Secondary Traumatic Stress Among Mental Health Providers Working With the Military

Prevalence and Its Work- and Exposure-Related Correlates

Roman Cieslak, PhD,† Valerie Anderson, PsyD,* Judith Bock, PsyD,* Bret A. Moore, PsyD,‡ Alan L. Peterson, PhD,§ and Charles C. Benight, PhD*

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 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). Secondary traumatic stress is a conceptually overlapping outcome that includes vicarious or secondary trauma, compassion fatigue, and posttraumatic growth (Brockhouse et al., 2011). 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).
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’ 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 professionals working 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 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 (Dalglish, 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 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 Doel 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. 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, 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.
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 working 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 process-behavioral 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 α 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 as follows: “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.

| 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.
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 α = 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: too much paper work and 1–5: too many patients). 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).

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

| Variables                                      | Mean | SD   | 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                              |      |      |        |           |
| 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).
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)          |

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 (intronuption 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 7, with 3 meaning “somewhat negative”).

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 to 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 in a month, 2%; 1 day 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”).

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, R² = 0.27. Multicollinearity was not a problem in these data (VIF ≤ 1.33). Overall, the predictors explained 27% of STS variance. Having too many patients (β = 0.27, p < 0.001), higher levels of direct exposure to trauma (β = 0.17, p = 0.004), and more negative appraisal of impact of indirect exposure (β = 0.33, p < 0.001) predicted higher frequency of STS symptoms. The effects of amount of paper work (β = 0.04) and the ratio of traumatized clients in one’s professional career (β = 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 | 0.19*** | 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 | 0.14* | 0.13 | -0.37*** |      |      |

*p < 0.05.

**p < 0.01.

***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 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 ($I^2 > 90\%$) 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 employment, a sizeable percentage (15–39%) experienced STS (Bride, 2007; Bride et al., 2007, 2009; Choi, 2011a; Dominguez-Gomez and Rutledge, 2009; Smith 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 for 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 Iraq and Afghanistan operations. These suggestions,

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

| STS         | $K$ | Mean   | $Q$     | $I^2\%$ | 95% CI for Mean | $Z$  |
|-------------|-----|--------|---------|---------|-----------------|------|
| 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; $I^2\%$ 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.

***$p < 0.001$. 

© 2013 Lippincott Williams & Wilkins

www.jonmd.com | 923
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 paperwork 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 supervisors 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 interacts 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 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 (Maguen 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

This research was conducted by the Trauma, Health, and Hazards Center, University of Colorado, Colorado Springs, and was made possible by a research grant that was awarded to Dr Benight by the US Army Medical Research & Materiel Command (USAMRMC) and the Telemedicine & Advanced Technology Research Center (TATRC) at Fort Detrick, MD, under contract number W81XWH–11–2–0153. The authors declare no conflict of interest.

REFERENCES

Adams RE, Boscariol JA, Figley CR (2006) Compassion fatigue and psychological distress among social workers: A validation study. Am J Orthopsychiatry. 76:103–108.

American Psychiatric Association (2000) Diagnostic and statistical manual of mental disorders (4th ed-text rev). Washington, DC: American Psychiatric Association.

Argentiero P, Setti I (2011) Engagement and vicarious traumatization in rescue workers. Int Arch Occup Environ Health. 84:67–75.
Ballenger-Browning KK, Schmitz KJ, Rothacker JA, Hamner PS, Webb-Murphy JA, Johnson DC (2011) Predictors of burnout among military mental health providers. Mil Med. 176:253–260.

Bride BE (2007) Prevalence of secondary traumatic stress among social workers. Soc Work. 52:63–70.

Bride BE, Jones JL, Macmaster SA (2007) Correlates of secondary traumatic stress in child protective services workers. J Evid Based Soc Work. 4:69–80.

Bride BE, Robinson MM, Yegidis B, Figley CR (2004) Development and validation of the Secondary Traumatic Stress Scale. Res Soc Work Pract. 14:27–35.

Bride BE, Smith Hatcher S, Humble MN (2009) Trauma training, trauma prac- tices, and secondary traumatic stress among substance abuse counselors. Traumatology: 15:96–105.

Brockhouse R, Msetfi RM, Cohen K, Joseph S (2011) Vicarious exposure to trauma and growth in therapists: The moderating effects of sense of coherence, organizational support, and empathy. J Trauma Stress. 24:735–742.

Choi GY (2011a) Secondary traumatic stress of service providers who practice with survivors of family or sexual violence: A national survey of social workers. Smith Coll Stud Soc Work. 81:101–119.

Choi GY (2011b) Organizational impacts on the secondary traumatic stress of social workers assisting family violence or sexual assault survivors. Adm Soc Work. 35:225–242.

Cieslak R, Knoll N, Luszczynska A (2007) Reciprocal relations among job de- mand, job control, and social support are moderated by neuroticism: A cross-lagged analysis. J Vocat Behav. 71:84–96.

Creamer TL, Liddle BJ (2005) Secondary traumatic stress among disaster mental health workers responding to the September 11 attacks. J Trauma Stress. 18:89–96.

Dalgleish T (2004) Cognitive approaches to posttraumatic stress disorder: The evolution of multirepresentational theorizing. Psychol Bull. 130:228–260.

