

# Secondary Traumatic Stress Among Mental Health Providers Working With the Military

## *Prevalence and Its Work- and Exposure-Related Correlates*

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**Abstract:** Our research assessed the prevalence of secondary traumatic stress (STS) among mental health providers working with military patients. We also investigated personal, work-related, and exposure-related correlates of STS. Finally, using meta-analysis, the mean level of STS symptoms in this population was compared with the mean level of these symptoms in other groups. Participants ( $N = 224$ ) completed measures of indirect exposure to trauma (*i.e.*, diversity, volume, frequency, ratio), appraisal of secondary exposure impact, direct exposure to trauma, STS, and work characteristics. The prevalence of STS was 19.2%. Personal history of trauma, complaints about having too many patients, and more negative appraisals of the impact caused by an indirect exposure to trauma were associated with higher frequency of STS symptoms. A meta-analysis showed that the severity of intrusion, avoidance, and arousal symptoms of STS was similar across various groups of professionals indirectly exposed to trauma (*e.g.*, mental health providers, rescue workers, social workers).

**Key Words:** Secondary traumatic stress, indirect exposure to trauma, mental health providers, military trauma.

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The rates of posttraumatic stress disorder (PTSD) among the US military and veterans across studies range from a current prevalence of 2% to 17% to a lifetime prevalence of 6% to 31% (Richardson et al., 2010). These rates are higher than in the general US population, in which the current prevalence is 3.5% (Kessler et al., 2005) and the lifetime prevalence is 6.8% (Kessler et al., 2005). The numbers of military or veteran patients seeking mental health care have grown drastically in recent years. The Department of Veterans Affairs (VA) alone has observed a 200% increase in the number of patients with PTSD receiving behavioral health services, from 139,062 in 1997 to 279,256 in 2005 (Rosenheck and Fontana, 2007). With a growing need for treatment, the VA alone added 4,330 mental health professionals to its workforce (Voss Horrell et al., 2011). These statistics show that the population affected indirectly by trauma, through providing services for traumatized patients, is growing rapidly. Given the exponential increase in clinical need and potential for secondary exposure by military mental health providers, the

purposes of this investigation were threefold: a) to explore the prevalence of secondary traumatic stress (STS) among mental health providers working with military patients and to compare the severity of STS symptoms in this population with other mental health providers; b) to test the relationship between indirect exposure to trauma and STS; and c) to investigate the possible correlates of STS. These aims were achieved through a two-study approach, with study 1 focusing on the prevalence and correlates of STS and study 2 conducting a meta-analysis to compare our sample prevalence with other indirectly exposed samples.

### Psychosocial Effects of Indirect Trauma Exposure Across Occupational Groups

Whereas most studies examining the effects of PTSD have focused on trauma survivors or victims, information about the effect on providers delivering trauma treatment is more limited. Indirect (also called vicarious or secondary) exposure to trauma through work with traumatized patients might have a positive effect on providers' posttraumatic growth (Brockhouse et al., 2011), but it is also predictive of higher distress (Pearlman and Mac Ian, 1995), increased negative cognitions (*e.g.*, low level of self-trust; Pearlman and Mac Ian, 1995), and higher job burnout (Ballenger-Browning et al., 2011).

Most studies investigating the negative effects of indirect trauma exposure on mental health providers have focused on a set of conceptually overlapping outcomes. These include vicarious traumatization (McCann and Pearlman, 1990), compassion fatigue (Figley, 2002), and STS (Bride et al., 2004). The ongoing discussion about the similarities and the differences between these concepts (Jenkins and Baird, 2002) shows that their definitions share one or more of the following components: indirect exposure to a traumatic material, PTSD symptoms, and negative shifts in therapists' cognitive schema. STS is usually associated with therapists' PTSD-like reactions, such as intrusive re-experiencing of the traumatic material, avoidance of trauma triggers and emotions, and increased arousal, all resulting from indirect exposure to clients' trauma (Bride et al., 2004). *Compassion fatigue* is defined as reduced empathic capacity or client interest manifested through behavioral and emotional reactions from exposure to traumatizing experiences of others (Adams et al., 2006). Finally, *vicarious trauma* is the negative cognitive shift in therapists' worldview (McCann and Pearlman, 1990).

The incongruities in these definitions have led to some research discrepancies on the consequences of indirect trauma exposure and have also hindered cross-sample comparisons. This study used the term *secondary traumatic stress* to measure the indirect exposure to clients' trauma material that leads to the providers' PTSD-like symptoms of re-experiencing, avoiding, and hyperarousal, corresponding with criteria B, C, and D, respectively, of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association [APA], 2000)*.

