to a single common experience: exhaustion. The first of these approaches defines as physical, emotional, and mental exhaustion (Malach-Pines, 2005). According to the second conceptualization, burnout concerns physical and psychological fatigue and exhaustion (Kristensen, Borritz, Villadsen, & Christensen, 2005), measured in a domain-specific context. The third approach defines burnout as physical, emotional energy, and cognitive exhaustion, which may result in depletion of coping resources (Shirom & Melamed, 2006).

Not all contemporary theorists, however, have landed on the one-dimensional exhaustion frame for burnout. A two-dimensional job burnout framework proposed by Demerouti, Bakker, Varda-

kou, and Kantas (2003) focuses on exhaustion and disengagement (i.e., distancing oneself from work and negative attitude toward the work-related objects and tasks). Demerouti et al. (2003) proposed a relatively broad conceptualization of burnout, defined as long-term consequences of prolonged exposure to job demands. Obviously, there is a potential overlap between cynicism and negative attitude toward work bringing this approach closer to that of Maslach et al. (2001).

The variety of conceptualizations and operationalizations of the job burnout construct raises many concerns. Scientific advancement relies on agreed on definitions and measurement. In the case of job burnout, there appears to be consensus only related to the exhaustion component. Our meta-analytic review, including moderator analyses, provides critical information to clarify some of these conceptual challenges. The area of STS also falls victim to construct definition confusion.

Secondary Traumatic Stress

In the present study, we use the umbrella term *secondary traumatic stress* to discuss such effects of secondary exposure as secondary PTSD (Bride et al., 2004), vicarious traumatization (McCann & Pearlman, 1990), and the STS aspect of compassion fatigue (Figley, 2002).

STS (also called secondary PTSD) is usually conceptualized as reactions resembling PTSD, and thus includes symptoms that are parallel to those observed in people directly exposed to trauma (Bride et al., 2004). There are three clusters of symptoms: intrusive reexperiencing of the traumatic material, avoidance of trauma triggers and emotions, and increased physical arousal (Bride et al., 2004). These consequences are assumed to result from indirect exposure to trauma among human services providers whose clients or patients suffered from primary exposure.

The concept of vicarious trauma focuses on cognitive effects of indirect exposure (Pearlman, 1996). A negative shift in worldview occurs as a result of an empathetic engagement with clients' or patients' traumatic material (Pearlman, 1996). The symptoms of vicarious trauma include disturbances in the professional's cognitions in five areas (i.e., safety, trust, esteem, intimacy, and control), in reference to oneself and others (Pearlman & Saakvitne, 1995).

Another theoretical framework uses the term *compassion fatigue* to explain the consequences of secondary exposure to trauma at work (Figley & Kleber, 1995). Compassion fatigue is defined as a reduced empathic capacity or client interest manifested through behavioral and emotional reactions from exposure to traumatizing experiences of others (R. E. Adams et al., 2006). Initially, the broad definition of compassion fatigue (Figley & Kleber, 1995) focused on any emotional duress experienced by persons having close contact with a trauma survivor. More recently, aspects of burnout were additionally incorporated into the compassion fatigue concept capturing the element of energy depletion (Stamm, 2010).

Of import, the definition of job burnout included in compassion fatigue differs from the more common approaches reviewed earlier that focus more on exhaustion (e.g., Demerouti et al., 2003; Maslach et al., 2001). Within the compassion fatigue framework, burnout is described as being "associated with feelings of hopelessness and difficulties in dealing with work or in doing your job effectively" (Stamm, 2010, p. 13). It is not completely clear

whether the resulting construct of compassion fatigue is unitary or composed of two distinct dimensions (Figley & Stamm, 1996; Jenkins & Baird, 2002), although some evidence has suggested a two-dimension structure (R. E. Adams et al., 2006). Compassion fatigue is measured with the Professional Quality of Life (ProQOL; Stamm, 2010). Compared to other job burnout scales, the burnout items of the ProQOL are not focused on exhaustion symptoms, but, instead, refer to lack of well-being, negative attitudes toward work, work overload, or a lack of self-acceptance.

Burnout and other consequences of secondary exposure to trauma (e.g., secondary PTSD and compassion fatigue) should be moderately related, because their theoretical frameworks each have a different emphasis. Besides exposure to clients' reports of their traumatic experience, burnout is related to workplace structural strains and chronic organizational issues (Lee, Lim, Yang, & Lee, 2011). PTSD-like symptoms of secondary PTSD and vicarious traumatization are conceptually linked only to those workplace factors that refer to indirect exposure to trauma content (Jenkins & Baird, 2002; Schauben & Frazier, 1995). In contrast, compassion fatigue refers to a broad range of emotional or cognitive consequences of secondary exposure. We believe that differences in defining and measuring the effects of indirect traumatization may be crucial for testing the relationship between job burnout and other consequences of secondary exposure to trauma.

Collectively, the research on burnout and negative consequences related to secondary exposure to trauma suffers from definitional and measurement challenges. Understanding possible moderators, such as culture and gender, may offer important insights.

The Role of Culture, Gender, and the Type of Work-Related Exposure to Trauma

Professionals from different countries performing the same job may differ in job burnout. For example, Japanese nurses reported lower levels of personal accomplishment and higher levels of emotional exhaustion and depersonalization compared to nurses from the United States, Canada, the United Kingdom, Germany, and New Zealand, with Russian and Armenian nurses reporting the lowest levels of job burnout (Poghosyan, Aiken, & Sloane, 2009). A European study showed that the highest percentages of family doctors with job burnout were identified in the United Kingdom, Italy, and Greece (Soler et al., 2008). Professionals from Fiji or Brazil may suffer from higher levels of job burnout than professionals in Israel, France, Germany, or China (Perrewé et al., 2002).

