

# Medical Conditions and Symptoms Associated with Posttraumatic Stress Disorder in Low-Income Urban Women

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## Abstract

**Background:** Epidemiological studies have consistently reported rates of posttraumatic stress disorder (PTSD) in women that are twice that of men. In men and women, PTSD has been associated with comorbid medical conditions, medical symptoms and lower self-rating of health. In low-income urban women, rates of PTSD are even more elevated than in suburban women and may be related to observed health disparities.

**Methods:** In this study, 250 women seeking healthcare at an urban clinic were interviewed for a PTSD diagnosis, major depressive disorder (MDD), the experience of traumatic events, the experience of current and past common medical conditions and symptoms, and subjective rating of health. A chart review was used to assess healthcare use in the past year.

**Results:** More current (5.2 vs. 3.8,  $p < 0.05$ ) and past medical conditions (4.6 vs. 3.3,  $p < 0.05$ ) were reported by women with a lifetime history of PTSD than by women without this history, after controlling for demographics and current depression. Women with lifetime PTSD also had more annual clinic appointments (5.9 vs. 3.8  $p < 0.03$ ) and were 2.4 times ( $p < 0.05$ ) more likely to report lower appraisal of their physical health.

**Conclusions:** These findings suggest that urban health-seeking women with PTSD experience health impairments that may cause increased morbidity and that healthcare providers should consider the health ramifications of PTSD when providing medical care to women.

## Introduction

TRAUMATIC EVENTS OCCUR IN >90% of people in their lifetime, with most traumatized individuals recovering. However, if trauma is assaultive or if the individual is female or resides in an urban area, the risk for posttraumatic stress disorder (PTSD) development is elevated.<sup>1,2</sup> PTSD develops in one fifth of traumatized individuals and is the most common psychiatric ramification following the experience of a traumatic event.<sup>1-3</sup> Symptoms of PTSD include reexperiencing the traumatic event through intrusive dreams or thoughts, avoidance of or arousal to stimuli that symbolize the event, and numbing of feelings following the event. PTSD has been associated with the experience of greater morbidity and medical mortality.<sup>4</sup> However, few studies have included low-income urban women to determine the type of medical conditions and symptoms that are associated with PTSD in this high-risk population.

Although women and men experience similar rates of trauma, in cross-sectional epidemiological studies, women were observed to develop PTSD at twice the rate of men, resulting in lifetime prevalence rates of 5.4%–10.2% in men and 10.4%–18.3% in women.<sup>1,2,5</sup> In studies of individuals who experienced a similar traumatic event, including car accidents, natural disasters, physical trauma, and the attacks of September 11, 2001, women remained twice as likely as men to develop PTSD.<sup>5-7</sup> Women may also experience PTSD symptoms for longer periods than men, with the median time to PTSD remission in women being 48 months vs. 12 months in men.<sup>1</sup> More than half of women with PTSD also develop major depressive disorder (MDD), resulting in additional psychiatric impairments.<sup>1,2</sup>

Environmental factors, such as living in poverty or residing in an urban setting, may increase a woman's risk of experiencing a traumatic event and to develop PTSD, evidenced by rates of PTSD in urban women that are two to

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four times higher than the general population rate for women.<sup>1,2,5,8,9</sup> In a large epidemiological study, rates of PTSD for nonwhites were twice as high as for whites (14% vs. 7%); however, these higher rates were attributed to socioeconomic status and urban residence, suggesting that these factors may congregate and cause elevated risk.<sup>1,10</sup> Further, in a recent study, PTSD nonremittance was linked to both minority race and low income in New York City residents.<sup>11</sup> Important to this study, rates of PTSD in healthcare-seeking, urban, African American women living in poverty have been reported to be as high as 23%.<sup>12–14</sup> This elevated risk for PTSD in low-income urban women may result from increased risk to experience assaultive violence in both childhood and adulthood and from exposure to community violence, which is more common in urban areas.<sup>7,8,14,15</sup>

The chronic stress of poverty and living in high-crime urban environments may contribute to psychological and physical health declines in samples of urban individuals.<sup>7,16</sup> Low-income urban women are often confronted with the interrelated chronic stressors of poverty, substandard housing and dangerous neighborhoods, insufficient healthcare resources, and for many, racism.<sup>17</sup> For example, in a sample of urban women, reports of both physical abuse and economic hardship were associated with greater health impairments.<sup>18</sup> In a study of low-income pregnant women, lifetime trauma was related to risk for premature delivery.<sup>19,20</sup> Therefore, current studies indicate links between PTSD and health declines in low-income urban women, yet few studies have specifically examined this link.