Prevalence of STS differs across studies and occupation groups. For example, when measured with the Secondary Traumatic

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Stress Scale (STSS; Bride et al., 2004), *DSM-IV-TR* (APA, 2000) criteria B, C, and D for a PTSD-like diagnosis of STS were met by 15.2% of social workers (Bride, 2007), 16.3% of oncology staff (Quinal et al., 2009), 19% of substance abuse counselors (Bride et al., 2009), 20.8% of providers treating family or sexual violence (Choi, 2011a), 32.8% of emergency nurses (Dominguez-Gomez and Rutledge, 2009), 34% of child protective services workers (Bride et al., 2007), and 39% of juvenile justice education workers (Smith Hatcher et al., 2011). There is no estimation of the prevalence of STS among mental health specialists providing treatment for military and veteran patients. In addition, we were unable to identify any research on severity of the intrusion, avoidance, and arousal symptoms in this specific group of providers. Therefore, the present study aimed at identifying STS prevalence and symptom severity among mental health providers working with military patients.

Using a meta-analytic approach, we aimed to compare the severity of the STS symptoms identified in the present study sample with the severity of these symptoms among other populations offering services to traumatized clients. Because the discrepancies between studies testing the prevalence of STS may result from applying different assessment methods, prevalence meta-analysis should compare data collected with the same measure (e.g., the STSS; Bride et al., 2004).

### The Complexity of Indirect Exposure to Trauma

The next aim of this study was to investigate the basic assumption that indirect exposure to traumatic events is a critical factor in the development of STS symptoms. Whereas measuring direct exposure to trauma is a standard approach in studies on PTSD, many studies on STS focus more on the PTSD-like symptoms, reflecting *DSM-IV-TR* criteria B, C, and D for a PTSD diagnosis (APA, 2000), and pay less attention to the indirect exposure (criterion A1) hypothetically causing these symptoms. Moreover, even if a measure of indirect exposure is used in a study, it is often analyzed as a dichotomous or one-dimensional variable, usually referring to duration of work with traumatized patients (Devilly et al., 2009; Galek et al., 2011).

Assuming that exposure to trauma patients is a one-dimensional construct may partially explain the inconsistencies in research on the associations between indirect trauma exposure and STS (Sabin-Farrell and Turpin, 2003). To clarify which aspects of the exposure may be relevant for STS, we accounted for four indices of indirect trauma exposure in mental health providers: diversity, volume, frequency, and ratio. Diversity reflected the variety of indirect trauma exposure and allows for determining whether a provider treats patients for PTSD caused by one type of traumatic event (e.g., natural disaster) or whether a provider offers services for patients with PTSD caused by multiple types of traumatic events (e.g., a combat-related experience, transportation accident). Volume referred to the number of patients treated for exposure to a traumatic event. Frequency indicated how often a provider was exposed to a patient's traumatic material. Ratio indicated the percentage of traumatized patients in the provider's case load. Further, because the mental health providers in this study provided their services to military and veteran patients, the ratio of patients with trauma caused by a military combat experience was also considered.

### Psychosocial and Work-Related Correlates

In addition to the indirect exposure to trauma, organizational and individual factors may affect professionals working with traumatized military patients (Voss Horrell et al., 2012). For example, a provider's own direct exposure to traumatic events may contribute to STS symptoms (cf. Devilly et al., 2009). Thus, one's personal trauma history should be accounted for when testing for the relationship between indirect exposure and STS. Recent research indicated, however, that the results of studies testing the relationship between personal history of trauma and STS were inconclusive (Elwood et al., 2011). The discrepancies in the results may, to some

degree, depend on the type of the direct trauma exposure measured. For example, lifetime personal history of trauma, but not past-year trauma exposure, was positively correlated with STS in child protective services workers (Bride et al., 2007).

Theories of PTSD emphasize the importance of cognitive appraisals as contributors to the etiology and maintenance of PTSD (Dalgleish, 2004; Ehlers and Clark, 2000). In particular, negative appraisals about the nature and meaning of the event (e.g., whether it offers threat or safety), about the self (e.g., reactions to the event and subsequent trauma symptoms), and about the world (e.g., other people's reaction to the event) are all said to contribute to the development of posttraumatic distress (Ehlers and Clark, 2000). Other types of cognitive appraisals may involve evaluations of the importance or impact of the stress exposure on subsequent functioning. Indeed, theories of stress assume this type of cognitive appraisal as a key component of stress and adaptation processes predictive of stress consequences (Lazarus and Folkman, 1984). Further, the individual's appraisal of the impact of the exposure is related to the *DSM-IV-TR* (APA, 2000) criterion F for the PTSD diagnosis regarding the significance of functional impairment. Therefore, the present study investigated the relationship between the mental health providers' appraisal of the impact of the indirect exposure and STS symptoms.

In addition to the indirect exposure, appraisal of its impact, and direct exposure to trauma, some work characteristics may also predict STS in mental health providers. Theories explaining distress among workers highlighted that work-related demands and work-related support have predicted employees' well-being (Cieslak et al., 2007; Van der Doef and Maes, 1999). In line with this assumption, work-related characteristics were found to predict STS symptoms, and their effect was stronger than the effect of the indirect exposure (Devilly et al., 2009).