The concepts of job burnout and compassion fatigue were developed in the United States, and a large proportion of studies investigating the associations between these constructs were conducted in North America. However, a growing number of studies have discussed data collected in other countries (Thoresen, Tønnessen, Lindgaard, Andreassen, & Weisæth, 2009). Trauma researchers have suggested that culture is a critical factor to consider (Marshall & Suh, 2003). The sociocultural context may determine the outcomes of exposure in several ways, such as shaping emotional experiences and emotional processing (Bracken, 2001; Marshall & Suh, 2003). Furthermore, critical determinants of developing the consequences of secondary exposure to trauma, such as existing policies, social resources, and organizational characteristics (Voss Horrell, Holohan, Didion, & Vance, 2011), are likely to vary across countries. Thus, our research investigated the moder-

ating role of cultural context (defined as the country of data collection) in the relationship between burnout and other consequences of indirect trauma exposure.

Gender is also important to consider. Female professionals are likely to report higher levels of aspects of burnout referring to the depletion of emotional reserves (Watts & Robertson, 2011) or higher levels of compassion fatigue (Sprang, Clark, & Whitt-Woosley, 2007). The associations between gender and PTSD-like symptoms among professionals with secondary exposure are unclear (Sprang, Craig, & Clark, 2011). Furthermore, the effects of gender on burnout may be higher in the United States than in European countries, where there are smaller reported differences in burnout levels among men and women (Purvanova & Muros, 2010). It remains unknown, however, whether gender may moderate the associations between job burnout and STS.

Some occupations are characterized by a low likelihood of direct exposure to work-related trauma (e.g., therapists), in contrast to professionals who work at the epicenter of trauma (e.g., paramedics, rescue workers) and thus may be also directly exposed (Argentero & Setti, 2011; Halpern, Maunder, Schwartz, & Gurevich, 2011). Being a member of an occupational group with an increased likelihood of both direct and indirect exposure to work-related trauma may be an important determinant of STS and burnout (Palm, Polusny, & Follette, 2004). The present study investigated the moderating effect of the type of work-related trauma exposure, with the type of occupation as the indicator of the exposure.

Aims

Although research evidence for the relationships between job burnout and other consequences of indirect trauma exposure (i.e., PTSD-like symptoms, compassion fatigue, vicarious traumatization) among workers exposed to secondary trauma is accumulating, the overarching synthesis of these relationships is missing. Systematic review and meta-analytic strategies offer an option for evaluating the available literature. This study aimed at systematically reviewing and meta-analyzing the strength of associations between job burnout and other psychosocial consequences of work-related indirect exposure to trauma in professionals working with trauma survivors. It was hypothesized that these associations may be moderated by: (a) the type of measurement, (b) the conceptualization of job burnout and STS, (c) gender, and (d) the types of occupations involving primary and secondary exposure, compared to types of occupations involving only secondary exposure. To evaluate cultural context, we explored differences between the findings obtained in the United States and other countries, as well as the differences in findings obtained for English-language measures versus other-language measures.

Method

Literature Search

A systematic database search of studies on STS and job burnout was conducted for independent studies available before 2012. The search included the following databases: PILOTS, ScienceDirect, Scopus, and Web of Knowledge. Combinations of the keywords related to *job burnout* (*burnout* or *burn-out*) and *secondary trau-*

matic stress (*trauma**, *posttrauma**) were used, with asterisks indicating that a keyword may consist of the stem and any suffix (e.g., *traumatic*). To ensure that various concepts and terms referring to STS were included, we also used such keywords as *compassion fatigue* and *PTSD*. Manual searches of the reference lists were conducted. If the original article did not provide all details essential for meta-analyses (e.g., reliability, correlation coefficients), the authors of original studies were asked to provide respective information. To minimize a possible bias, at least two of the authors (K. S., R. C., A. D., or E. M.) were involved at all stages of data extraction, coding, synthesis, and analysis. The Cochrane systematic review methods were applied (Higgins & Green, 2008).

Inclusion Criteria, Exclusion Criteria, and Data Abstraction

The following inclusion criteria were implemented: (a) STS and job burnout were measured at some time point in the original study; (b) the relationship between STS and job burnout was assessed, or authors provided appropriate statistics on request; (c) articles reported statistics that could be converted into Pearson's coefficient (e.g., *t* test, *F* test, χ^2 , *z* test); (d) original studies enrolled workers performing job tasks involving contact with traumatized clients/patients or traumatic material. English-language publication restriction was applied (although the measurement itself could be in a non-English language). Dissertations and book chapters were excluded. Studies applying qualitative methods, narrative reviews, and research on nonworkers (e.g., student samples) were excluded. When two or more studies used the same sample, only one publication was included. Details of the selection process are presented in Figure 1. The initial search resulted in 337 articles. The selection processes resulted in 45 studies meeting all inclusion criteria. However, four of those studies were excluded from further analysis, because they were identified as outliers, with *z* scores greater than 10 or less than -10 (Alkema, Linton, & Davies, 2008; Backholm & Björkqvist, 2010; Lauvrud, Nonstad, & Palmstierna, 2009; Maunder et al., 2006). Thus, 41 original studies were analyzed (see Table 1).

