**Supplementary Methods**

**Trauma and PTSD Assessment**

In 2008, 60,804 women who filled out a questionnaire querying violence exposure in 2001 and returned the 2007 NHS II biennial questionnaire were mailed a supplemental screening questionnaire measuring lifetime trauma exposure and PTSD symptoms. To maximize retention, supplemental surveys are sent only to those who return biennial questionnaires. On this supplemental screening questionnaire, trauma exposure was assessed with a 16-item modified version of the Brief Trauma Questionnaire (Morgan III *et al*., 2001), a reliable and valid measure of trauma exposure that parallels interview measures (Schnurr *et al.*, 1999). Lifetime exposure to 15 traumatic events (e.g., natural disaster exposure, sexual assault), in addition to “a seriously traumatic event not already covered,” was queried. Respondents identified their first and worst traumatic events, along with their ages at these events. The Short Screening Scale for *DSM-IV* PTSD (Breslau *et al*., 1999) was used to assess whether women ever experienced seven PTSD symptoms in response to their worst trauma. Reliability of self-reported age-of-onset of trauma and PTSD has been excellent in this sample (ICC=.95).

A total of 54,224 women returned the supplemental trauma and PTSD screening questionnaire (89% response rate). Eighty-one percent of responders reported exposure to at least one trauma and were invited to complete a PTSD diagnostic interview administered via phone. Among those who agreed to be interviewed, 2,112 probable cases of PTSD based on the screening questionnaire and 2,001 trauma-exposed matched controls were identified. Of these women, 73% (*n*=3,013) completed the interview in 2009. During the interview, women indicated whether they experienced any of 25 potentially traumatic events or “any other very stressful situation or event.” Respondents specified their worst event and when it occurred. The 17 *DSM-IV* PTSD symptoms (American Psychiatric Association, 2000) were assessed with respect to this worst event using a slightly modified version of the PTSD Checklist-Civilian version (Weathers *et al*., 1994) conducted in interview format (Kessler and Üstün, 2004). Participants were asked to think of the period following the event when symptoms were most intense, and then reported whether they had ever been bothered by each of 17 symptoms, rated on a 0 (“Not at all”) to 4 (“Extremely”) scale. This protocol has been previously published (Koenen *et al.*, 2009), and responses to this telephone diagnostic interview have been validated against the Clinician-Administered PTSD Scale (Blake *et al*., 1998) in another cohort with high concordance (Uddin *et al*., 2010).

**Covariates**

Potential confounders included age, race/ethnicity, maximum parental education at the participant’s birth (high school or less, some college, 4+ years of college), and maternal and paternal history of hypertension. We also considered age 5 somatotype to account for the association of childhood adiposity with later hypertension risk. Participants selected one of nine pictograms that reflected their body shape and size at age 5 years; somatotypes 5-9 were collapsed into a single category representing the greatest adiposity as few women reported levels greater than 5. Time-varying indicators for the hypertension-relevant medical risk factors, medications, and health behaviors were included as biomedical covariates. These variables were assessed at baseline via self-report and updated biennially, unless otherwise noted. As in prior research (Chasan-Taber *et al.*, 1996, Gangwisch *et al.*, 2013), oral contraceptive use was coded as never used, current user, or former user, and menopausal status and hormone therapy (HT) use was coded as pre-menopausal, post-menopausal/never HT, post-menopausal/past HT, post-menopausal/current HT, post-menopausal/missing HT, or dubious menopausal status. Current aspirin use, acetaminophen use, and other nonsteroidal anti-inflammatory drug use were assessed with each biennial questionnaire except in 1991 (Gangwisch *et al.*, 2013). Lifetime antidepressant use was assessed in 1993, and regular past 2-year antidepressant use was assessed biennially starting in 1997. Women endorsing lifetime use in 1993 were coded as using antidepressants from 1989-1993; use was updated as available. Physician-diagnosed hypercholesterolemia was coded as present/absent. Adult body mass index (BMI) in kg/m2 was computed from self-reported height and weight [validated in prior NHS research (Rimm *et al.*, 1990)] and categorized as <18.5, 18.5-<21, 21-<23, 23-<25, 25-<27, 27-<30, and 30+ (Munger *et al.*, 2009). Participants were classified as nonsmokers, former smokers, or current smokers of 1-14, 15-24, or 25+ cigarettes/day. Alcohol consumption (0, 1-4, 5-9, 10-19, 20+ grams/day) was assessed in 1989 and then every 4 years beginning in 1991. Physical activity (<3, 3-8.9, 9-17.9, 18-26.9, 27+ metabolic equivalent hours/week) was measured in 1989, 1991, 1997, 2001, 2005, and 2009. Diet quality based on the Alternative Healthy Eating Index (Chiuve *et al.*, 2012) was assessed every 4 years beginning in 1991. Diet quality was divided into quintiles; the highest quintile represented the healthiest diet.