One work-related characteristic specific to mental health providers is the type of psychotherapy provided, such as prolonged exposure (PE). One might consider this to be a risk factor for therapists, yet any assumptions should be made with caution because providing exposure therapy for trauma patients was not found to be related to STS, whereas clinicians who advocate exposure therapy but do not provide it for patients were found to present strong STS symptoms (Deighton et al., 2007).

Professional social support is often identified as a protective factor for the development of STS. The results, however, are ambiguous, even for studies using the same measure of STS. For example, investigators of Internet child pornography who indicated high social support from family and friends reported low STS, but strong reliance on co-workers was correlated with high STS (Perez et al., 2010). High work-related social support was found to predict a low level of avoidance symptoms but was unrelated to intrusion and arousal symptoms of STS (Argentero and Setti, 2011). In addition, some aspects of organizational support (e.g., informational support) seem to be an important protective factor for development of STS symptoms (Choi, 2011b). There is also evidence for reducing STS symptoms through professional support received in clinical supervision (Creamer and Liddle, 2005). This evidence shows that professional supervision may constitute a protective factor for development of STS. Collectively, the research is equivocal on the positive and negative effects of professional support for mental health providers.

### STUDY 1: PREVALENCE AND CORRELATES OF STS

The purposes of this study were twofold: a) to test the relationship between indirect exposure to trauma (measured with a multidimensional assessment of the exposure, including diversity, volume, frequency, and ratio) and STS and b) to investigate the possible correlates of STS: personal history of trauma, providers'

appraisal of the impact of secondary exposure, work characteristics, and professional support.

**Methods**

**Participants and Procedure**

This study was part of the ongoing SupportNet Project designed to evaluate indirect exposure to trauma; work-related demands and resources; and their impact on job burnout, work engagement, and STS in military mental health providers. Data were collected by means of an online survey. An e-mail with information about the SupportNet study and a link to the survey was sent to on-post and off-post behavioral health providers working with military patients. The off-post providers (*i.e.*, located in the civilian community) received an invitation to this study through an online newsletter sent by TriWest Healthcare Alliance, an organization that manages health benefits for military patients and their families. The on-post providers (*i.e.*, working within military installations) were contacted by e-mail sent by the director of the Department of Behavioral Health at Evans Army Community Hospital at Fort Carson, CO, and by the psychology consultant to the US Army Surgeon General.

Of 339 participants who initially consented to this study, 224 (66%) met the inclusion criteria (*i.e.*, working at least 1 year as a clinical psychologist, counselor, or social worker; providing services for a military population; and being indirectly exposed to trauma through work with patients) and completed the survey. The mean age was 48.92 (SD, 13.04) years, and the mean length of work experience was 16.40 (SD, 10.42) years. Demographic and work characteristics of the sample are presented in Table 1. The participants were predominantly women (67%); with doctorate (54%) or master's degrees (46%); and working full time (78%) or part time (22%) as clinical psychologists (45%), counselors (31%), or social workers (23%). Slightly more than half of the sample was serving as on-post (57%); and the rest, as off-post (43%) behavioral health providers. The sample was almost equally split between those who did and those who did not have any military experience (44% and 56%, respectively). One fifth of the sample (19%) had deployed to a combat zone at least once. They reported using a mixture of different therapeutic approaches, with most reporting cognitive behavioral therapy (CBT, 90%), followed by cognitive processing therapy (CPT, 42%), PE (30%), and eye movement desensitization and reprocessing (EMDR, 29%).

**Measures**

The online questionnaire consisted of several instruments.

**Indirect exposure to trauma**

The Secondary Trauma Exposure Scale (STES) was developed for the purpose of this study to measure mental health providers' indirect exposure to traumatic events. Similar to the brief instruments designed for screening direct exposure to trauma (Norris, 1990), the STES consists of the list of potentially traumatic events. In the STES, however, participants are not instructed to indicate the traumatic events they personally experienced but to check the events (answers yes or no) they were exposed to through their work with patients. The list of 10 events included natural disasters, transportation accidents, other serious accidents, physical assaults, sexual assaults, other life-threatening crimes, military combat or exposure to a war zone, life-threatening illness or injury, sudden death of someone close, and a global category of "other."

The STES measures four aspects of indirect exposure: diversity, volume, frequency, and ratio. The diversity index is calculated by counting how many types of traumatic events were checked on the list (range, 0–10). Volume and frequency of an indirect exposure were measured with two separate questions also referring to the list: "During

your professional career, how many of your patients experienced at least one of the above events?" (the response scale "none, 1 or 2, 10 or less, 50 or less, 100 or less, a few hundred, and a few thousand" was coded as 0, 2, 10, 50, 100, 500, and 1000, respectively) and "During your entire professional career, how frequently have you worked with patients who experienced at least one of the above events?" (scale, 1–7: never, a few days in a year; 1 day a month, a few days a month, 1 day a week, a few days a week, and every day), respectively. The ratio of indirect exposure was assessed with two questions estimating the percentage of the providers' clients who were traumatized.