PTSD is also more prevalent among individuals seeking healthcare, with rates of 8%–14% more than triple the national rate.<sup>21–24</sup> Further, in more urban and less insured health-seeking samples, extremely high rates of PTSD have been reported; in one study, 30% of healthcare-seeking urban women were diagnosed with lifetime PTSD.<sup>11,13,25,26</sup> Individuals with PTSD may be more prominent in primary care settings because of greater use of outpatient services.<sup>27–30</sup> Although PTSD in women has been associated with reports of additional medical conditions, no study has specifically examined medical conditions in low-income urban women who are at high risk for PTSD. Therefore, the purpose of the current study was to identify medical symptoms and medical conditions that were associated with lifetime PTSD in a low-income urban healthcare-seeking sample of women. In addition, healthcare use in the past year was compared in women with and without a lifetime history of PTSD.

## Materials and Methods

Participants were female patients of a primary care clinic in urban Baltimore, Maryland, that serves people without health insurance and with a limited income. Patients at this clinic do not qualify for government assistance. Almost 70% of patients are employed on a part-time or full-time basis; 86% of patients at the clinic are African American, and all reside within Baltimore city limits.

English-speaking women were approached in the waiting room of the clinic between July 2005 and June 2006. Of the 268 patients who were approached, 250 consented to participate in the study, a participation rate of 93.2%. This study was approved by the Institutional Review Board of

Johns Hopkins University. Participants received a \$15.00 incentive.

## Instruments

All instruments were administered verbally. Demographic information, including age, race, and marital status, were obtained by an informational questionnaire developed by the researchers. The Trauma Life Events Questionnaire (TLEQ), a 23-item instrument, was used to determine the occurrence of traumatic events that qualified for a DSM-IV diagnosis of PTSD.<sup>31</sup> The TLEQ provides information on traumatic events that range from learning of a friend or close friend being injured to being raped yourself. In addition, it provides the participant the opportunity to indicate if an event happened multiple times in her lifetime and also the age at which each event occurred. Finally, the TLEQ provides information about diagnostic criterion A2 for PTSD, requiring the participant to experience intense fear, helplessness, or horror in response to the traumatic event. Psychometrics for the TLEQ include Cronbach  $\alpha$  0.94, test-retest 0.89, convergent correlations with clinician interview  $-0.86$ , and the Distressing Life Event Questionnaires 0.72,<sup>24</sup> and for the abuse assessment screen include Cronbach  $\alpha$  0.79, test-retest 0.83, and convergent correlation with the Conflict Tactics Scale.<sup>31</sup>

Instruments to provide a psychiatric diagnosis were administered by the first author (J.M.G.), who received advanced training in administering these diagnostic instruments. Depression was diagnosed using the Diagnostic Inventory of Depression (DID). Reported psychometrics for the DID include Cronbach  $\alpha$  0.93, test-retest reliability 0.86, and convergent correlation 0.86 with the Hamilton Depression Scale.<sup>32</sup> To diagnose PTSD, the Clinician-Administered PTSD Scale (CAPS) was used. The CAPS is the recognized gold standard to diagnose PTSD and provides a diagnosis of current and past PTSD in addition to duration and severity of symptoms.<sup>33</sup> Psychometrics for the CAP include Cronbach  $\alpha$  0.88, interrater reliability 0.92–0.99, and convergent correlation of 0.83 with the PTSD Symptom Scale Interview and 0.73 with a structured clinical diagnostic interview.<sup>34</sup>

Two instruments were used to assess health and were administered to all participants. The Miller Abuse and Physical Health Symptom Inventory exhibited a test-retest reliability of 0.86–0.92 and has been used to identify medical symptoms commonly associated with IPV in samples of women.<sup>35</sup> In addition, the research team developed a list of common medical conditions in a primary care setting, which included 27 common medical conditions identified from the literature. The researcher (J.M.G.) asked each participant if she had been treated or diagnosed with any of the medical conditions by a healthcare provider either currently (past 6 months) or anytime in the past.

