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BRIEF REPORT

Posttraumatic Stress Disorder and War-Zone Exposure as Correlates of Perceived Health in Female Vietnam War Veterans

Jessica Wolfe, Paula P. Schnurr, Pamela J. Brown, and Joan Furey

Previous studies have identified traumatic exposure and posttraumatic stress disorder (PTSD) as predictors of physical health complaints without considering the relationship between exposure and PTSD. This study examined the unique associations of war-zone exposure and PTSD with perceived physical health outcomes in a nontreatment-seeking sample of 109 female veterans of the Vietnam War who responded to a series of psychological, exposure, and health questionnaires. Both PTSD and exposure were associated with reports of negative health outcomes when each variable was not adjusted for the other. The effects associated with exposure decreased when PTSD was controlled for, whereas the effects associated with PTSD remained when exposure was controlled for. Results suggest that effects of traumatic exposure on perceived health are partially mediated by increases in PTSD after exposure, supporting studies on the effects of stress on health.

There is increasing evidence that posttraumatic stress disorder (PTSD) is associated with complaints of poor physical health (Breslau & Davis, 1992; Koss & Heslet, 1992; Kulka et al., 1990; Litz, Keane, Fisher, Marx, & Monaco, 1992; Shalev, Bleich, & Ursano, 1990; Solomon & Mikulincer, 1987). Kulka et al. found that both male and female veterans with current PTSD reported more physical health problems, poorer health status, and more medical service utilization than veterans without PTSD. Breslau and Davis compared chronic and nonchronic PTSD in a sample of young adults and found that those with chronic PTSD reported more problems overall (e.g., arthritis, bronchitis, and migraine and, in women, more gynecologic complaints).

There is also evidence that exposure to a traumatic event is associated with complaints of poor physical health (Baker, Menard, & Johns, 1989; Centers for Disease Control [CDC], 1988; Decouflé, Holmgreen, Boyle, & Stroup, 1992; Dvoredsky & Cooley, 1985; Eisen, Goldberg, True, & Henderson, 1991; Koss, Woodruff, & Koss, 1990; Kulka et al., 1990; LeDonne, 1988; Phifer, 1990). Kulka et al. (1990) found that male veterans of the Vietnam War with high war-zone exposure reported poorer health and more chronic medical problems than male Vietnam War veterans with low war-zone exposure, Vietnam-era veterans, or civilians; among female respondents, Vietnam War veterans with high war-zone exposure reported more problems than either female cohorts with low war-zone exposure or demographically matched civilians. Similar findings exist in civilian samples (e.g., Koss & Heslet, 1992; Waigandt, Wallace, Phelps, & Miller, 1990).

The consistently observed relationship between traumatic exposure and PTSD raises important questions about the relationship of severe stress to the onset and progression of changes in health status. Stressful events may affect health status in numerous ways, in part by producing psychological distress and negative affect, which then broadly influence disease susceptibility (e.g., alteration of biologic susceptibility or predisposition to exposure to pathogens, reactivation of existing latent pathogens, and maintenance of existing disease states; Cohen, Evans, Stokols, & Krantz, 1986; Cohen & Williamson, 1991). Psychological variables such as cognitions (e.g., perceptions, attributions), behaviors (e.g., coping), and trait characteristics (e.g., temperament) also may play a role (for review, see Cohen & Williamson, 1991).

On the basis of these findings, additional questions can be asked about the uniqueness of the association between traumatic exposure, PTSD, and perceived health status. To our knowledge, only one study has addressed any of the issues directly. Eisen et al. (1991) found that war-zone exposure was associated with increased complaints of reported poor health outcomes in male Vietnam War veterans, even when they controlled for PTSD. However, these researchers did not examine the outcomes associated with PTSD while controlling for exposure, leaving open the question of whether PTSD has any unique association with perceived physical health.