**Appraisal of the impact of indirect exposure**

The appraisal of the impact of being exposed to the history and details of patients' traumatic events was assessed with 10 items. The participants were asked to assess how hearing about each checked event in the STES affected them. The responses are given on a scale from 1 to 7 (from "very negative" through "neutral" to "very positive"). The item mean score was calculated as the index of appraisal. The Cronbach's  $\alpha$  was 0.92.

**Direct exposure to trauma**

To control for the providers' direct exposure to trauma, we asked a question referring to the list of 10 potentially traumatic events

**TABLE 1.** Demographic and Work Characteristics of the Behavioral Health Providers Participating in the SupportNet Study

Characteristic	n	%
Sex		
Male	75	33
Female	149	67
Relationship status		
Long-term committed relationship	169	75
Not in a relationship	50	22
Profession		
Clinical psychologist	102	45
Counselors or psychotherapists	70	31
Social workers	52	23
Education		
Master's degree	103	46
Doctorate or professional degree	120	54
Employment		
Part time	49	22
Full time	175	78
Military experience		
No military service	125	56
Active or former military	98	44
Deployment	43	19
Therapy		
CBT	201	90
CPT	95	42
PE	68	30
EMDR	64	29
Work setting		
On-post providers	127	57
Off-post providers	97	43

*N* = 224 for the total sample. Frequencies may not add up to 224 because of missing data. Percentages may not sum up to 100% because of missing data or rounding off.

**TABLE 2.** Descriptive Statistics for the Demographic, Work-Related, and Exposure-Related Characteristics

Variables	Mean	SD	Range	
			Actual	Potential
Age	48.92	13.04	28–80	—
Years of work experience	16.40	10.42	1–45	—
Work characteristics and professional support				
Too much paper work	2.79	1.31	1–5	1–5
Too many patients	2.01	1.23	1–5	1–5
No. hours of individual clinical supervision or consultation per month	2.51	3.90	0–28	—
No. hours of group clinical supervision or consultation per month	2.17	3.25	0–20	—
Frequency of peer supervision	4.32	1.49	1–7	1–7
Direct exposure	3.24	1.84	1–9	0–10
Indirect exposure to trauma				
Diversity of exposure	7.41	2.18	1–10	0–10
Volume	423.89	295.49	2–1000	0–1000
Frequency	6.17	0.96	3–7	1–7
Ratio: percentage of traumatized patients	63.32	25.25	2–100	0–100
Ratio: percentage of patients describing a graphic military combat experience	32.02	28.54	0–100	0–100
Appraisal of indirect trauma exposure	3.34	0.77	1–6	1–7
STS	31.91	10.65	17–66	17–85

Response rates for indices of volume, frequency, and frequency of peer supervision are provided in the *Work and Exposure Characteristics* section (see *Results* for study 1).

included in the STES: “How many of the types of traumatic events listed above have you personally experienced?” (scale from 0 to 10).

#### Secondary traumatic stress

Symptoms of secondary trauma were measured with the STSS (Bride et al., 2004). This 17-item, self-report instrument evaluated the frequency of intrusion, avoidance, and arousal symptoms resulting from an indirect exposure to trauma at work. The list of symptoms corresponds to the B, C, and D diagnostic criteria for PTSD specified in the *DSM-IV-TR* (APA, 2000). The responses were given on a scale from 1 to 5 (from “never” to “very often”). The participants indicated how often each of the symptoms was experienced in the last month. Scores were obtained by summing the items. Good psychometric properties of this instrument have been demonstrated in many studies (Bride, 2007; Bride et al., 2004). The reliability in our study was  $\alpha = 0.79$  for intrusion,  $\alpha = 0.87$  for avoidance,  $\alpha = 0.84$  for arousal symptoms, and  $\alpha = 0.93$  for the total score.

#### Work characteristics and professional support

Several survey questions were designed to gain knowledge about work content, work-related demands, and resources. We asked about the primary occupational role (clinical psychologist, counselor, psychotherapist, or social worker), therapeutic approaches used in work with clients (CBT, CPT, PE, or EMDR), employment status (part time or full time), years of work experience as a mental health provider, the exact number of hours of individual and group supervision received monthly, and frequency of professional peer support (scale, 1–7: never, a few days in a year, 1 day a month, a few days a month, 1 day a week, a few days a week, and every day). We also assessed the participants’ perception of their workload in the last month by asking how frequently they were constrained by a) having too much paper work and b) having too many patients (scale, 1–5: less than once per month or never, once or twice per month, once or twice per week, once or twice per day, and several times per day).

#### Demographic information

Sociodemographic information was collected: sex, age, highest level of education, relationship status, military status, and deployment to a combat zone.

## Results

### Work and Exposure Characteristics

Table 2 presents means, standard deviations, and actual and potential ranges for the main variables of this study. The participants were receiving a mean of 2.51 hours of individual clinical supervision and 2.17 hours of group clinical supervision per month. They were receiving peer support by discussing the patients with colleagues for a few days a month (mean percentage of response categories: never, 1%; a few days in a year, 13%; 1 day a month, 16%; a few days a month, 27%; 1 day a week, 15%; a few days a week, 23%; and every day, 5%). The respondents also indicated that they were, on average, constrained by having too many patients (*i.e.*, once or twice per month) and, more frequently, by having too much paper work (*i.e.*, once or twice per week). All the providers reported at least one personally experienced traumatic event, with a mean number of approximately 3 (SD, 1.84). A similar number of personally experienced traumatic events were reported among military medical personnel (Maguen et al., 2009).