## Statistics

Descriptive statistics provided prevalence rates and measures of central tendency. Using ANOVA, the number of medical conditions, medical symptoms, and medical appointments in the last year were compared between those with a lifetime history of PTSD and those without. Smoking was measured as an ordinal variable, with categories of non-smoker, current moderate smoker, and current heavy smoker. Age was treated as a continuous variable. Race and

marital status were treated as categorical variables, and current diagnosis of depression was treated as a dichotomous variable when examining possible group differences. No interactions among the control variables were evident, and all control variables were included in analyses of each outcome variable. Control variables of smoking, depression, and demographic variables were selected because of their possible impact on health. Data with nonnormal distribution, for example, number of medical conditions, were log transformed to allow statistical analysis. Pearson's product moment correlation coefficients were used to assess the strength of relationships between variables of interest, using Bonferroni adjustment to reduce possible type 1 error. STATA 8.0 (College Station, TX) was used to analyze the data.

Linear and logistic regressions were used to determine if lifetime PTSD predicted medical conditions and symptoms, adjusting for age, race, marital status, smoking status, current depression, and education. Dummy variables were created for the variables listed depending on the distribution of the sample on the variable. Nonlinear relationships were explored, and dummy variables were created to accommodate them. Interaction variables were created for the demographic variables and were included if they were statistically significant in models with  $p \leq 0.1$ .

## Results

### Demographics of sample

Two hundred fifty women participated in this study. The demographics of the sample are displayed in Table 1. The women were primarily African American (82%), with 66%

between 36 and 55 years of age. The mean age of the sample was 40 years, with a standard deviation (SD) of 6.9 years. Most of the women graduated from high school or obtained a graduate equivalent degree (GED) (88%), and more than one third had taken college courses or advanced career or technical training or had graduated from college. Almost half reported full-time employment, (48.8%), and an additional 31.2% were employed part-time. Only 24% reported being currently married, and almost half, (47.6%) reported never being married.

The majority of the women (86%) reported experiencing at least one traumatic event in their lifetime, with a mean number of 5.14 (SD 3.48) events. In those who developed PTSD, a mean of 9.76 (SD 7.12) lifetime traumatic events were reported, compared with 5.1 (SD 3.5) in the trauma but no PTSD group. Of the women, 14.8% were diagnosed with current PTSD and 19.6% with past PTSD, resulting in 34.4% of the sample having a lifetime diagnosis of PTSD. Approximately 19.2% of the sample had a current diagnosis of depression, and more than half of those participants with depression (57.8%) also had current PTSD.

The majority of the PTSD group (68.5%) reported an assaultive event as the causative event for PTSD development. PTSD cases were attributed to the following traumatic events: 17.8% rape or sexual assault, 15.5% child sex abuse, 14.3% IPV, 14.2% unexpected death of a family member or close friend, 10.7% child physical abuse, 8.3% physical assault but not IPV, and 3.2% witnessing physical assault or murder of another person. Mean PTSD duration was 44.1 months, with more than two thirds of the PTSD sample (69%) diagnosed with chronic PTSD. In the trauma but no PTSD

TABLE 1. DEMOGRAPHICS OF SAMPLE CHARACTERISTICS OF TRAUMA STATUS

Characteristic	Overall sample (n = 250)	No trauma (n = 27, 11%)	Trauma and no PTSD (n = 138, 55%)	PTSD lifetime (n = 86, 34%)
<b>Race</b>				
African American	82%	77.8%	81.2%	82.1%
White	14%	14.8%	13.1%	16.7%
Other	4%	7.4%	5.7%	1.2%
<b>Age</b>				
18-24	3.6%	3.7%	4.1%	3.6%
25-35	13.6%	14.8%	16.4%	9.5%
36-45	23.6%	33.3%	26.2%	16.7%
46-55	42.4%	37.0%	35.2%	55.9%
56-65	16.8%	11.1%	18.0%	14.3%
<b>Marital status</b>				
Never married	47.6%	51.8%	49.2%	45.2%
Married	24%	37%	25.4%	15.5%
Separated, divorced	23.2%	7.4%	19.7%	34.5%
Widowed	5.2%	3.7%	5.7%	4.7%
<b>Education</b>				
Less than high school	8.8%	7.4%	5.7%	14.3%
High school graduate	55.6%	51.9%	60.7%	47.6%
Some college	30.4%	37.0%	28.7%	30.9%
College graduate	5.2%	3.7%	4.9%	7.1%
<b>Employment</b>				
Full-time	48.8%	51.8%	48.3%	51.2%
Underemployed	31.2%	33.3%	28.7%	32.1%
Unemployed	20.0%	14.8%	22.9%	16.7%
Current smoker	35.6%	22.2%	31.8%	45.3%
Current depression	24.0%	14.8%	17.4%	37.2%