Descriptive data (including country where a study was conducted, sample size, participants' gender and occupations, measurement, and design) were extracted and verified by two of the authors. Relevant statistics, including reliability coefficient, and measures of association (or statistics allowing for computing these associations) were also retrieved. Any disagreement in the processes of data extraction was resolved by a consensus method.

Coding

Two main categories of negative consequences of secondary exposure to trauma were analyzed. The first main category, called STS, was defined as negative emotional or cognitive consequences of indirect exposure to trauma, such as (a) PTSD-like symptoms measured by the Secondary Trauma Stress Scale (Bride et al., 2004), the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), or the Impact of Event Scale-Revised (Weiss & Marmar, 1997); (b) vicarious trauma—a cognitive shift in worldview, defined by Pearlman (1996) and measured by the Traumatic Stress

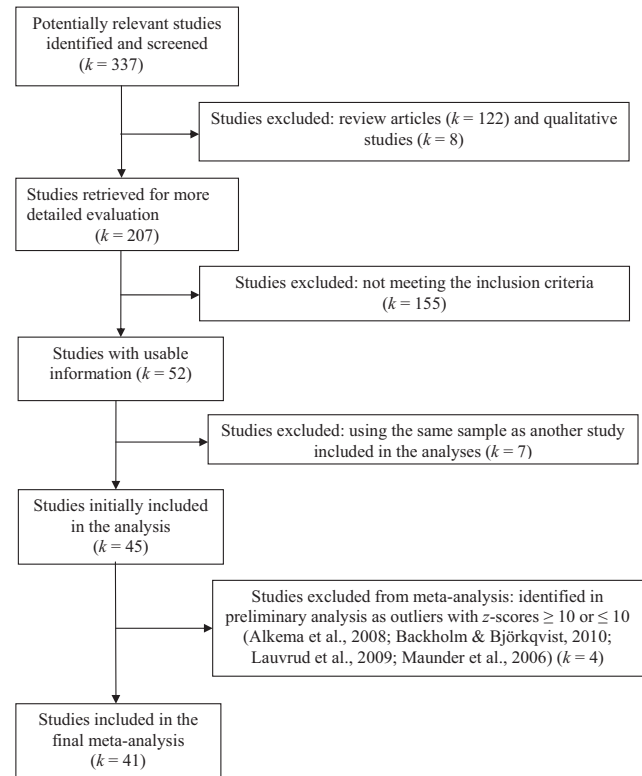


Figure 1. Selection of studies for the meta-analysis.

Institute Belief Scale (Pearlman, 1996); or (c) an aspect of compassion fatigue, defined by Figley and coworkers (e.g., Figley & Stamm, 1996) and measured by the Secondary Traumatic Stress subscale of the ProQOL (Stamm, 2000), the Compassion Satisfaction and Fatigue Test (CSFT; cf. Figley & Stamm, 1996), the Compassion Fatigue Questionnaire (CFQ; Figley & Kleber, 1995), or the Compassion Fatigue Scale-Revised (CFS-R; R. E. Adams et al., 2006).

Job burnout, the second key category analyzed, was defined as consequences of work related-stress focusing on: (a) the emotional exhaustion component of job burnout, as measured by the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1997), the Oldenburg Burnout Inventory (OLBI; Halbesleben & Demerouti, 2005), the Rescue Worker Burnout Questionnaire (Musa & Hamid, 2008), the Burnout Measure (Malach-Pines, 2005), or the Copenhagen Burnout Inventory (Kristensen et al., 2005); or (b) a concept derived from the compassion fatigue framework and broadly defined by Figley and coworkers (e.g., Figley & Stamm, 1996) as referring to lack of well-being, negative attitudes toward work, work overload, or a lack of self-acceptance, measured by the Job Burnout subscales of the ProQOL (Stamm, 2010), the CSFT (cf. Figley & Stamm, 1996), the CFQ (Figley & Kleber, 1995), or the CFS-R (R. E. Adams et al., 2006).

The moderating factors, referring to the measurement, theoretical framework, cultural factors (i.e., country, language), and gender, were combined into the following categories: (a) the type of measurement used for STS assessment (measures of cognitive shift or PTSD-like symptoms vs. measures of compassion fatigue); (b) the type of assessment of job burnout (the ProQOL Burnout