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Table 1
Separate Regression Analyses With Posttraumatic Stress Disorder (PTSD) and War-Zone Exposure as Predictors of Self-Reported Health Outcomes in Female Vietnam War Veterans

			Predictor					
			War-zone exposure			PTSD		
Health status	*M*	*SD*	β	*SE*[a]	*sr*[b]	β	*SE*	*sr*[b]
Current health rating[c]	3.69	1.19	−.039	.006	−.49*	−.029	.003	−.61*
Change in rating during Vietnam war-zone exposure[c]	−0.62	0.95	−.028	.005	−.44*	−.016	.003	−.42*
Change in rating after Vietnam war-zone exposure[c,d]	−0.28	0.85	−.029	.006	−.36*	−.019	.003	−.51*
No. of current medical problems	1.70	1.82	.051	.011	.42*	.044	.005	.61*

Note. Regression coefficients reflect adjustment for age, education, and health before war-zone exposure.
[a] Unstandardized ordinary least squares multiple regression coefficient (standard error). [b] Semipartial correlation. [c] Lower (negative) values indicate poorer health (health decline). [d] Also adjusted for health during war-zone exposure.
* $p < .001$.

To date, much of the current research in this area has relied on samples from male veterans, limiting generalizability. In an attempt to address some of these issues, we examined the associations of PTSD and war-zone exposure with a range of perceived physical health outcomes in female Vietnam War veterans along four dimensions: current overall health, change in overall health both during and after the Vietnam War, and nine specific problem types. Multivariate analyses were used to control for exposure when examining the effects of PTSD and to control for PTSD when examining the effects of exposure. On the basis of previous literature, we expected poorer outcomes to be associated with both exposure and PTSD in univariate analyses. We also anticipated that poorer outcomes would be associated with war-zone exposure even when we controlled for PTSD. To improve on measurement of stressor exposure in female veterans, we used an exposure scale that was specifically designed to evaluate the wartime experiences of these individuals (Wolfe, Brown, Furey, & Levin, 1993). Also, unlike studies of male veterans (e.g., Decouflé et al., 1992; Eisen et al., 1991; Litz et al., 1992), no studies of female veterans have examined reports of specific medical problem types, limiting investigations of the specificity of disease outcome to stress.

Method

Subjects

Participants in this study included 109 female Vietnam-theater veterans. Background characteristics of a subset of these women have been described elsewhere (Wolfe, Brown, & Bucsela, 1992).[1] All women in the sample had served in the country of Vietnam or its surrounding waters or airspace between 1964 and 1975. The women had a mean age of 49 (*SD* = 6.3), and the average number of months served in Vietnam was 12.1 (*SD* = 3.0). The majority of respondents were White (95.4%), married (48.6%), and had a college degree (41.3%).

Procedure

All women in the sample volunteered to participate in this project, and no women were receiving treatment from the Boston PTSD program at the time of participation. Participants were contacted by mail and asked to complete a series of measures relating to war-zone exposure and PTSD symptomatology. The Women's War-Time Stressor Scale (WWES; Wolfe et al., 1993) is a psychometrically valid self-report scale designed to measure female veterans' exposure to combat during the Vietnam War. The scale reliably differentiates among levels of wartime exposure in various subsets of female veterans and deployed female civilians. The Mississippi Scale for PTSD (Keane, Caddell, & Taylor, 1988) was used to measure PTSD symptoms. The scale has been used widely in veteran and civilian populations and has excellent sensitivity and specificity for a PTSD diagnosis (Kulka et al., 1990). Finally, the female respondents completed a background questionnaire comprising a broad series of items dealing with premilitary, military, and postmilitary demographic information in women. We obtained the respondents' medical history by having them rate levels and alterations in their physical and medical health status on a 5-point scale for the following four time periods: pre-Vietnam War, during the war, post-Vietnam War, and currently (e.g., at the time of the investigation). Women also indicated whether they suffered, at the time of the investigation, from any of nine major health problems (e.g., dermatological, cardiovascular, gastrointestinal, gynecological, or hepatological.