TABLE 2. MEDICAL CONDITIONS ASSOCIATED WITH LIFETIME PTSD ( $N = 86$ ) COMPARED WITH TRAUMATIZED ( $N = 136$ ) AND NONTRAUMATIZED CONTROLS ( $N = 27$ )

Medical condition	Prevalence in sample %	Unadjusted odds ratio	Confidence interval	Adjusted odds ratio	Confidence interval
Chronic pain	32.8	4.3	1.9–13.8**	3.35	2.04–9.07**
Coronary artery disease	26.1	3.1	1.2–5.3*	2.29	1.06–4.15*
Hypertension	37.9	3.6	1.8–6.2**	2.03	1.27–4.82**
Thyroid disorder	7.8	1.8	1.3–8.5*	1.62	1.02–6.96*

\*\* $p < 0.01$ , \* $p < 0.05$ , adjusted odds ratios controlled for demographics, current depression, and smoking.

group, the most distressing traumatic event identified by participants included 31.2% unexpected death of a family member or close friend, 15.2% witnessing physical assault of another person, 13.8% IPV, 12.3% physical assault (but not IPV), 8.7% being diagnosed with a life-threatening injury, 8.0% child physical abuse, 6.5% rape or sexual assault, 5.8% child sexual abuse.

#### Medical conditions

Participants with current or past PTSD ( $n = 86$ ) reported significantly more current (5.2 vs. 3.8 [ $f_{1,249} = 4.8$ ,  $p = 0.03$ ]) and more past medical conditions (4.6 vs. 3.1 [ $f_{1,247} = 3.6$ ,  $p = 0.04$ ]) than those without a PTSD history, after controlling for patient demographics, current depression, and smoking (overall group differences are not reported in the tables). Table 2 shows the significant odds ratios (OR) for reports of specific medical conditions by participants with a lifetime diagnosis of PTSD. Medical conditions associated with PTSD in descending strength of association were chronic pain, coronary artery disease, hypertension, and thyroid disorder. Medical conditions that were not significantly associated with PTSD included arthritis, asthma, high cholesterol, acid reflux disorder, bronchitis, emphysema, heart attack, hernia, kidney disease, liver disease, urinary tract infection, stomach ulcer, uterine fibroids, autoimmune disorder, myocardial infarction, gallbladder disease, diabetes, inflammatory bowel disease, dermatitis, stroke, and cancer.

#### Medical symptoms

The number of medical symptoms reported by the subject as occurring either often or occasionally was significantly higher in those participants with a lifetime diagnosis of PTSD compared with non-PTSD participants (7.3 vs. 4.6 [ $f_{1,248} = 4.9$ ,  $p = 0.02$ ], after controlling for patient demographics, current depression, and smoking (overall group differences are not reported in the tables). Medical symptoms that were significantly associated with PTSD were insomnia, back pain, swollen joints, dizzy spells, chronic fatigue, difficulty concentrating, high blood pressure, and heart palpitations (Table 3). Medical symptoms that were not associated with PTSD included nausea, headache, memory loss, black out, ringing in ears, seizures, digestive problems, loss of appetite, abdominal pain, chest pain, pelvic pain, rectal bleeding, bladder infections, missed periods, frequent vaginal bleeding (not from a period), painful intercourse, frequent urination, and painful urination.

In participants with current PTSD, the number of medical symptoms was significantly correlated with PTSD symptom intensity ( $r = 0.48$ ,  $p = 0.03$ ). In addition, hours of sleep in those with current PTSD correlated with the number of reported current medical symptoms ( $r = 0.39$ ,  $p = 0.05$ ). Lastly, there was a trend of increased duration of PTSD symptoms and the number of reported medical conditions in participants with current PTSD ( $r = 0.34$ ,  $p = 0.07$ ).

TABLE 3. MEDICAL SYMPTOMS ASSOCIATED WITH LIFETIME PTSD ( $N = 86$ ) COMPARED WITH TRAUMATIZED ( $N = 136$ ) AND NONTRAUMATIZED CONTROLS ( $N = 27$ )

Medical symptom:	Prevalence in sample %	Un-Adjusted odds ratio	Confidence interval:	Adjusted odds ratio:	Confidence interval:
Insomnia	20.4	4.4	3.0–12.8**	4.0	2.8–9.2**
Back pain	34.0	4.8	2.9–8.3**	3.6	2.0–6.3*
Swollen joints	27.2	3.9	2.7–9.6*	3.1	2.5–7.0**
Dizzy spells	23.6	2.7	1.9–6.3*	2.9	2.0–5.9*
Chronic fatigue	37.6	3.1	1.5–6.9*	2.5	1.3–6.0*
Difficulty concentrating	32.0	2.9	1.2–4.7*	2.1	1.2–3.1*
Nausea	34.0	2.7	1.1–3.8*	2.6	1.1–3.5*
High blood pressure	48.0	2.4	1.3–5.1*	2.0	1.2–4.4*
Heart palpitations	16.0	1.6	1.2–3.9*	1.3	1.1–3.6*

\*\* $p < 0.01$ , \* $p < 0.05$ , adjusted odds ratios controlled for demographics, current depression, and smoking.