**TABLE 3.** Frequency and Percentage of the Behavioral Health Providers Meeting the Diagnostic Criteria for STS Due to an Indirect Trauma Exposure through a Practice with Traumatized Military Patients

Criteria	n	%
No criteria met	76	33.9
Criterion B: intrusion	129	57.6
Criterion C: avoidance	67	29.9
Criterion D: arousal	79	35.3
Criteria B and C	53	23.7
Criteria B and D	66	29.5
Criteria C and D	51	22.8
Criteria B, C, and D	43	19.2

**TABLE 4.** Comparing Intensity of Intrusion, Avoidance, Arousal, and Total Score of the STSS in the SupportNet Study With Results Obtained in Other Studies

Study	Participants (n)	Intrusion, Mean (SD)	Avoidance, Mean (SD)	Arousal, Mean (SD)	Total score, Mean (SD)
SupportNet study	Behavioral health providers working with military trauma (224)	8.91 (2.96)	13.33 (5.06)	9.68 (3.63)	31.91 (10.65)
Bride (2007)	Social workers (276)	8.18 (3.04)	12.58 (5.00)	8.93 (3.56)	29.69 (10.74)
Bride et al. (2007)	Child protective services workers (187)	10.97 (4.07)	15.64 (5.98)	11.58 (4.22)	38.20 (13.38)
Bride et al. (2009)	Substance abuse counselors (225)	8.83 (3.28)	13.14 (5.54)	9.27 (4.10)	31.20 (12.30)
Choi (2011a)	Providers for survivors of family or sexual violence (154)	9.10 (2.90)	13.40 (5.00)	9.5 (3.5)	32.07 (10.39)
Smith Hatcher et al. (2011)	Juvenile justice education workers (89)	10.64 (3.19)	15.73 (4.90)	11.37 (3.79)	37.74 (10.74)

In terms of secondary exposure, the providers indicated that, on average, during the course of their professional career, they treated seven different types of trauma (cf. diversity), worked with a few hundred traumatized patients (percentage of response categories for volume: none, 0%; 1 or 2, 1%; 10 or less, 2%; 50 or less, 12%; 100 or less, 18%; a few hundred, 54%; a few thousand, 13%), and treated traumatized patients for a few days a week (percentage of response categories for frequency: never, 0%; a few days in a year, 0%; 1 day a month, 2%; a few days a month, 6%; 1 day a week, 10%; a few days a week, 38%; every day, 44%). The providers declared that, in their professional career, approximately 63% of the patients were traumatized (cf. ratio) and 32% experienced military-related traumas. The appraisal of the impact of this indirect trauma exposure on the providers was negative (3.34 on a scale from 1 to 7, with 3 meaning “somewhat negative”).

### Prevalence of STS

Table 3 presents how many behavioral health providers met the diagnostic criteria for STS. The algorithm proposed by Bride (2007) follows *DSM-IV-TR* recommendations for a diagnosis of PTSD (APA, 2000) and includes criteria B (intrusion or re-experiencing), C (avoidance), and D (arousal) and their combinations. Criterion A (an indirect or direct exposure to trauma) was met by all participants as part of the inclusion criteria for this study. According to the algorithm, symptoms of STS included in the STSS are endorsed if the given corresponding item is scored 3 or higher on a scale from 1 to 5. At least one symptom must be endorsed to meet criterion B, three for criterion C, and two for criterion D.

Table 3 shows that despite being indirectly exposed to the traumatic history of patients, 33.9% of the participants did not meet any of the B, C, or D criteria for PTSD. However, 19.2% of the providers met all three core criteria for PTSD. The three occupational groups (counselors or psychotherapists, social workers, and clinical psychologists) did not differ in terms of meeting all three diagnostic criteria  $\chi^2(2, N = 224) = 1.48, p = 0.478$ , or in terms of the mean total STS scores,  $F(2,221) = 0.79, p = 0.455, \eta^2 = 0.007$ . Different combinations of two of the criteria were found in 22.8% to 29.5% of the study population. The criterion met most frequently was intrusion (57.6%), followed by arousal (35.3%) and avoidance (29.9%). Table 4 presents descriptive statistics for intensity of intrusion, avoidance, and arousal symptoms and for a total score on the STSS.

### Correlates of STS

Further statistical analyses explored whether the participants' demographic, exposure-related, and work-related characteristics were related to STS. In the case of the categorical variables, a series of one-way analyses of variance were used to test for STS differences

across sex, relationship status, profession, education levels, employment, military status, deployment, different types of therapeutic approaches used in work with patients (CBT, CPT, PE, or EMDR), and type of work setting (on-post versus off-post providers). Descriptive statistics for these variables are presented in Table 1. None of these characteristics had a significant effect on intensity of STS (all  $F$ 's < 1.60 and  $p$ 's > 0.207).