**References**

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

**Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Charney, D. S., & Keane, T. M.** (1998). *Clinician-Administered PTSD Scale for DSM-IV (CAPS-IV)*. National Center for Posttraumatic Stress Disorder.

**Breslau, N., Peterson, E. L., Kessler, R. C., & Schultz, L. R.**(1999).Short screening scale for *DSM-IV* posttraumatic stress disorder. *American Journal of Psychiatry***156**, 908-911.

**Chasan-Taber, L., Willett, W. C., Manson, J. E., Spiegelman, D., Hunter, D. J., Curhan, G., Colditz, G. A. & Stampfer, M. J.** (1996). Prospective study of oral contraceptives and hypertension among women in the United States. *Circulation* **94**, 483-489.

**Chiuve, S. E., Fung, T. T., Rimm, E. B., Hu, F. B., McCullough, M. L., Wang, M., Stampfer, M. J. & Willett, W. C.** (2012). Alternative dietary indices both strongly predict risk of chronic disease. *Journal of Nutrition* **142**, 1009-1018.

**Gangwisch, J. E., Feskanich, D., Malaspina, D., Shen, S. & Forman, J. P.** (2013). Sleep duration and risk for hypertension in women: results from the Nurses’ Health Study. *American Journal of Hypertension* **26**, 903-911.

**Kessler, R. C. & Üstün, T. B.** (2004). The world mental health (WMH) survey initiative version of the world health organization (WHO) composite international diagnostic interview (CIDI). *International Journal of Methods in Psychiatric Research* **13**, 93-121.

**Koenen, K. C., De Vivo, I., Rich-Edwards, J., Smoller, J. W., Wright, R. J. & Purcell, S. M.** (2009). Protocol for investigating genetic determinants of posttraumatic stress disorder in women from the Nurses' Health Study II. *BMC Psychiatry* **9**, 29.

**Morgan III, C. A., Hazlett, G., Wang, S., Richardson, E. G. Jr, Schnurr, P., & Southwick, S. M.** (2001). Symptoms of dissociation in humans experiencing acute, uncontrollable stress: a prospective investigation. American Journal of Psychiatry **158**, 1239-1247.

**Munger, K. L., Chitnis, T. & Ascherio, A.** (2009). Body size and risk of MS in two cohorts of US women. *Neurology* **73**, 1543-1550.

**Rimm, E. B., Stampfer, M. J., Colditz, G. A., Chute, C. G., Litin, L. B. & Willett, W. C.** (1990). Validity of self-reported waist and hip circumferences in men and women. *Epidemiology* **1**, 466-473.

**Schnurr, P. P., Vieilhauer ,M. J., Weathers, F., & Findler, M.**(1999). *The Brief Trauma*

*Questionnaire*. National Center for PTSD: White River Junction.

**Uddin, M., Aiello, A. E., Wildman, D. E., Koenen, K. C., Pawelec, G., de Los Santos, R., Goldmann, E., & Galea, S.** (2010). Epigenetic and immune function profiles associated with posttraumatic stress disorder. *Proceedings of the National Academy of Sciences* **107**, 9470-9475.