Four measures of health status were derived: current health (possible range, 1 to 5); change in health during Vietnam (Vietnam rating minus pre-Vietnam rating with decline indicated by a negative score; possible range, −4 to +4); change in health after Vietnam (post-Vietnam rating minus Vietnam rating with decline indicated by a negative score; possible range, −4 to +4); and number of specific health problems (possible range, 0 to 9). We also examined endorsements (yes–no) of each problem type separately.

Results

The average score of the WWES was 29.9 (*SD* = 15.6). The average score on the Mississippi Scale was 74.8 (*SD* = 27.1). Over one quarter (27.5%) of the women had a score at or above

[1] A similar cohort was studied for a different experiment. The present study does not in any way overlap with previous research or publications.

Table 2
Separate Regression Analyses With PTSD and War-Zone Exposure as Predictors of Physical Health Symptoms in Female Vietnam War Veterans

Problem type	% answering yes	War-zone exposure		PTSD	
		Odds ratio	95% confidence interval	Odds ratio	95% confidence interval
Cardiovascular	21.1	1.60	0.99–2.60	2.13**	1.27–3.62
Gastrointestinal	25.7	2.63***	1.54–4.48	4.07***	2.16–7.64
Respiratory or pulmonary	8.3	1.50	0.70–3.20	2.08	0.97–4.43
Gynecological	24.8	1.53	0.99–2.41	2.43**	1.41–3.88
Dermatological	18.3	2.21**	1.28–3.82	4.09***	2.07–8.06
Ophthalmological–otolaryngological	19.3	1.01	0.58–1.74	1.97*	1.13–3.43
Hepatological	7.3	2.44*	1.17–5.09	1.97	0.98–3.94
Unusual weight change	15.6	1.72*	1.01–2.92	1.60	0.93–2.74
Pain	25.7	2.45***	1.48–4.07	4.05***	2.17–7.58

Note. Odds ratios are computed to reflect the change associated with a change of 1.0 standard deviation in a predictor.
* $p < .05$. ** $p < .01$. *** $p < .001$.

the recommended cutoff points for a PTSD diagnosis in a nonpatient sample (n = 89; Kulka et al., 1990), and 14.7% had a score at or above the recommended cutoff point for a patient sample (n = 107; Keane et al., 1988).

PTSD symptoms (indicated by Mississippi Scale scores) and war-zone exposure (indicated by WWES scores) served as independent variables in all analyses. We tested the associations between these variables and health outcomes in two sets of multiple regression analyses: first, by examining the effects associated with each variable adjusted for covariates and second, by examining the unique effects of each variable by additionally controlling for the other variable. Ordinary least squares regression was used for the four health status measures, and logistic regression was used for the nine specific problem types. The following covariates were used in all analyses: pre-Vietnam health rating, current age, and education. Health during Vietnam was an additional covariate in the analysis of change in health after Vietnam.[2] In the logistic regression analyses, odds ratios (ORs) and 95% confidence intervals (CIs) were computed to reflect the change in likelihood in a problem associated with an increase of 1.0 standard deviation in each independent variable.

In Table 1 and Table 2, information is given about reports of health status and specific problem types. Respondents, on average, reported that their current health was somewhere between "average" and "good," and that it had declined during Vietnam and following the war (Table 1). Women reported an average of 1.7 current problems ranging from hepatological problems (7.3%) to pain (25.7%) and gastrointestinal problems (25.7%).

In Table 2, we also present the associations of health outcome with PTSD and war-zone exposure, not controlling each variable for the other. As expected, both PTSD and war-zone exposure were associated with relatively poorer health outcomes. These associations appeared to be larger for PTSD than for war-zone exposure. This suggests that previous reports of negative outcomes in PTSD are not merely due to its association with increased war-zone exposure, although the analyses reported in Table 1 do not allow such a conclusion because the PTSD and war-zone exposure measures were correlated (r = .53, $p < .001$).