Correlational analysis (Pearson's  $r$ ) conducted for continuous variables showed that several work- and exposure-related factors were associated with STS. As shown in Table 5, only one of five indices of indirect trauma exposure, the ratio of traumatized clients in one's professional career, was correlated with STS. The providers' personal history of trauma, being constrained by having too many patients, and too much paper work were also positively associated with STS. Finally, the providers' appraisal of impact of indirect exposure to trauma was negatively correlated with STS (*i.e.*, more negative appraisal correlated with higher level of symptoms).

In addition, a regression analysis was conducted with five significant correlates of STS entered as predictors of the STS symptoms. The regression equation was significant,  $F(5,218) = 16.14, p < 0.001, R^2 = 0.27$ . Multicollinearity was not a problem in these data ( $VIF \leq 1.33$ ). Overall, the predictors explained 27% of STS variance. Having too many patients ( $\beta = 0.27, p < 0.001$ ), higher levels of direct exposure to trauma ( $\beta = 0.17, p = 0.004$ ), and more negative appraisal of impact of indirect exposure ( $\beta = 0.33, p < 0.001$ ) predicted higher frequency of STS symptoms. The effects of amount of paper work ( $\beta = 0.04$ ) and the ratio of traumatized clients in one's professional career ( $\beta = 0.05$ ) were negligible. Study 2 followed up these findings to compare our prevalence ratings with other samples.

### STUDY 2: META-ANALYSIS

Several studies have evaluated the frequencies of STS across groups of behavioral health professionals. These studies relied on similar methods but reached different conclusions in terms of STS symptoms. One possible way to integrate the existing evidence would be to conduct a systematic review or meta-analysis, which collates all empirical evidence using the systematic procedure of search, extraction, and evaluation of studies to minimize researchers' biases. Compared with systematic review, meta-analysis accounts for the fact that analyzed studies may differ in terms of statistical power. In addition, meta-analysis allows for statistical estimation of the mean level of symptoms across the samples (weighted mean). It also allows for calculation of the confidence intervals (CIs), which, with the assumed probability level (usually 95%), indicate intervals within which the mean level of symptoms for the population should be included. These reference points might be very useful for diagnostic

TABLE 5. Correlations Between Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	—													
2. Work experience	0.77***	—												
3. Too much paper work	0.03	0.05	—											
4. Too many patients	-0.19**	-0.12	0.49***	—										
5. Hours of individual clinical supervision or consultation per month	-0.34***	-0.35***	0.07	0.07	—									
6. Hours of group clinical supervision or consultation per month	-0.28***	-0.31***	0.12	0.11	0.51***	—								
7. Frequency of peer supervision	-0.25***	-0.13	0.05	0.09	0.31***	0.32***	—							
8. Direct exposure	0.17*	0.12	0.16*	0.09	-0.02	0.06	0.01	—						
9. Indirect exposure: diversity	0.09	0.09	-0.03	-0.08	-0.07	0.03	0.08	0.15*	—					
10. Indirect exposure: volume	0.10	0.20**	0.15*	0.14*	-0.08	-0.11	0.15*	0.15*	0.26***	—				
11. Indirect exposure: frequency	-0.06	-0.01	0.06	0.15*	0.11	-0.01	0.32***	0.07	0.15*	0.40***	—			
12. Indirect exposure: ratio: percentage of traumatized patients	0.04	-0.01	0.05	0.08	0.04	0.04	0.09	0.15*	0.14*	0.27***	0.40***	—		
13. Indirect exposure: ratio: percentage of patients describing a graphic military combat experience	-0.29***	-0.17*	0.02	0.27***	0.12	-0.09	0.19**	0.05	-0.10	0.17*	0.23***	0.30***	—	
14. Appraisal of indirect trauma exposure	-0.10	-0.04	-0.09	-0.12	0.08	-0.06	0.15*	-0.01	0.17**	0.20**	0.08	-0.11	-0.10	—
15. STS	0.00	0.02	0.23***	0.35***	0.06	0.09	-0.01	0.21***	-0.01	0.06	-0.08	0.14*	0.13	-0.37***

\**p* < 0.05.  
 \*\**p* < 0.01.  
 \*\*\**p* < 0.001.

**TABLE 6.** Meta-analysis Results for Severity of STS Symptoms

STS	K	Mean	Heterogeneity		95% CI for Mean		Z
			Q	I <sup>2</sup> %	Lower Level	Upper Level	
Intrusion	6	9.41	87.84***	94.31	8.63	10.19	23.58***
Avoidance	6	13.93	52.50***	90.48	12.94	14.92	27.49***
Arousal	6	10.03	70.02***	92.86	9.20	10.86	23.76***
Total score	6	32.91	132.98***	96.24	29.51	36.31	18.96***

N = 1155. significant Q values indicate that variation in means across studies is due to heterogeneity of the studies rather than chance; I<sup>2</sup>% indicates the percentage of the total variability in the analyzed studies due to true heterogeneity (i.e., due to between-study variability); a low level of this index would indicate variability due to sampling error; significant Z values indicate that the estimated mean values are different from zero.

k indicates number of studies; mean, weighted mean value.