Deighton RM, Guirri N, Traue H (2007) Factors affecting burnout and compassion fatigue in psychotherapists treating torture survivors: Is the therapist’s attitude to working through trauma relevant? J Trauma Stress. 20:63–75.

Devilly GJ, Wright R, Varker T (2009) Vicarious trauma, secondary traumatic stress or simply burnout? Effect of trauma therapy on mental health professionals. Aust N Z J Psychiatry. 43:373–385.

Dominguez-Gonzalez E, Rutledge DN (2009) Prevalence of secondary traumatic stress among emergency nurses. J Emerg Nurs. 35:199–204.

Ehlers A, Clark DM (2000) A cognitive model of posttraumatic stress disorder. Behav Res Ther. 38:319–345.

Elwood LS, Mott J, Lohr JM, Galowski TE (2011) Secondary trauma symptoms in clinicians: A critical review of the construct, specificity, and implications for trauma-focused treatment. Clin Psychol Rev. 31:25–36.

Figley CR (2002) Compassion fatigue: Psychotherapists’ chronic lack of self care. J Clin Psychol. 58:1433–1441.

Galek K, Flannully KJ, Groene PB, Kudler T (2011) Burnout, secondary traumatic stress, and social support. Pastoral Psychol. 60:633–649.

Jenkins SR, Baird S (2002) Secondary traumatic stress and vicarious trauma: A validation study. J Trauma Stress. 15:423–432.

Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE (2005) Prevalence, severity, and comorbidity of 12-month DSM-IV disorders: the National Comorbidity Survey Replication. Arch Gen Psychiatry. 62:593–602.

Kessler RC, Chiu WT, Demler O, Merikangas KR, Walters EE (2005) Prevalence, severity, and comorbidity of 12-month DSM-IV disorders: the National Co- morbidity Survey Replication. Arch Gen Psychiatry. 62:617–627.

Lazarus RS, Folkman S (1984) Stress, appraisal, and coping. New York: Springer.

Marcus S, Dubi M (2006) The relationship between resilience and compassion fa- tigue in counselors. In Walz GR, Bleuer JC, Yip KK, RK (Eds), Vistas: Compiling perspectives on counseling (pp 223–225). Alexandria, VA: American Counseling Association.

Mauguen S, Turcotte DM, Peterson AL, Dremsa TL, Garb HN, McNally RJ, Litz BT (2008) Descriptive epidemiology of risk factors among military medical personnel before deployment to Iraq. Mil Med. 173:1–9.

McCann IL, Pearlman LA (1990) Vicarious traumatization: A framework for un- derstanding the psychological effects of working with victims. J Trauma Stress. 3:131–149.

Norris FH (1990) Screening for traumatic stress: A scale for use in the general population. J Appl Soc Psychol. 20:1704–1718.

Pearman LA, Mac Ian PS (1995) Vicarious traumatization: An empirical study of the effects of trauma work on trauma therapists. Prof Psychol Res Pr. 26:558–565.

Perez LM, Jones J, Englert DR, Sachau D (2010) Secondary traumatic stress and burnout among law enforcement investigators exposed to disturbing media images. J Police Crim Psychol. 25:113–124.

Peterson AL, Cigraga JA, Isler WC (2009) Future directions: Trauma, resilience, and recovery research. In Freeman SM, Moore B, Freeman A (Eds), Living and surviving in harm’s way: A psychological treatment handbook for pre-and post-deployment of military personnel (pp. 467–493). New York: Routledge.

Prati G, Pietrantoni L, Cicognani E (2010) Self-efficacy moderates the relation- ship between stress appraisal and quality of life among rescue workers. Anxiety Stress Coping. 23:463–470.

Quinal L, Harford S, Rutledge DN (2009) Secondary traumatic stress in oncology staff. Cancer Nurs. 32:E1–E7.

Richardson LK, Frueh BC, Acierno R (2010) Prevalence estimates of combat-related posttraumatic stress disorder: A critical review. Aust N Z J Psychiatry. 44:4–19.

Rosenheck RA, Fontana AF (2007) Recent trends in VA treatment of post- traumatic stress disorder and other mental disorders. Health Aff (Millwood). 26:1720–1727.

Sabin-Farrar R, Turpin G (2003) Vicarious traumatization: Implications for the mental health of health workers? Clin Psychol Rev. 23:449–480.

Smith Hatcher S, Bride BE, Oh H, Moulline King D, Franklin Catrett J (2011) An assessment of secondary traumatic stress in juvenile justice education workers. J Correct Health Care. 17:208–217.

Stergiopoulos E, Cimo A, Cheng C, Bonato S, Dewa CS (2011) Interventions to improve work outcomes in work-related PTSD: A systematic review. BMC Public Health. 11:e388.

Van der Doef M, Maes S (1999) The Job Demand-Control -(Support) Model and psychological well-being: A review of 20 years of empirical research. Work Stress. 13:87–114.

Voss Howell SC, Holohan DR, Didion LM, Vance GT (2011) Treating trauma- tized OEF/OIF veterans: How does trauma treatment affect the clinician? Prof Psychol Res Pr. 42:79–86.

Wald J, Taylor S (2009) Work impairment and disability in posttraumatic stress disorder: A review and recommendations for psychological injury research and practice. Psychol Inf Law. 2:254–262.