### Health care usage

The number of visits to the clinic for a physical health reason in the past year was obtained through a chart review. Only those participants who had been patients of the clinic for at least 1 year were included, resulting in a subsample of 202 participants. The mean number of clinic visits was significantly different depending on a current PTSD diagnosis, with those participants with current PTSD having 5.9 visits in the past year vs. 3.8 in those participants with no history of PTSD ( $t_{1,202} = 3.9, p = 0.03$ ), after adjusting for demographic characteristics and current depression.

### Discussion

This is the first study to investigate medical conditions and symptoms in low-income urban healthcare-seeking women who are at high risk for PTSD, supporting previous findings in samples of more affluent and insured women.<sup>21,22,36–39</sup> We found that a lifetime diagnosis of PTSD was associated with the additional medical conditions of chronic pain, hypertension, coronary artery disease, and thyroid disorder and medical symptoms of insomnia, back pain, swollen joints, dizzy spells, chronic fatigue, difficulty concentrating, high blood pressure, and heart palpitations, after controlling for demographic variables and current depression. This study also found that women with PTSD had more than twice the number of clinic visits over a year as women without a lifetime history of PTSD. Therefore, this study indicates that PTSD is prevalent in low-income urban healthcare-seeking women and that these patients have multiple medical conditions and symptoms, requiring more clinic resources.

The finding that women with PTSD experience additional medical conditions and symptoms supports previous findings.<sup>21,22,36–39</sup> However, reports of specific medical conditions associated with PTSD are limited because of the use of different evaluation methods. Future studies with improved designs may better indicate which medical conditions and symptoms are most associated with PTSD. This line of research may aid clinicians who are treating PTSD patients with complicated presentations and multiple medical and psychological complaints. In addition, recognizing associations between medical conditions or symptoms and PTSD may aid clinicians in recognizing PTSD itself, which is currently underrecognized and undertreated in primary care settings, where patients with PTSD most often seek care.<sup>24,40</sup>

This study found an association between PTSD and chronic pain, supporting previous studies in varied populations.<sup>21,22,38,39,41,42</sup> In this sample, chronic pain and recurrent back pain were associated with PTSD. Larger studies that describe which pain conditions are associated with PTSD are needed, as well as prospective studies that identify temporal relationships among psychological and physical health compromises in traumatized individuals.<sup>21,41</sup> Findings from such studies may facilitate the development of interventions that reduce the medical comorbidity of physical pain in PTSD patients, an association that has been well documented, although the mechanism has not been well described.

In this study, symptoms associated with coronary heart disease, including heart palpitations and hypertension, were significantly associated with PTSD, supporting previous findings of cardiovascular risk factors, including reports of

high blood pressure,<sup>22,37,39,41</sup> angina,<sup>41</sup> myocardial infarction,<sup>4,21,42</sup> and circulatory system conditions/coronary artery disease in individuals with PTSD.<sup>21,39,42</sup> The cardiac and metabolic medical conditions discussed may cause increased morbidity and mortality. In a landmark study of veterans by Boscarino,<sup>4</sup> PTSD was found to double the rate of medical morbidity, after controlling for demographics, intelligence, smoking status, and illicit drug use, providing further evidence of increased medical risks in PTSD-affected people.

In this study, we found that PTSD was associated with feelings of chronic fatigue, extending previous studies that linked PTSD to chronic fatigue disorder<sup>39</sup> and to subjective reports of energy reductions and feelings of excessive fatigue.<sup>21,37,41</sup> Chronic fatigue, or energy reductions, may be underdocumented in medical charts because of the variation in measurements and assessment frequency, reducing the ability of studies to support the possible link to PTSD. In addition, chronic fatigue may be specifically linked to symptoms of PTSD, such as insomnia. Sleep has been shown to mediate health perception.<sup>42</sup> Additional investigation is needed not only to identify a medical symptom/condition profile but also to indicate if there are specific PTSD symptoms or clusters of symptoms that may be related to medical conditions or symptoms. Identification of links between medical conditions and symptoms and PTSD symptoms may aid both in assessment and in designing future interventions.