Table 1
Summary of the Studies Included in the Meta-Analysis

Study (first author, publication year)	N (% men)	Occupation	Study design	STS measure (α)	Job burnout measure (α)	Country	<i>r</i>
K. B. Adams (2001)	185 (18)	Clinical social workers	Cross-sectional	TSI Belief Scale (.93)	MBI (.75, .78, .90)	United States	.494
R. E. Adams (2006)	236 (20)	Social workers	Cross-sectional	CFS-R (.80)	CFS-R (.90)	United States	.642
Argentero (2011)	781 ^a (58)	Rescue workers	Cross-sectional	STSS (.82)	MBI (.75, .81, .86)	Italy	.751 ^a
Ben-Porat (2011)	214 ^a (15)	Social workers	Cross-sectional	STSS (.88) ^a	Burnout Measure (.92) ^a	Israel	.878 ^a
Berger (2011)	80 (0)	Well baby clinic nurses	Longitudinal	ProQOL (.77–.79)	ProQOL (.77–.79)	Israel	.505 ^a
Birck (2002)	25 (40)	Professionals at treatment center for torture victims	Cross-sectional	CSFT (.87–.90)	CSFT (.87–.90)	Germany	.881
Burtson (2010)	126 (12)	Nurses	Cross-sectional	ProQOL (.81)	ProQOL (.75)	United States	.795
Carmel (2009)	106 (47)	Therapists	Cross-sectional	ProQOL (.81)	ProQOL (.79)	United States	.825
Chang (2011)	102 (100)	Soldiers	Cross-sectional	ProQOL (.68)	ProQOL (.65)	China	.827
Circenis (2011)	129 (NA)	Nurses	Cross-sectional	ProQOL (.81) ^b	MBI (.71, .79, .90) ^b	Latvia	.719
Cohen (2006)	37 (NA)	Social workers	Cross-sectional	CFQ (.80)	CFQ (.84)	Israel	.720
Collins (2003)	13 (46)	Health care workers	Longitudinal	CSFT (.80)	CSFT (.86)	Ireland	.941
Conrad (2006)	355 ^a (10)	Child protection workers	Cross-sectional	CSFT (.84)	CSFT (.84)	United States	.842 ^a
Craig (2010)	532 (34)	Trauma therapists	Cross-sectional	ProQOL (.81)	ProQOL (.73)	United States	.663
Deville (2009)	150 (29)	Mental health professionals	Cross-sectional	STSS (.93)	CBI (.85, .86, .87)	Australia	.625
Eastwood (2008)	57 (25)	Childcare workers	Cross-sectional	ProQOL (.80)	ProQOL (.72)	United States	.771
Flannelly (2005)	149 (54)	Chaplains	Cross-sectional	ProQOL (.87)	ProQOL (.83)	United States	.777
Galek (2011)	331 (55)	Chaplains	Cross-sectional	CSFT (.83)	CSFT (.85)	Canada, United States	.190
Gibbons (2011)	62 (NA)	Social workers	Cross-sectional	ProQOL (.81) ^b	ProQOL (.75) ^b	England	.616
Halpern (2011)	189 (62)	Ambulance workers	Cross-sectional	IES-R (.91)	MBI (.83) ^a	Canada	.454 ^a
Hatcher (2010)	50 (29)	Clinicians for sexual offenders	Cross-sectional	ProQOL (.81) ^b	ProQOL (.75) ^b	Australia	.648 ^a
Jenkins (2002)	99 (4)	Counselors	Cross-sectional	CSFT (.84)	MBI (.81, .91, .92)	United States	.435
Kadambi (2004)	211 (16)	Therapists	Cross-sectional	IES (.88) ^b	MBI (.71, .79, .90) ^b	Canada, United States	.326
Killian (2008)	104 (21)	Therapists	Cross-sectional	ProQOL (.86) ^a	MBI (.88) ^a	United States	.690 ^a
Kraus (2005)	90 (43)	Mental health professionals	Cross-sectional	CSFT (.85)	CSFT (.80)	United States	.788
LaFauci Schutt (2011)	184 (65)	Emergency management professionals	Cross-sectional	PCL-C (.94)	ProQOL (.73)	United States	.676
Lawson (2011)	506 (21)	Counselors	Cross-sectional	ProQOL (.80)	ProQOL (.78)	United States	.776 ^a
Meadors (2009–2010)	167 (14)	Pediatric health care providers	Cross-sectional	STSS (.91)	ProQOL (.66)	United States	.813
Mitani (2006)	243 (97)	Firefighters	Cross-sectional	IES-R (.94) ^b	MBI (.81, .85, .87) ^b	Japan	.396
Musa (2008)	53 (49)	Aid workers	Cross-sectional	ProQOL (.87)	RWBQ (.73)	Sudan	.602
Perez (2010)	28 (75)	Law enforcement investigators	Cross-sectional	STSS (.97)	MBI (.69, .85, .90)	United States	.745
Perron (2006)	59 (10)	Forensic interviewers	Cross-sectional	STSS (.93) ^b	OLBI (.80) ^b	United States	.643
Pietrantonio (2008)	961 (72)	First responders	Cross-sectional	ProQOL (.80)	ProQOL (.86)	Italy	.687
Potter (2010)	154 (NA)	Oncology health care providers	Cross-sectional	ProQOL (.80)	ProQOL (.72)	United States	.741 ^a
Prati (2010)	569 (78)	Rescue workers	Cross-sectional	ProQOL (.71)	ProQOL (.80)	Italy	.638
Robins (2009)	314 (18)	Child health care providers	Cross-sectional	CSFT (.84–.90)	CSFT (.84–.90)	United States	.756
Seyern (2012)	82 (NA)	Audiologists	Cross-sectional	ProQOL (.81)	ProQOL (.69)	New Zealand	.831
Simon (2005)	21 (5)	Oncology social workers	Cross-sectional	CSFT (.87)	CSFT (.90)	United States	.531
van der Ploeg et al. (2003)	84 (68)	Forensic doctors	Cross-sectional	IES (.92)	MBI (.79, .80, .86)	Netherlands	.256
van der Ploeg & Kleber (2003)	123 (86)	Ambulance personnel	Longitudinal	IES (.92)	MBI (.70, .76, .86)	Netherlands	.323
Weiniger (2006)	185 ^a (79)	Surgical physicians	Cross-sectional	PSS-SR (.68) ^a	MBI (.36, .44, .72) ^a	Israel	.623 ^a

Note. STS = secondary traumatic stress; CFS-R = Compassion Fatigue Scale–Revised; TSI Belief Scale = Traumatic Stress Institute Belief Scale; MBI = Maslach Burnout Inventory; STSS = Secondary Traumatic Stress Scale; ProQOL = Professional Quality of Life Scale; CSFT = Compassion Satisfaction and Fatigue Test; NA = not available; CFQ = Compassion Fatigue Questionnaire; CBI = Copenhagen Burnout Inventory; IES-R = Impact of Event Scale–Revised; IES = Impact of Event Scale; RWBQ = Rescue Worker Burnout Questionnaire; OLBI = Oldenburg Burnout Inventory; PCL-C = Posttraumatic Stress Disorder Checklist–Civilian Version; PSS-SR = PTSD Symptom Scale–Self-Report.