However, analyses in which the effects of each variable were adjusted for the other showed that the effects associated with PTSD remained, whereas the effects associated with exposure diminished substantially.[3] The results displayed in Table 3 and Table 4 show that PTSD scores continued to predict all four measures of health status when we controlled for war-zone exposure. In contrast, war-zone exposure predicted only poorer current health and decline during the Vietnam War when we controlled for PTSD. Standardized regression coefficients were relatively larger for PTSD, except in the case of change during war-zone exposure in Vietnam (war-zone exposure = −.32 vs. PTSD = −.26). PTSD continued to predict reports of specific problem types when we controlled for war-zone exposure, whereas war-zone exposure did not predict reports of any problem type when we controlled for PTSD.

Discussion

Both war-zone exposure and PTSD independently predicted health complaints in female Vietnam War veterans. These findings are consistent with those of previous studies showing

[2] We avoided the problems associated with raw change scores by using health ratings taken before war-zone exposure as a covariate for the analyses of change during exposure and additionally using health ratings during exposure as covariate for the analyses of change after exposure.

[3] Of the covariates, age was the most consistent predictor of health outcome. It was negatively related to current health status and positively related to number of medical problems and to gastrointestinal, pulmonary, and otolaryngological problems. Health before war-zone exposure was negatively related to dermatological problems and positively related to current health and to change (improvement) after war-zone exposure. Health during exposure was negatively related to change (i.e., decline) after exposure, and having a graduate degree was positively related to otolaryngological problems. In general, the effects of the covariates were smaller than the effects of either war-zone exposure of PTSD in the separate models, or than the effects of PTSD in the combined models.

Table 3
Combined Regression Analyses With Posttraumatic Stress Disorder (PTSD) and War-Zone Exposure as Predictors of Self-Reported Health Outcomes in Female Vietnam War Veterans

	Predictor					
	War-zone exposure			PTSD		
Health status	β	SE[a]	sr[b]	β	SE[a]	sr[b]
Current health rating[c]	−.020	.007	−.17*	−.023	.004	−.41***
Change in rating during Vietnam war-zone exposure[c]	−.019	.006	−.25**	−.009	.004	−.20*
Change in rating after Vietnam war-zone exposure[c,d]	−.010	.006	−.13	−.016	.003	−.39***
No. of current medical problems	.012	.011	.08	.044	.007	.46***

Note. PTSD is adjusted for war-zone exposure; war-zone exposure is adjusted for PTSD; and both are adjusted for age, education, and health before war-zone exposure. Odds ratios are computed to reflect the change associated with a change of 1.0 standard deviation in a predictor.
[a] Unstandardized ordinary least squares multiple regression coefficient (standard error). [b] Semipartial correlation. [c] Lower (negative) values indicate poorer health (health decline). [d] Also adjusted for health during war-zone exposure.
* $p < .05$. ** $p < .01$. *** $p < .001$.

the association of stressful events with changes in health status and other studies that have specifically demonstrated a connection between PTSD and perceived decrements in health status (e.g., CDC, 1988; Eisen et al., 1991; Kulka et al., 1990; Sibai, Armenian, & Alam, 1989). A more important finding in the present study was that when war-zone exposure was adjusted for PTSD, the effects of exposure diminished markedly, whereas when war-zone exposure was controlled, the effects of PTSD on reported health remained essentially unchanged. These results suggest that the impact of traumatic exposure on perceived health is at least partially mediated by the increased likelihood of PTSD after traumatic exposure (Decouflé et al., 1992; Kulka et al., 1990), extending the findings of earlier work on the relationship of exposure and stress to subsequent health perceptions (Cohen & Williamson, 1991; Watson & Pennebaker, 1989).

Several theories suggest why PTSD may be related to increased reports of poor health (see Koss & Heslet, 1992; Litz et al., 1992). PTSD has been associated with high rates of psychiatric comorbidity (e.g., depression, anxiety; Boudewyns, Albrecht, Talbert, & Hyer, 1991; Keane & Wolfe, 1990; Kulka et al., 1990; Roszell, McFall, & Malas, 1991), and patients with these latter disorders frequently describe multiple hypochondriacal and somatic symptoms (Breslau & Davis, 1992; CDC, 1988). Also, heightened perceptions of autonomic change are likely to increase the saliency of both interoceptive cues and certain forms of physical illness (Blanchard, 1990; Litz et al., 1992).