\*\*\*p < 0.001.

purposes. The aim of study 2 was to compare the mean level of STS in the investigated population with the mean levels of STS in other populations.

## Methods

Descriptive statistics found for behavioral health providers working with the military were compared with statistics obtained from previous studies in which STS was measured with the STSS. Articles cited in Table 4 were identified through searches of databases (PsychINFO, PILOT, MEDLINE, and ScienceDirect) for peer-reviewed articles published in English through April 2012. The only key word used for identification of research was the name of the scale: *Secondary Traumatic Stress Scale*. A number of criteria had to be met to be included in the meta-analytic review. Participants had to be indirectly exposed to trauma through their work. In addition, the article must include information about sample size, mean values, and standard deviations for each subscale of the STSS and for the total score.

Of the 27 articles identified and reviewed, 5 met the inclusion criteria. Most studies were excluded because, although these provided a total score for the STSS, these did not provide appropriate descriptive statistics for the intrusion, avoidance, and arousal criteria. The sample size for the individual studies included in the meta-analysis ranged from 89 to 276, and a total of 1155 participants were included in the meta-analysis.

## Results

Table 6 displays the results of the meta-analysis. Significant results of heterogeneity test (Cochran's Q) indicated that variation in mean values across the studies is due to heterogeneity rather than chance; therefore, the random-effect meta-analysis method was applied. Most of the variability across the samples was due to between-studies variability (I<sup>2</sup> > 90%) and not due to sampling errors. Across the samples, the 95% CI for the mean values of the STSS would be 8.53 to 10.51 for intrusion, 12.82 to 15.31 for avoidance, 9.06 to 11.15 for arousal, and 28.81 to 37.45 for total STSS score.

The mean values for intrusion, avoidance, arousal, and total score from the SupportNet study were contained in a range of respective CIs calculated in the meta-analysis. This indicates that the severity of STS symptoms in the SupportNet sample is similar to the severity of these symptoms in other investigated populations. This conclusion remains valid even if the results of the current study are excluded from the meta-analysis.

## DISCUSSION

A logical extension of the psychological strain endured by military members who have completed deployments to Iraq and Afghanistan is the presence of STS symptoms in those who care for

them. Previous research targeting clinicians working with civilian population showed that among those who were indirectly exposed to traumatic material through work, a sizeable percentage (15%–39%) experienced STS (Bride, 2007; Bride et al., 2007, 2009; Choi, 2011a; Dominguez-Gomez and Rutledge, 2009; Smith Hatcher et al., 2011; Quinal et al., 2009). The present study documents the level of STS in military behavioral health providers. A limited impact of indirect exposure to trauma at work on developing STS symptoms was found in approximately a third of military behavioral health providers, whereas one in five reported meeting all criteria of PTSD because of indirect exposure to trauma. Compared with rates of current PTSD among veterans (2%–17%; Richardson et al., 2010) or the general population (3.5%; Kessler et al., 2005) the prevalence observed in the present study is high. It may be assumed that the performance of different tasks (including those work related) may be affected by PTSD symptoms (cf. Wald and Taylor, 2009). Because symptoms of STS seem to be a common problem, military behavioral health providers may need easy access to effective psychosocial interventions (for overview, see Stergiopoulos et al., 2011), targeting the reduction of STS symptoms and therefore improving their work outcomes.

The meta-analytic results demonstrate similar rates of STS symptoms in the sample of military behavioral health providers and among other high-risk professions such as emergency and rescue workers, substance abuse counselors, and agency-based social workers (Argentero and Setti, 2011; Bride, 2007; Bride et al., 2009). The results of our meta-analysis, indicating similar levels of STS symptoms across the studies, support the validity of our findings and allow for cautious generalizations. A lack of differences across workers exposed to secondary trauma and providing services to various types of clients may indicate that the type of performed work (e.g., social work, education, or counseling; working with traumatized families, offenders, military) may play a negligible role in explaining STS symptoms. On the other hand, although levels of STS are similar, its symptoms may be explained by different predictors across populations.

Our findings shed light on exposure-related work characteristics that may contribute to the development of STS. Across the indices of exposure, only the ratio of traumatized clients in one's professional career was associated with STS among the providers working with military patients. So far, research indicated that the percentage of traumatized clients may be a prevalent stressor among professionals working with traumatized clients (Bride et al., 2009). Voss Horrell et al. (2011) suggested that secondary exposure characteristics, such as years of experience in trauma treatment, total hours per week spent working with trauma patients, and caseload balance, may have a potential to affect clinicians working with veterans of Iraqi and Afghanistan operations. These suggestions,

however, were based on a review of scarce research conducted among providers serving civilian populations. The results of our study suggest that the multidimensional structure of secondary exposure at work should be taken into account when predicting STS.