This study provides further incentive for assessment and treatment of PTSD in primary care settings. Primary care providers often recognize and intervene when depression is present, yet if only MDD is recognized, its comorbidity with PTSD may go unnoted. In a recent study, 36% of depressed primary care patients also screened positive for current PTSD.<sup>24</sup> In another recent study of primary care patients, only 11% of research participants diagnosed with current PTSD had a diagnosis of PTSD in their charts.<sup>26</sup> If women with PTSD are not recognized, the pattern of continued health visits without improvement in symptoms is likely to continue. Assessment for PTSD has been suggested in patients who experience somatization, chronic pain, or unexplained medical symptoms or general distress,<sup>43</sup> as these conditions have been linked to PTSD in women. Treatment of PTSD in primary care settings involves recognizing symptoms as early as possible in traumatized individuals and subsequent treatment of symptoms with psychotropic medications or referral for psychotherapy.<sup>44</sup>

This study provides further evidence of high rates of PTSD in healthcare-seeking low-income urban women,<sup>11,25</sup> but it does not provide insight into the reasons for increased risk or how best to intervene. Previous studies have linked early trauma, multiple victimizations, chronic exposure to community violence, and inadequate medical resources to high PTSD risk in low-income urban women.<sup>1,2,4,45</sup> Understanding the source of elevated PTSD risk may inform improved screening methods and also may foster the development of interventions targeted at low-income urban women. General interventions for PTSD in primary care settings include medication, short-term psychotherapy, and referral to psychiatric clinics,<sup>46,47</sup> yet urban women may have unique needs. Social support,<sup>48</sup> spiritual well-being,<sup>49</sup> and integrated treatment for alcohol and drug abuse<sup>50,51</sup> are identified needs for traumatized urban women. Integrating these and other unique needs may improve treatment of PTSD in urban women and

possibly reduce the physical health declines observed in this study and in previous studies. Interventional studies are needed to determine the best method to address this complex issue in low-income urban women who are at high risk for PTSD and the associated physical health declines.

There are limitations to the current study that should be mentioned. First, this study was cross-sectional and included only low-income urban women, which may limit the generalizability of the study findings. In addition, the sample size limited examination of other factors that may have influenced the association between health and PTSD, including the experience of trauma, but not the development of PTSD. In addition, in the analysis of healthcare utilization, participants may have used services other than those of the clinic that could not be accounted for. Lastly, this study used self-reporting of medical conditions, which may not be as stringent as physical examination by a healthcare provider or a medical record review.

In conclusion, healthcare-seeking low-income urban women displayed high rates of trauma, and those who developed PTSD exhibited multiple health impairments. This study provides additional incentive for improved assessment and treatment of PTSD in the primary care setting, where women most often appear with PTSD symptoms and where interventions for PTSD may be most successful. By treating PTSD symptoms, physical health impairments may also be improved. However, treating PTSD in low-income urban women may require more than standard treatment approaches.

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### Disclosure Statement

The authors have no conflicts of interest to report.