Although distress and somatization may constitute one link between PTSD and poor health, it is likely that other mechanisms exist. Sibai et al. (1989) found that civilians exposed to wartime stress were at increased risk for coronary artery disease (independent of disease risk factors or reporting style), suggesting that certain cardinal symptoms of PTSD (e.g., hyper-

Table 4
Combined Regression Analyses With PTSD and War-Zone Exposure as Predictors of Physical Symptoms in Female Vietnam War Veterans

	War-zone exposure		PTSD	
Problem type	Odds ratio	95% confidence interval	Odds ratio	95% confidence interval
Cardiovascular	1.07	0.58–1.97	2.02*	1.08–3.80
Gastrointestinal	1.50	0.78–2.89	3.23**	1.61–6.45
Respiratory or pulmonary	.89	0.33–2.41	2.22	0.81–6.11
Gynecological	.95	0.60–1.85	2.38**	1.31–4.33
Dermatological	1.05	0.52–2.15	3.88***	1.75–8.59
Ophthalmological or otolaryngological	.50	0.24–1.05	3.09**	1.43–7.76
Hepatological	2.15	0.86–5.38	1.22	0.52–2.86
Unusual weight change	1.52	0.78–2.94	1.23	0.39–3.84
Pain	1.46	0.79–2.67	3.32***	1.70–6.52

Note. PTSD is adjusted for war-zone exposure; war-zone exposure is adjusted for PTSD; and both are adjusted for age, education, and health before war-zone exposure. Odds ratios are computed to reflect the change associated with a change of 1.0 standard deviation in a predictor.
* $p < .05$. ** $p < .01$. *** $p < .001$.

arousal, affective numbing) lead to increased risk of cardiovascular and gastrointestinal disturbances (Drossman et al., 1990; Rosen & Fields, 1988; Wolfe, Kimerling, & Clum, 1993). Alternatively, self-reported health concerns may represent early manifestations of disease processes. At least two studies to date (Litz et al., 1992; Shalev et al., 1990) found subtle deficits in autonomic reactivity and effort tolerance in male PTSD veterans when refined testing methods were used although standard medical examinations were within the normal range.

There are several methodological limitations in the present study. First, despite the robust association of the Mississippi Scale with diagnoses of PTSD in accordance with the Structural Clinical Interview for the *DSM-III-R* [*Diagnostic and Statistical Manual for Mental Disorders*, 3rd ed., rev.; American Psychiatric Association, 1987]; Kulka et al., 1990), PTSD symptom scores are not necessarily interchangeable with a PTSD diagnosis.[4] In addition, caution is needed in equating self-reports of health status with measures of actual health. Eisen et al. (1991) found only limited correspondence between male veterans' subjective health reporting and objective medical verification (e.g., for audiological and dermatologic problems), a finding consistent with some other veterans' studies (e.g., CDC, 1988). The retrospective nature of this study also introduces the possibility that post-Vietnam stressors influenced the reporting of physical and psychological symptomatology. Another potential concern is that the study's sample representativeness is unknown; nonrandom sampling procedures may have introduced a bias, and our results may not be generalizable to all female Vietnam veterans. A major strength of this project is the inclusion of women. Breslau and Davis (1992) did not report their health data separately for male and female civilians, and research in trauma syndromes increasingly suggests that there are likely to be distinctive characteristics of PTSD in women (e.g., Breslau, Davis, Andreski, & Peterson, 1991; Koss et al., 1990; Resnick, Kilpatrick, Best, & Kramer, 1992; Breslau & Davis, 1992). Another important aspect is that we used an instrument designed specifically to assess the stressor (i.e., war-zone) experiences of women.