Perhaps the most important correlate to consider refers to perceptions of the negative impact of trauma-related work. The importance of cognitive appraisals of significant environmental stressors (*i.e.*, trauma clinical work) is consistent with the general theories of stress and well-being (Lazarus and Folkman, 1984). Research conducted among workers providing services to civilian population and exposed to secondary trauma indicated that associations between stress appraisal and well-being may be particularly relevant among those with lower personal resources, such as self-efficacy (Prati et al., 2010). Future research should look for individual and organizational resources protecting behavioral health providers who perceive high negative impact of work on their own mental health.

As previously noted, job-related demands (*e.g.*, workload, organizational constraints) and resources (*e.g.*, support from peers or superiors) predict employees' well-being (Cieslak et al., 2007; Van der Doef and Maes, 1999). The present study indicated that a higher number of patients and more administrative paper work constitute important work-related demands, associated with higher levels of STS. Voss Horrell et al. (2011) listed case load size and a lack of availability of support as the potentially critical job-related demands influencing well-being of providers working with traumatized veterans of military operations in Iraq and Afghanistan. Our findings are in line with results reported by Devilly et al. (2009), in which job stress levels were found to be particularly important in predicting STS.

Work-related resources such as social support and peer supervision were unrelated to STS levels. This finding is in contrast to other research, suggesting that more support from colleagues and supervisory support were related to lower STS among workers providing services to civilians (Argentero and Setti, 2011; Choi, 2011b; Creamer and Liddle, 2005). Voss Horrell et al. (2011) also listed peer supervision among potential protective factors, relevant for the mental health of providers working with traumatized veterans of operations in Iraq and Afghanistan. Again, this suggestion was made on the basis of research conducted among providers working with civilian populations. One explanation for the discrepancies between the findings might be the unique nature of the chain of command in the supervision of military clinicians. Work stress research highlighted the role of support of managers/superiors in predicting employees' mental health (*cf.* Cieslak et al., 2007). Clearly, the role of work-related support from different sources (supervisors, co-workers, and managers) in predicting STS requires further research.

We found that the greater the number of direct exposure to trauma is, the higher the reported level of STS is. This observation is consistent with previous research, conducted among providers working with civilian clients (Pearlman and Mac Ian, 1995), and in line with the hypothesized determinants of mental health of providers working with military populations (Voss Horrell et al., 2011). What remains unclear is how personal trauma history interrelates with work-based demands, indirect exposure, and resources to influence STS. Future research should investigate whether particular types of trauma, such as childhood abuse (*cf.* Marcus and Dubi, 2006), may play a particularly salient role and moderate the impact of work-related secondary exposure.

Our study has several limitations. A cross-sectional design and convenience sampling do not allow for any causal conclusions. The measure used to capture direct personal exposure was developed for this study, and therefore, it has not been previously validated. Although applying assessment methods such as the Clinician-Administered PTSD Scale could be superior, an individual clinical assessment was not feasible for the present study. It should be noted that previous research that measured direct exposure and STS applied even more

limited assessment methods such as "Do you have a trauma history?" (Pearlman and Mac Ian, 1995). Future research should use a standardized clinical interview approach to secure a more accurate assessment of trauma exposure. The present study focused on one negative effect of indirect trauma exposure (*i.e.*, STS as a set of PTSD-like symptoms), whereas other possible consequences or conceptualizations (*e.g.*, compassion fatigue or vicarious traumatization) were not analyzed. Consequently, the findings are limited to STS. Further longitudinal studies targeting representative samples of mental health providers serving military men and women are required.

## CONCLUSIONS AND FUTURE DIRECTIONS

Previous research targeting behavioral health providers working with military patients has been limited (*cf.* Peterson et al., 2009). Hypothesized risk and resource factors affecting the well-being of behavioral health providers working with the military were based on findings predominantly referring to civilian providers working with civilian clients (Voss Horrell et al., 2011). Our study is among the first showing empirical evidence for high prevalence of STS (19.2%) among providers working with the military. The results of the meta-analysis contribute to the literature showing that the rates of STS prevalence are similar across samples of workers performing different types of duties, in various populations of clients. Further, the present research highlights the need for multidimensional evaluation of secondary exposure, with only one dimension (ratio, *i.e.*, high percentage of traumatized clients in one's professional career) emerging as a significant correlate of STS. In line with research conducted among workers providing services to traumatized civilians, we found that personal history of trauma and constraints related to patient load are associated with STS levels.

Further theory-based research is needed to evaluate the role of risk and protective factors related to psychological resiliency factors (Maugen et al., 2008) such as self-efficacy (Prati et al., 2010) or support from superiors (Cieslak et al., 2007) in predicting STS. There is a lack of studies investigating how STS interfaces with other critical negative (*e.g.*, burnout) and positive (*e.g.*, posttraumatic growth) outcomes. Such studies will provide a critical insight into the mechanisms responsible for the onset and the maintenance of mental health problems and thus inform the development of theory- and evidence-based supportive interventions, needed for military behavioral health providers.

## DISCLOSURES

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