Supplementary Table 1. Correlations among the lower-order posttraumatic symptom dimensions of the dysphoric arousal model

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1. | 2. | 3. | 4. | 5. |
| 1. Re-experiencing | --- |  |  |  |  |
| 2. Avoidance | .56 | --- |  |  |  |
| 3. Anxious arousal | .53 | .42 | --- |  |  |
| 4. Numbing | .58 | .55 | .43 | --- |  |
| 5. Dysphoric arousal | .58 | .41 | .42 | .66 | --- |

*Note.* All correlations significant at *p*<.0001.

Supplementary Table 2. Adjusted hazard ratios (95% confidence intervals) for the association of posttraumatic fear symptom dimension quintiles with incident hypertension in 2,709 trauma-exposed women, adjusting for residualized dysphoria symptom dimension quintiles, 1989 to 2013 assessmentsa

|  |
| --- |
| Fear Symptom Dimension Quintiles |
| 1 | 2 | 3 | 4 | 5 |  |
| HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | *P*-trenda |
| 1 (ref) | 0.99(0.77–1.27) | 0.93(0.73–1.19) | 1.10(0.87–1.38) | 1.27(1.00–1.62) | .03 |
| Residualized Dysphoria Symptom Dimension Quintiles |
| HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | *P*-trenda |
| 1 (ref) | 0.94 (0.75–1.16) | 1.02(0.79–1.32) | 0.88(0.68–1.13) | 1.02(0.79–1.31) | .71 |

*Note*. HR=hazard ratio. CI=confidence interval. There were 925 incident hypertension events over 56,561 person-years.

aModel also adjusted for age, race/ethnicity, parental education, maternal and paternal history of hypertension, age 5 somatotype, oral contraceptive use, menopausal status, hormone therapy use, hypercholesterolemia, acetaminophen use, aspirin use, other nonsteroidal anti-inflammatory drug use, antidepressant use, body mass index, cigarette smoking, alcohol intake, physical activity, and diet quality.

Supplementary Table 3. Adjusted hazard ratios (95% confidence intervals) for the association of posttraumatic dysphoria symptom dimension quintiles with incident hypertension in 2,709 trauma-exposed women, adjusting for residualized fear symptom dimension quintiles, 1989 to 2013 assessmentsa

|  |
| --- |
| Dysphoria Symptom Dimension Quintiles |
| 1 | 2 | 3 | 4 | 5 |  |
| HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | *P*-trenda |
| 1 (ref) | 0.97(0.76–1.23) | 0.97(0.75–1.24) | 1.11(0.87–1.41) | 1.03(0.79–1.33) | .61 |
| Residualized Fear Symptom Dimension Quintiles |
| HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | HR(95% CI) | *P*-trenda |
| 1 (ref) | 1.21(0.96–1.53) | 1.07(0.84–1.36) | 1.05(0.82–1.34) | 1.22(0.96–1.55) | .18 |

*Note*. HR=hazard ratio. CI=confidence interval. There were 925 incident hypertension events over 56,561 person-years.

aModel also adjusted for age, race/ethnicity, parental education, maternal and paternal history of hypertension, age 5 somatotype, oral contraceptive use, menopausal status, hormone therapy use, hypercholesterolemia, acetaminophen use, aspirin use, other nonsteroidal anti-inflammatory drug use, antidepressant use, body mass index, cigarette smoking, alcohol intake, physical activity, and diet quality.

**Figure Legend**

Supplementary Figure 1. Timeline of study baselines for 2,709 trauma-exposed women in the analytic sample. Each woman’s baseline for this study was determined by when she was first exposed to trauma, as reported on the trauma and PTSD screening questionnaire. As the vast majority of women (91.1%; *n*=2,468) were first exposed to trauma prior to cohort enrollment in 1989, we set their baseline for the current study as the 1989 assessment. However, some women had later baselines for this study because they were exposed to their first trauma after 1989.