One issue to examine in the future is how duration of exposure or distress may relate to subsequent health perceptions or the onset of actual structural or biological changes (Stone, Reed, & Neale, 1987). Some research suggests that effects of acute stressors on health may be based, in part, on their concordance with a particular disease process (Cohen & Matthews, 1987), whereas chronicity of stressful events may lessen the need for high amounts of exposure. Women in the war zone generally experience prolonged periods of stress; consequently, future studies should assess stressor chronicity to determine whether length of exposure enhances the variance seemingly contributed by PTSD. Also unresolved is whether the mediational role we propose for PTSD is due to the symptoms that distinctively characterize this disorder (e.g., hyperarousal and hyperreactivity) or whether it derives from the more general co-occurring symptoms of distress (e.g., depression and anxiety). Additionally, there is a need for more study of specific mechanisms that underlie discrete symptomatology (e.g., the effects of chronic hyperarousal on the cardiovascular system). This research could enhance both the understanding of the pathophysiology of PTSD and the attempt to prevent poor outcomes in individuals exposed to trauma.

[4] Exploratory analyses showed that our conclusions about PTSD and war-zone exposure would not have changed if PTSD had been treated as a dichotomous variable using Mississippi Scale cutoff points of either 89 (Kulka et al., 1990) or 107 (Keane et al., 1988). The strength of war-zone exposure as a predictor was slightly increased for some outcomes when PTSD diagnosis was used instead of PTSD scores, although all conclusions remained the same as those based on the scores.

References

Baker, R. R., Menard, S. W., & Johns, L. A. (1989). The military nurse experience in Vietnam: Stress and impact. *Journal of Clinical Psychology, 45*, 736–744.

Blanchard, E. B. (1990). Elevated basal level of cardiovascular responses in Vietnam vets with PTSD: A health problem in the making. *Journal of Anxiety Disorders, 4*, 233–237.

Boudewyns, P. A., Albrecht, J. W., Talbert, S. F., & Hyer, L. A. (1991). Comorbidity and treatment outcome of inpatients with chronic combat-related PTSD. *Hospital and Community Psychiatry, 42*, 847–849.

Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry, 48*, 216–222.

Breslau, N., & Davis, G. C. (1992). Posttraumatic stress disorder in an urban population of young adults: Risk factors for chronicity. *American Journal of Psychiatry, 149*, 671–675.

Centers for Disease Control. (1988). Health status of Vietnam veterans: II. Physical health. *Journal of the American Medical Association, 259*, 2708–2714.

Cohen, S., Evans, G. W., Stokols, D., & Krantz, D. S. (1986). *Behavior, health, and environmental stress*. New York: Plenum Press.

Cohen, S., & Matthews, K. A. (1987). Social support, Type A behavior and coronary artery disease. *Psychosomatic Medicine, 49*, 325–330.

Cohen, S., & Williamson, G. M. (1991). Stress and infectious disease in humans. *Psychological Bulletin, 109*, 5–24.

Decouflé, P., Holmgreen, P., Boyle, C. A., & Stroup, N. E. (1992). Self-reported health status of Vietnam veterans in relation to perceived exposure to herbicides and combat. *American Journal of Epidemiology, 135*, 312–323.

Drossman, D. A., Leserman, J., Nachman, G., Li, Z. M., Gluck, H., Toomey, T. C., & Mitchell, C. M. (1990). Sexual and physical abuse in women with functional or organic gastrointestinal disorders. *Annals of Internal Medicine, 113*, 828–833.

Dvoredsky, A. E., & Cooley, W. (1985). The health care needs of women veterans. *Hospital and Community Psychiatry, 36*, 1098–1102.

Eisen, S. A., Goldberg, J., True, W. R., & Henderson, W. G. (1991). A co-twin control study of the effects of the Vietnam War on the self-reported physical health of veterans. *American Journal of Epidemiology, 134*, 49–58.

Keane, T. M., Caddell, J. M., & Taylor, K. L. (1988). Mississippi scale for combat-related post-traumatic stress disorder: Three studies in reliability and validity. *Journal of Consulting and Clinical Psychology, 56*, 85–90.