^a Information not reported in articles, but provided on the authors' request. ^b Information not reported in articles, therefore, drawn from another study.

subscale vs. other job burnout instruments, such as the MBI and the OLBI, which have clearly defined emotional exhaustion as a key component); (c) the theoretical framework (the compassion fatigue approach vs. other approaches to job burnout and STS), (d) the country where the study was conducted (the United States vs. other countries), (e) the continent where the study was conducted (North America vs. others), (f) the measurement language (English

or others), (g) gender (predominantly male sample consisting of at least 75% men vs. predominantly female sample consisting of at least 75% women), (h) occupations with higher likelihood of both direct and indirect work-related exposure (rescue/emergency workers, nurses, social workers working with victims of missile attacks, chaplains working with victims of September 11, ambulance workers, pediatric care workers, firefighters, interna-

tional aid workers, first responders, forensic doctors, and surgical physicians) and occupations that may involve only indirect work-related trauma exposure (therapists, child protection workers, child care workers, chaplains, social workers, law enforcement exposed to disturbing media images, and forensic interviewers of abused children). In some cases, the same occupation groups (social workers and chaplains) were classified into different categories, depending on professional tasks described in original studies.

Data Analysis

The statistical analysis followed the procedure described by Hunter and Schmidt (2004). Attenuation due to the measurement error was corrected. The cumulative effect size was computed using the random-effect model method (Field & Gillett, 2010). The overall effect sizes, heterogeneity, and effect of the moderators (i.e., measurement, theoretical framework, country/continent, language, and gender) on the relationship between STS and job burnout were examined using Comprehensive Meta-Analysis software (Borenstein, Hedges, Higgins, & Rothstein, 2005). All analyses were sufficiently powered (above .80).

Pearson's correlation was used as the effect size indicator. When the original study provided multiple Pearson's correlations between STS and job burnout (e.g., for separate subscales), a mean Pearson's correlation was calculated (Hunter & Schmidt, 2004). When several measures of STS were applied in the original study, a measure other than a ProQOL subscale was used to estimate Pearson's coefficient for STS–job burnout association. The direction of a correlation involving the MBI Personal Accomplishment subscale was reversed to create positive associations between these subscales. If the original study provided alphas for subscales only, a mean Cronbach's alpha for a total score was calculated. When no Cronbach's alpha was available, it was obtained from original psychometric studies. Robustness of the calculated effect size against the effect of unpublished null results was assessed using the fail-safe *N* test (Rosenthal, 1979). To address this file drawer problem, the number of unpublished studies that were necessary to produce a nonsignificant result was calculated.

Results

Description of Analyzed Material

Table 1 displays information about samples, procedures, and measurement applied in 41 original studies. Overall, data from 8,256 workers were analyzed. Sample sizes varied from 13 to 961 participants, with an average of 198.63 ($SD = 205.48$) and median of 129. The average sample consisted of 59.03% women ($SD = 28.35$), with a majority of studies (82.93%; $k = 34$) targeting mixed-gender samples. Only two studies were homogeneous in terms of gender ($k = 1$, 100% male participants; $k = 1$, 100% female participants). Gender frequencies were missing in five studies. Data were collected in various professional groups such as therapists, mental health professionals (including social workers), and counselors (36.58%; $k = 15$); emergency, ambulance, or rescue workers (12.20%; $k = 5$); child care workers and child health care providers (9.76%; $k = 4$); nurses (7.32%; $k = 3$);

forensic specialists (4.88%; $k = 2$); chaplains (4.88%; $k = 2$); and other noncategorized professionals (24.39%; $k = 10$).

Almost half (46.34%; $k = 19$) of the original research was conducted in the United States; 22 studies (53.66%) took place in North America. Four studies (9.76%) were conducted in Israel, three in Italy (7.32%), two in Australia (4.88%), and two in the Netherlands (4.88%). There were also two multicountry studies (4.88%) conducted both in Canada and the United States. Three studies (7.32%) took place in Africa or Asia. An English-language version of the questionnaires was applied in 65.85% ($k = 27$) of the studies.

The most popular measures used to assess STS stem from the compassion fatigue framework (Figley & Stamm, 1996). These ProQOL-related measures were used in 65.85% of studies ($k = 27$) and among 5,343 respondents (64.72% of the total sample). The most popular questionnaires used to assess job burnout also stem from the compassion fatigue approach to job burnout (i.e., ProQOL-related measures). They were applied in 60.98% of studies ($k = 25$), with 5,409 (65.51% of the total sample) professionals completing respective measures. Overall, ProQOL was used in 34.15% of studies ($k = 14$) to assess both STS and burnout constructs.

Associations Between STS and Job Burnout

The main research question dealt with the associations between STS and job burnout. The meta-analysis results conducted from 41 original studies indicated that the average association between these two variables was positive and the effect size was large (weighted $r = .69$; see Table 2). The coefficient of determination (r^2) was .48. The analysis of the fail-safe *N* showed that 10,603 studies with null results were needed to produce a nonsignificant association between STS and job burnout. The following analyses tested the moderating role of the measurement, the theoretical framework, the country, the continent, the language of data collection, gender of professionals taking part in the studies, and the type of occupation (likely to be directly and indirectly exposed at work compared to those who are likely to be only indirectly exposed at work).