### References

- Breslau N, Kessler RC, Chilcoat HD, Schultz LR, Davis GC, Andreski P. Trauma and posttraumatic stress disorder in the community: The 1996 Detroit Area Survey of Trauma. *Arch Gen Psychiatry* 1998;55:626–632.
- Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 1995;52:1048–1060.
- Kubzansky LD, Koenen KC, Spiro A, III, Vokonas PS, Sparrow D. Prospective study of posttraumatic stress disorder symptoms and coronary heart disease in the Normative Aging Study. *Arch Gen Psychiatry* 2007;64:109–116.
- Boscarino JA. External-cause mortality after psychologic trauma: The effects of stress exposure and predisposition. *Compr Psychiatry* 2006;47:503–514.
- Norris FH, Murphy AD, Baker CK, Perilla JL. Postdisaster PTSD over four waves of a panel study of Mexico's 1999 flood. *J Trauma Stress* 2004;17:283–292.
- Pulcino T, Galea S, Ahern J, Resnick H, Foley M, Vlahov D. Posttraumatic stress in women after the September 11 terrorist attacks in New York City. *J Womens Health* 2003;12:809–820.
- Baker CK, Norris FH, Diaz DM, Perilla JL, Murphy AD, Hill EG. Violence and PTSD in Mexico: Gender and regional differences. *Soc Psychiatry Psychiatr Epidemiol* 2005;40:519–528.
- North CS, Pfefferbaum B, Tivis L, Kawasaki A, Reddy C, Spitznagel EL. The course of posttraumatic stress disorder in a follow-up study of survivors of the Oklahoma City bombing. *Ann Clin Psychiatry* 2004;16:209–215.
- Breslau N, Davis GC, Andreski P, Peterson EL, Schultz LR. Sex differences in posttraumatic stress disorder. *Arch Gen Psychiatry* 1997;54:1044–1048.
- Alim TN, Charney DS, Mellman TA. An overview of posttraumatic stress disorder in African Americans. *J Clin Psychol* 2006;62:801–813.
- Alim TN, Graves E, Mellman TA, et al. Trauma exposure, posttraumatic stress disorder and depression in an African-American primary care population. *J Natl Med Assoc* 2006;98:1630–1636.
- Lipschitz DS, Rasmusson AM, Anyan W, Cromwell P, Southwick SM. Clinical and functional correlates of posttraumatic stress disorder in urban adolescent girls at a primary care clinic. *J Am Acad Child Adolesc Psychiatry* 2000;39:1104–1111.
- Schwartz AC, Bradley RL, Sexton M, Sherry A, Ressler KJ. Posttraumatic stress disorder among African Americans in an inner city mental health clinic. *Psychiatr Serv* 2005;56:212–215.
- Galea S, Ahern J, Tracy M, et al. Longitudinal determinants of posttraumatic stress in a population based cohort study. *Epidemiology* 2008;19:47–54.
- Mezey G, Bacchus L, Bewley S, White S. Domestic violence, lifetime trauma and psychological health of childbearing women. *Br J Obstet Gynaecol* 2005;112:197–204.
- Breslau N. Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Can J Psychiatry* 2002;47:923–929.
- Schulz A, Willimas D, Israel B, et al. Unfair treatment, neighborhood effects, and mental health in the Detroit metropolitan area. *J Health Soc Behav* 2000;41:314–332.
- McNutt LA, Carlson BE, Persaud M, Postmus J. Cumulative abuse experiences, physical health and health behaviors. *Ann Epidemiol* 2002;12:123–130.
- Dailey DE, Humphreys JC, Rankin SH, Lee KA. An exploration of lifetime trauma exposure in pregnant low-income African American women. *Matern Child Health J* 2008;
- Rosen D, Seng JS, Tolman RM, Mallinger G. Intimate partner violence, depression, and posttraumatic stress disorder as additional predictors of low birth weight infants among low-income mothers. *J Interpers Violence* 2007;22:1305–1314.
- Dobie DJ, Kivlahan DR, Maynard C, Bush KR, Davis TM, Bradley KA. Posttraumatic stress disorder in female veterans: Association with self-reported health problems and functional impairment. *Arch Intern Med* 2004;164:394–400.
- Ciechanowski PS, Walker EA, Russo JE, Newman E, Katon WJ. Adult health status of women HMO members with posttraumatic stress disorder symptoms. *Gen Hosp Psychiatry* 2004;26:261–268.
- Bruce SE, Weisberg RB, Dolan RT, et al. Trauma and posttraumatic stress disorder in primary care patients. *Prim Care Companion J Clin Psychiatry* 2001;3:211–217.