Keane, T. M., & Wolfe, J. (1990). Comorbidity in posttraumatic stress disorder: An analysis of community and clinical studies. Special issues: Traumatic stress: New perspectives in theory, measurement and research II. *Journal of Applied Social Psychology, 20* (21, Pt. 1), 1776–1788.

Koss, M. P., Woodruff, W. J., & Koss, P. G. (1990). Relation of criminal victimization to health perceptions among women medical patients. *Journal of Consulting and Clinical Psychology, 58*, 147–152.

Koss, M. P., & Heslet, L. (1992). Somatic consequences of violence against women. *Archives of Family Medicine, 1,* 53–59.

Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam War generation.* New York: Brunner/Mazel.

LeDonne, D. M. (1988, May–June). Trends in morbidity and use of health services by women veterans of Vietnam. *Navy Medicine,* 22–25.

Litz, B. T., Keane, T. M., Fisher, L., Marx, B., & Monaco, V. (1992). Physical health complaints in combat-related post-traumatic stress disorder: A preliminary report. *Journal of Traumatic Stress, 5,* 131–141.

Phifer, J. F. (1990). Psychological distress and somatic symptoms after natural disaster: Differential vulnerability among older adults. *Psychology and Aging, 5,* 412–420.

Resnick, H. S., Kilpatrick, D. G., Best, C. L., & Kramer, T. L. (1992). Vulnerability-stress factors in development of posttraumatic stress disorder. *Journal of Nervous and Mental Disease, 180,* 424–430.

Rosen, J., & Fields, R. (1988). The long-term effects of extraordinary trauma: A look beyond PTSD. *Journal of Anxiety Disorders, 2,* 179–191.

Roszell, D. K., McFall, M. E., Malas, K. L. (1991). Frequency of symptoms and concurrent psychiatric disorder in Vietnam veterans with chronic PTSD. *Hospital and Community Psychiatry.*

Shalev, A., Bleich, A., & Ursano, R. J. (1990). Posttraumatic stress disorder: Somatic comorbidity and effort tolerance. *Psychosomatics, 31,* 197–203.

Sibai, A. M., Armenian, H. K., & Alam, S. (1989). Wartime determinants of arteriographically confirmed coronary artery disease in Beirut. *American Journal of Epidemiology, 130,* 623–631.

Solomon, Z., & Mikulincer, M. (1987). Combat stress reactions, post traumatic stress disorder and somatic complaints among Israeli soldiers. *Journal of Psychosomatic Research, 31,* 131–137.

Stone, A. A., Reed, B. R., & Neale, J. M. (1987). Changes in daily event frequency precede episodes of physical symptoms. *Journal of Human Stress, 13,* 70–74.

Waigandt, A., Wallace, D. L., Phelps, L., Miller, D. A. (1990). The impact of sexual assault on physical health status. *Journal of Traumatic Stress, 3,* 93–102.

Watson, D., & Pennebaker, J. (1989). Health complaints, stress, and distress: Exploring the central role of negative affectivity. *Psychological Review, 96,* 234–254.

Wolfe, J., Brown, P. J., & Bucsela, M. L. (1992). Symptom responses of female Vietnam veterans to Operation Desert Storm. *American Journal of Psychiatry, 149,* 676–679.

Wolfe, J., Brown, P. J., Furey, J., & Levin, K. (1993). Development of a war-time stressor scale for women. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 5,* 330–335.

Wolfe, J., Kimerling, R., & Clum, G. (1993). *Phenomenology of posttraumatic stress disorder symptoms and self-reported health in women.* Manuscript submitted for publication.