Measurement of STS as the moderator. The original captured studies were divided into two categories on the basis of the type of measurement used to assess STS: (a) PTSD-like symptoms or (b) a measurement referring to compassion fatigue, based on a broader conceptualization of STS proposed by Figley and colleagues (cf. Figley & Stamm, 1996; R. E. Adams et al., 2006). The results of the moderator analysis showed that the effect sizes of the relationship between STS and job burnout were dependent on the type of STS assessment, with ProQOL-related measures having a stronger association ($r^2 = .53$) than measures assessing PTSD-like symptoms ($r^2 = .37$; see Table 2).

Measurement of job burnout as the moderator. The original studies were divided into two categories on the basis of the type of job burnout measurement used in the studies: (a) the measures stressing the role of exhaustion and (b) the subscales of ProQOL and related measures, based on a broader burnout concept, proposed by Figley and coworkers (cf. Figley & Stamm, 1996). The results showed that the relationship between STS and job burnout was moderated by the type of job burnout assessment, with ProQOL-related measures producing a significantly stronger

Table 2
Results of Meta-Analysis of the Relationship Between Job Burnout and Secondary Traumatic Stress: Overall and Moderator Effects

Measures	r^a	r range ^b	r 95% CI ^c	N	k^d	Q^e	I^2 (%) ^f	Fail-safe N^g	t^h
Overall effect	.691	.252–.941	[.647, .731]	8,256	41	478.49*	91.64	10,603	—
Moderator effects									
Measurement									
STS measure									39.96**
ProQOL or related	.729	.435–.941	[.693, .762]	5,343	27	153.94*	83.11	14,138	
STS as PTSD-like symptoms	.608	.252–.878	[.483, .709]	2,913	14	287.43*	95.48	4,829	
Job burnout measure									52.33**
ProQOL-related vs. other measures									
ProQOL or related	.744	.505–.941	[.710, .775]	5,409	25	142.39*	83.15	14,163	
Other	.589	.252–.878	[.471, .687]	2,847	16	273.58*	94.52	4,817	
ProQOL-related vs. MBI									70.81**
ProQOL or related	.744	.505–.941	[.710, .775]	5,409	25	142.39*	83.15	14,163	
MBI	.532	.252–.751	[.397, .645]	2,371	12	177.69*	93.81	2,358	
ProQOL-related vs. other burnout measures (excluding MBI or ProQOL-related)									3.18*
ProQOL or related	.744	.505–.941	[.710, .775]	5,409	25	142.39*	83.15	14,163	
Other burnout measures (excluding MBI)	.731	.602–.878	[.527, .856]	476	4	37.68*	92.04	431	
MBI vs. other burnout measures (excluding MBI or ProQOL-related)									22.01**
MBI	.532	.252–.751	[.397, .645]	2,371	12	177.69*	93.81	2,358	
Other burnout measures (excluding MBI or ProQOL-related)	.731	.602–.878	[.527, .856]	476	4	37.68*	92.04	431	
Framework applied									
Compassion fatigue vs. other approaches									51.18**
Only compassion fatigue framework	.744	.505–.941	[.707, .776]	4,958	23	132.03*	83.34	9,879	
No measure from the compassion fatigue framework	.578	.252–.878	[.426, .699]	2,462	12	261.60*	95.80	3,029	
Compassion fatigue vs. mixed approach									44.69**
Only compassion fatigue framework	.744	.505–.941	[.707, .776]	4,958	23	132.03*	83.34	9,879	
At least one measure from other framework	.612	.252–.878	[.509, .697]	3,298	18	299.43*	94.32	7,033	
Cultural factors									
Country									18.00**
United States	.725	.435–.842	[.678, .767]	3,572	19	129.17*	86.07	2,698	
Other countries	.675	.256–.941	[.604, .736]	4,132	20	245.87*	92.27	10,483	
Continent									3.79**
North America (United States and Canada)	.697	.252–.842	[.636, .748]	4,313	22	252.03*	91.67	5,846	
Countries from other continents	.685	.256–.941	[.615, .745]	3,943	19	224.18*	91.97	9,797	
Language of applied measures									14.22**
English	.706	.252–.941	[.653, .752]	4,670	27	269.56*	90.36	10,994	
Other	.662	.256–.881	[.574, .735]	3,586	14	204.82*	93.65	6,395	
Gender									14.58**
Primarily male (at least 75% of males)	.608	.256–.827	[.448, .729]	1,211	6	60.63*	91.75	731	
Primarily female (at least 75% of females)	.692	.252–.878	[.594, .769]	2,744	15	256.61*	94.54	7,205	
Occupations									18.27**
With high likelihood of secondary exposure only	.719	.252–.941	[.652, .775]	3,526	22	271.20*	92.26	2,787	
With high likelihood of both primary exposure and secondary exposure	.662	.256–.827	[.601, .715]	4,730	19	198.42*	90.93	2,496	

Note. CI = confidence interval; STS = secondary traumatic stress; ProQOL = Professional Quality of Life Scale; PTSD = posttraumatic stress disorder; MBI = Maslach Burnout Inventory.

^a Weighted effect size. ^b Range of effect sizes. ^c Critical intervals for the weighted effect size. ^d Number of studies. ^e A significant Q value indicates that the data are heterogeneous, suggesting that the variability among studies was not due to sampling error. ^f Value indicates the percentage of variance due to heterogeneity among studies. ^g Value indicates the number of studies with null results that are necessary to overturn the results of meta-analysis and to conclude that the results are due to sampling bias. ^h Test for moderating effect.