24. Gerrity MS, Corson K, Dobscha SK. Screening for posttraumatic stress disorder in VA primary care patients with depression symptoms. *J Gen Intern Med* 2007;22:1321–1324.
25. Lipschitz DS, Rasmusson AM, Anyan W, et al. Posttraumatic stress disorder and substance use in inner-city adolescent girls. *J Nerv Ment Dis* 2003;191:714–721.
26. Liebschutz J, Saitz R, Brower V, et al. PTSD in urban primary care: High prevalence and low physician recognition. *J Gen Intern Med* 2007;22:719–726.
27. Walker EA, Katon W, Russo J, Ciechanowski P, Newman E, Wagner AW. Health care costs associated with posttraumatic stress disorder symptoms in women. *Arch Gen Psychiatry* 2003;60:369–374.
28. Weisberg RB, Bruce SE, Machan JT, Kessler RC, Culpepper L, Keller MB. Nonpsychiatric illness among primary care patients with trauma histories and posttraumatic stress disorder. *Psychiatr Serv* 2002;53:848–854.
29. Stein MB, McQuaid JR, Pedrelli P, Lenox R, McCahill ME. Posttraumatic stress disorder in the primary care medical setting. *Gen Hosp Psychiatry* 2000;22:261–269.
30. Gillock KL, Zayfert C, Hegel MT, Ferguson RJ. Posttraumatic stress disorder in primary care: Prevalence and relationships with physical symptoms and medical utilization. *Gen Hosp Psychiatry* 2005;27:392–399.
31. Kubany ES, Leisen MB, Kaplan AS, Kelly MP. Validation of a brief measure of posttraumatic stress disorder: The Distressing Event Questionnaire (DEQ). *Psychol Assess* 2000;12:197–209.
32. Zimmerman M, Sheeran T, Young D. The Diagnostic Inventory for Depression: A self-report scale to diagnose DSM-IV major depressive disorder. *J Clin Psychol* 2004;60:87–110.
33. Weathers FW, Keane TM, Davidson JR. Clinician-administered PTSD scale: A review of the first ten years of research. *Depress Anxiety* 2001;13:132–156.
34. Foa EB, Tolin DF. Comparison of the PTSD Symptom Scale-Interview Version and the clinician-administered PTSD scale. *J Trauma Stress* 2000;13:181–191.
35. Woods SJ, Wineman NM. Trauma, posttraumatic stress disorder symptom clusters, and physical health symptoms in postabused women. *Arch Psychiatr Nurs* 2004;18:26–34.
36. Frayne SM, Seaver MR, Loveland S, et al. Burden of medical illness in women with depression and posttraumatic stress disorder. *Arch Intern Med* 2004;164:1306–1312.
37. Kimerling R, Clum GA, Wolfe J. Relationships among trauma exposure, chronic posttraumatic stress disorder symptoms, and self-reported health in women: Replication and extension. *J Trauma Stress* 2000;13:115–128.
38. Schur EA, Afari N, Furberg H, et al. Feeling bad in more ways than one: Comorbidity patterns of medically unexplained and psychiatric conditions. *J Gen Intern Med* 2007;22:818–821.
39. Sareen J, Cox BJ, Stein MB, Afifi TO, Fleet C, Asmundson GJ. Physical and mental comorbidity, disability, and suicidal behavior associated with posttraumatic stress disorder in a large community sample. *Psychosom Med* 2007;69:242–248.
40. Butterfield MI, Becker M, Marx CE. Post-traumatic stress disorder in women: Current concepts and treatments. *Curr Psychiatry Rep* 2002;4:474–486.
41. Spiro A III, Hankin CS, Mansell D, Kazis LE. Posttraumatic stress disorder and health status: The veterans health study. *J Ambul Care Manage* 2006;29:71–86.
42. Ouimette P, Cronkite R, Henson BR, Prins A, Gima K, Moos RH. Posttraumatic stress disorder and health status among female and male medical patients. *J Trauma Stress* 2004;17:1–9.
43. Nakell L. Adult post-traumatic stress disorder: Screening and treating in primary care. *Prim Care* 2007;34:593–610.
44. Bobo WV, Warner CH, Warner CM. The management of posttraumatic stress disorder (PTSD) in the primary care setting. *South Med J* 2007;100:797–802.
45. Breslau N, Lucia VC, Davis GC. Partial PTSD versus full PTSD: An empirical examination of associated impairment. *Psychol Med* 2004;34:1205–1214.
46. Vieweg WV, Julius DA, Fernandez A, Beatty-Brooks M, Hettema JM, Pandurangi AK. Posttraumatic stress disorder: Clinical features, pathophysiology, and treatment. *Am J Med* 2006;119:383–390.
47. Bisson J, Andrew M. Psychological treatment of post-traumatic stress disorder (PTSD). *Cochrane Database Syst Rev* 2007;3:CD003388.
48. Glass N, Perrin N, Campbell JC, Soeken K. The protective role of tangible support on post-traumatic stress disorder symptoms in urban women survivors of violence. *Res Nurs Health* 2007;30:558–568.
49. Arnette NC, Mascaro N, Santana MC, Davis S, Kaslow NJ. Enhancing spiritual well-being among suicidal African American female survivors of intimate partner violence. *J Clin Psychol* 2007;63:909–924.
50. Amaro H, Dai J, Arevalo S, et al. Effects of integrated trauma treatment on outcomes in a racially/ethnically diverse sample of women in urban community-based substance abuse treatment. *J Urban Health* 2007;84:508–522.
51. Cohen LR, Hien DA. Treatment outcomes for women with substance abuse and PTSD who have experienced complex trauma. *Psychiatr Serv* 2006;57:100–106.

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