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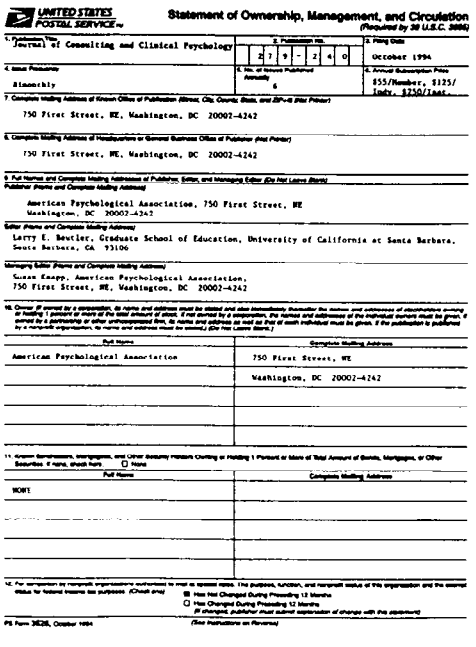

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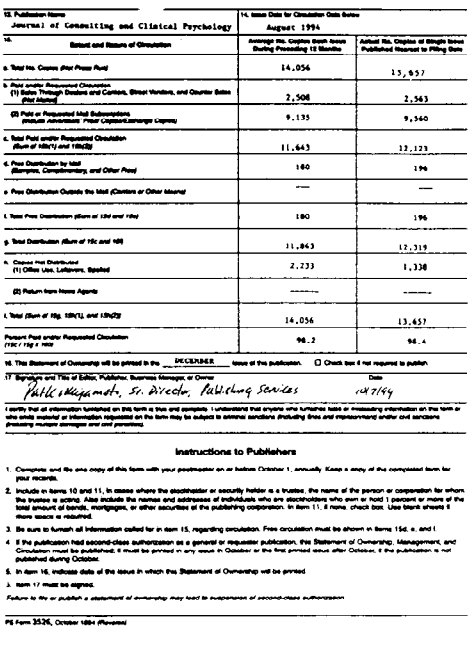
Full Name	Complete Mailing Address
NONE	

12. For completion by nonprofit organizations authorized to mail at special rates. (The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes (Check one)
☒ Has Not Changed During Preceding 12 Months
☐ Has Changed During Preceding 12 Months
(If changed, publisher must submit explanation of change with this statement)

PS Form 3526, October 1994 (See Instructions on Reverse)



13. Publication Name: Journal of Consulting and Clinical Psychology
14. Issue Date for Circulation Data Below: August 1994

15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total No. Copies (Net Press Run)	14,056	13,957
b. Paid and/or Requested Circulation (1) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales (Not Mailed)	2,508	2,563
(2) Paid or Requested Mail Subscriptions (Include Advertisers' Proof Copies/Exchange Copies)	9,135	9,560
c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2))	11,643	12,123
d. Free Distribution by Mail (Samples, Complimentary, and Other Free)	180	196
e. Free Distribution Outside the Mail (Carriers or Other Means)	—	—
f. Total Free Distribution (Sum of 15d and 15e)	180	196
g. Total Distribution (Sum of 15c and 15f)	11,863	12,319
h. Copies Not Distributed (1) Office Use, Leftovers, Spoiled	2,233	1,338
(2) Return from News Agents	———	———
i. Total (Sum of 15g, 15h(1), and 15h(2))	14,056	13,657
Percent Paid and/or Requested Circulation (15c / 15g x 100)	98.2	98.4

16. This Statement of Ownership will be printed in the DECEMBER issue of this publication. ☐ Check box if not required to publish.
17. Signature and Title of Editor, Publisher, Business Manager, or Owner: Patricia Wagamatt, Sr. Director, Publishing Services — Date: 10/7/94

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including multiple damages and civil penalties).

Instructions to Publishers

1. Complete and file one copy of this form with your postmaster on or before October 1, annually. Keep a copy of the completed form for your records.
2. Include in items 10 and 11, in cases where the stockholder or security holder is a trustee, the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who are stockholders who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check box. Use blank sheets if more space is required.
3. Be sure to furnish all information called for in item 15, regarding circulation. Free circulation must be shown in items 15d, e, and f.
4. If the publication had second-class authorization as a general or requester publication, this Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or the first printed issue after October, if the publication is not published during October.
5. In item 16, indicate date of the issue in which this Statement of Ownership will be printed.
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