* $p < .01$. ** $p < .001$.

associations ($r^2 = .55$) than any other measures of burnout (r^2 range: .28–.53; see Table 2).

Next, we investigated the relationship between STS and three components of job burnout measured with MBI: emotional exhaustion, depersonalization/cynicism, and lack of professional/personal accomplishments (Maslach et al., 2001). Results indicated that the effect size of the relationship between STS and a lack of accomplishment was relatively smaller than the other two effect sizes. In particular, the correlation of STS with emotional

exhaustion (weighted $r = .55$, $r^2 = .30$, $N = 2,361$, $k = 12$) was stronger than the associations with depersonalization, $r = .51$, $r^2 = .26$, $N = 1,939$, $k = 9$, $t(4298) = 11.29$, $p < .001$, or lack of accomplishment, weighted $r = .35$, $r^2 = .12$, $N = 2,158$, $k = 10$, $t(4427) = 41.13$, $p < .001$.

The theoretical framework as the moderator. We tested whether the associations between STS and job burnout differed depending on the use of the compassion fatigue framework (Figley & Stamm, 1996; Stamm, 2010). In particular, associations ob-

tained in studies in which both STS and job burnout were operationalized in line with the compassion fatigue framework (with ProQOL or ProQOL-related measures applied) were compared to the associations found in studies in which STS and job burnout were operationalized in line with other approaches (see Table 2). These other approaches defined STS as PTSD-like symptoms or vicarious trauma. They defined burnout, focusing on the exhaustion component, as the consequence of work related-stress (cf. Maslach et al., 2001). The results of the moderator analysis indicated that the relationship between STS and job burnout was moderated by the type of theoretical framework (see Table 2). For STS, job burnout associations were significantly stronger when both constructs were assessed with the ProQOL or ProQOL-related measures ($r^2 = .55$) compared to the associations observed in studies applying measures derived from other approaches ($r^2 = .34$).

Culture and gender as moderators. The next set of analyses compared: (a) the results obtained in the United States with results found in other countries, and (b) the associations found in studies using English versions of STS and job burnout instruments with the associations found in research using different language versions. Other than the United States, with 19 studies, fewer than 10% of studies were conducted in one country (e.g., four studies in Israel). Therefore, other between-country comparisons were not conducted. The results showed that cultural and language factors moderated the relationship between STS and job burnout (see Table 2). The associations observed for data collected in the United States were significantly stronger ($r^2 = .52$) compared to the relationships found in the studies from other countries ($r^2 = .45$). Similarly, significant differences were found when the associations observed in North America were compared to results obtained on other continents ($r^2 = .49$ and $r^2 = .48$, respectively; see Table 2). Furthermore, the associations found for the English-language versions of measures were significantly stronger ($r^2 = .50$) than the relationships obtained in the studies using other language versions ($r^2 = .44$). Finally, the results indicated that gender might moderate the relationship between STS and job burnout, with stronger associations observed in predominantly female samples ($r^2 = .48$) compared to predominantly male samples ($r^2 = .37$; see Table 2).

Type of occupation in the context of work-related exposure to trauma. Results obtained in original studies involving occupations with an increased likelihood for both direct and indirect exposure were compared to those in which only indirect exposure was likely to occur. The analysis indicated that type of occupation moderated the relationship between STS and job burnout (see Table 2). The associations were stronger in samples with occupations with only secondary exposure ($r^2 = .52$) compared to samples with occupations characterized by high likelihood for both primary and secondary exposure ($r^2 = .44$).

Discussion

Our meta-analysis investigated the relationship between STS and job burnout among employees indirectly exposed to trauma. The indirect exposure could be due to contact with clients or patients who have experienced traumatic events or due to an exposure to other traumatic materials. High levels of burnout and other consequences of indirect exposure to trauma are likely to be elevated among mental health care providers (Newell & MacNeil, 2011) and to affect professionals' well-being, quality of life of

their patients, and the effectiveness of caring (Cheung & Chow, 2011). The present study adds to existing literature by indicating the coexistence of STS and job burnout among professionals exposed indirectly to trauma in their work. The meta-analysis of 41 studies suggests that the association between these two constructs is high, and that these two concepts may share as much as 48% of the variance.

Recently developed frameworks, providing an overview of risk factors for developing negative consequences of working with traumatized patients or clients (Voss Horrell et al., 2011), have assumed that compassion fatigue, burnout, vicarious trauma, and STS constitute a rather homogenous group of psychosocial consequences of secondary exposure. Voss Horrell et al. (2011) suggested that developing this relatively homogenous group of consequences depends on shared risk factors. In other words, it may be assumed that the same risk factors referring to patient, professional, or organizational characteristics would increase the probability of developing compassion fatigue, as well as burnout, vicarious trauma, and PTSD-like symptoms. Strong associations found in our meta-analysis might result from these common risk factors. Further, the effects of indirect exposure to trauma may also be mitigated by cultural and individual resilience factors, such as hardiness or self-efficacy (cf. Luszczynska, Benight, & Cieslak, 2009). Future studies need to investigate the common and specific risk and resilience factors, explaining development of compassion fatigue, burnout, and secondary PTSD.

Research applying constructs and measurement derived from a single theoretical framework is often considered as "the state-of-the-art" approach. By contrast, "covering the bases" by means of amalgamation of several theoretical frameworks is usually assumed as an inferior approach, forcing new relationships on variables from otherwise independent models and creating some redundancy (Figuerola, Kincaid, Rani, & Lewis, 2002). Thus, applying measurement from the same approach, such as compassion fatigue (R. E. Adams et al., 2006; Figley & Stamm, 1996), could be considered as a superior approach to testing the STS–burnout relationship, compared to combining assessment methods from distinct frameworks.

The results of the present study suggest, however, that the application of the compassion fatigue approach to measuring consequences of secondary exposure among professionals has some undesirable consequences. The results of respective moderator analysis indicate that if both STS and job burnout are measured within the compassion fatigue approach (i.e., by means of the ProQOL and related measures), the proportion of shared variance is significantly larger than if the measures are derived from any of the other approaches. If both STS and burnout measures were derived from the compassion fatigue framework, the estimated overlap is 55%, which suggests that STS and burnout constructs might be indistinguishable. The present study does not offer a review of all aspects of STS and burnout theories. Instead, it focused on the operationalization of the key constructs in the STS and burnout frameworks. Therefore, the conclusions are limited to operationalization of the constructs, not entire theories.

Results of our meta-analysis provide arguments for a limited practical utility of applying the ProQOL and ProQOL-related measures when testing for STS and job burnout in one study. Research striving for short measures capturing broader consequences, encompassing symptoms of both STS and burnout, may

want to use one of the subscales of the ProQOL (or ProQOL-related questionnaires), which enables capturing a majority of variance for both constructs.

The results indicate that applying frameworks and measurements different from compassion fatigue (i.e., PTSD-like symptoms, vicarious trauma, or job burnout defined as the focusing on emotional exhaustion consequences of work related-stress) would result in STS and job burnout sharing 34% of variance. In this case, burnout and STS would be related, but measured as sufficiently distinct constructs. This conclusion is in line with earlier research and narrative reviews of literature (Jenkins & Baird, 2002; Sabo, 2011; Thomas & Wilson, 2004).

The results also indicate that a significantly larger overlap between STS and job burnout may be expected if the data are collected in the United States (compared to other countries) and by means of English-language versions of questionnaires (compared to other-language versions). The differences may result from the fact that the translation processes allows for capturing more distinct facets of STS and job burnout. Thus, the translation from English to Hebrew, Dutch, or German may allow for developing refined versions of original methods. Further research needs to investigate the similarities across the language versions in terms of criterion validity and factorial structure. The other source of the between-country differences may result from cultural differences in shaping emotional experiences and emotional processing (Bracken, 2001; Marshall & Suh, 2003) or differences in organizational characteristics, health inequalities, or policies specifying work conditions. Regardless of possible sources of the observed differences, our findings are in line with the assumption that culture is among the key contexts differentiating the effects of secondary exposure among professionals across countries (Marshall & Suh, 2003).

Gender differences in associations between STS and job burnout are in line with previous systematic reviews, suggesting different mechanisms of developing consequences of traumatic stress among men and women (Olf, Langeland, Draijer, & Gersons, 2007). They are also consistent with research that has suggested gender differences in experiencing the depletion of emotional reserves (Watts & Robertson, 2011) or compassion fatigue (Sprang et al., 2007). Further studies should investigate the mechanisms explaining gender inequalities in the likelihood of developing both STS and job burnout among professionals working with trauma survivors.

The results indicating weaker associations between STS and burnout among professionals who are likely to be directly and indirectly exposed to trauma at work, compared to occupations that are likely to involve only indirect exposure, are in line with arguments presented by Palm et al. (2004). Workers exposed to direct trauma at work may be resilient due to better preparedness and training (Palm et al., 2004). Therefore, even if they suffer from one type of consequences of work stress (i.e., burnout), they may not present STS symptoms.

Our research has its limitations. The level of secondary exposure to trauma was not accounted for in our analysis, because several original studies did not assess the exposure. Thus, our results are based on assumptions that the professionals were likely to experience the secondary exposure to trauma, due to the work character and the description of job tasks provided in original studies. Other confounding variables, such as personal history of trauma expo-

sure and other patient characteristics, were also not controlled. Unfortunately, this was not possible, due to the fact that a majority of original research did not account for these factors. Our analyses did not compare service providers who are exposed to trauma indirectly against other human service providers whose level of burnout may result from the strain of caretaking for clients who are not traumatized. Many studies were conducted only once or twice in one country, therefore, a more thorough examination of differences between countries or across language versions was not conducted. Cultural context was defined in a narrow way and referred only to the country of the study and language used in collecting data. It should also be noted that the results should not be generalized to other definitions or frameworks discussing the consequences of secondary work-related exposure to trauma beyond the ones chosen for this review. Finally, the majority of the studies included in the meta-analysis were cross-sectional, therefore no causal associations between STS and job burnout could be investigated.

Conclusion

Our study provides the first quantitative synthesis of research on the relationships between job burnout and STS among professionals working with traumatized clients. This review shows the moderating effects of theoretical frameworks, type of measures, language, country where data were collected, gender, and type of occupation related to trauma exposure. In general, burnout and STS or compassion fatigue are likely to co-occur among professionals exposed indirectly to trauma through their work. Applications of measures developed within the compassion fatigue framework may result in obtaining stronger relationships between job burnout and STS compared to the use of measures derived from different theoretical frameworks (e.g., the approach to STS focusing on PTSD-like symptoms and the burnout framework focusing on exhaustion component). In particular, STS and burnout constructs may be empirically indistinguishable if measured within the compassion fatigue framework.

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