The Effect of Employment Status in Postdisaster Recovery: A Longitudinal Comparative Study Among Employed and Unemployed Affected Residents

Mark W. G. Bosmans and Peter G. Van der Velden

Research Institute for Flexicurity, Labour Market Dynamics and Social Cohesion (ReflecT), Tilburg University, Tilburg, The Netherlands
International Victimology Institute Tilburg (INTERVICT), Tilburg University, Tilburg, The Netherlands
NETHLAB, Tilburg University’s Network on Health and Labor

Population studies have shown that employed adults are healthier than unemployed adults. In this study, we examined whether this “healthy worker effect” is relevant in postdisaster mental health by examining whether trauma-exposed employed individuals have lower postdisaster initial mental health problems and/or whether they recover faster than trauma-exposed unemployed individuals. We compared the course of postevent intrusion and avoidance reactions, anxiety, depression, and sleeping difficulties of employed residents (n = 291) and unemployed residents (n = 269) affected by a fireworks disaster in a residential area of Enschede, The Netherlands. Measurements took place at 2–3 weeks (T1), 18 months (T2), and 4 years (T3) postdisaster. We used linear mixed-effect models to examine the course of mental health problems. Employment status was relevant, to a degree, in posttrauma recovery; although affected employed residents had significantly lower levels of mental health problems (initially and over time) than the unemployed, the recovery rate was the same for both groups. At T1 (neglecting the DSM 1-month criterion), T2, and T3, the prevalence of probable posttraumatic stress disorder was 45.4%, 18.9%, and 11%, respectively, among employed individuals, and 70.1%, 32.5%, and 30% among unemployed individuals. We concluded that research into the mental health of disaster victims should take employment status into account. Regarding postdisaster care, unemployed individuals may need special attention; although they may recover at the same rate as employed individuals, they suffer from more severe mental health problems, even years after the disaster.

Research has demonstrated that adults react very differently to potentially traumatic events, such as traffic accidents, sexual and nonsexual violence, burglaries, and disasters. A variable minority will develop severe and ongoing mental health problems such as anxiety, depression, and posttraumatic stress disorder (PTSD) symptomatology (Bonanno, 2004; Breslau, 2002; Keane, Marshall, & Taft, 2006; Norris, Friedman, & Watson, 2002; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011).

Authors of several studies have also shown that adjustment to traumatic events varies not only in terms of severity of mental health problems but also in terms of duration and rate of recovery (Bonanno, 2004; Bonanno & Mancini, 2012; Norris, Tracy, & Galea, 2009; Van der Velden, Wong, Boshuizen, & Grievink, 2013).

The question of why some victims suffer from ongoing and/or severe posttrauma mental health problems whereas others do not has led to a wide body of recent research. This research on risk and protective factors for adverse mental health outcomes that occur after potentially traumatic events has mainly focused on (a) the influence of different aspects of the affected person, such as mental health history, coping styles, personality, and demographics; (b) the specifics of the event, such as the number of casualties, perceived threat, and peritraumatic responses; and (c) an individual’s environment, such as variables like social support, loneliness, and social context (Breslau, 2002; Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2008; Vogt, Erbes, & Polusny, 2017). These studies have clearly demonstrated that the development and course of posttrauma mental health problems are complex and determined by multiple factors, but a reliable prediction of an individual’s

This study is part of a longitudinal study among adult victims of a fireworks disaster, which took place on May 13, 2000, in the city of Enschede in the Netherlands. We thank all respondents for their time and effort.

Correspondence concerning this article should be addressed to Mark W. G. Bosmans, ReflecT, Tilburg University, Warandelaan 2, 5037 AB, PO Box 90153 Tilburg, The Netherlands. E-mail: m.w.g.bosmans@tilburg university.edu

Copyright © 2018 The Authors. Journal of Traumatic Stress published by Wiley Periodicals, Inc. on behalf of International Society for Traumatic Stress Studies. View this article online at wileyonlinelibrary.com DOI: 10.1002/jts.22282

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.
posttrauma mental health problems in the short, medium, and/or long term is still in its infancy.

Remarkably, to date, no studies on trauma have systematically assessed whether being employed or having a job decreases the risk for postevent mental health problems at different stages postevent. Previous researchers have shown that employed individuals may benefit from resources related to work, including income, status, relationships, and esteem (Chen, Westman, & Hobfoll, 2015; Paul & Batinic, 2010), and thus may have more resources to help them cope with adverse events. In previous studies not dealing with trauma, authors have demonstrated that employed adults have fewer physical and mental health problems than the general adult population. For instance, meta-analyses by McKee-Ryan, Song, Wanberg, and Kinicki (2005) and Paul and Moser (2009) have shown that the average proportion of individuals with psychological problems is more than twice as high in unemployed groups as it is in employed groups. Because of the lower prevalence of physical and mental health problems among employed individuals, this effect is often called the "healthy worker effect" (e.g., Li & Sung, 1999; Agerbo, 2005).

Based on the outcomes of the meta-analyses by McKee-Ryan et al. (2005) and Paul and Moser (2009), it can be hypothesized that employed adult victims have significantly lower levels of postevent mental health problems as compared to those who are unemployed adult victims. As such, employment status may be a relevant factor in posttrauma recovery and represent an additional way to identify individuals who are at risk for adverse outcomes. If the differences between the health of the working population and the nonworking population extend to mental health outcomes in people who have survived traumatic events (such as disasters), nonworking survivors are a group that needs special attention in posttrauma care.

To the best of our knowledge, there are no longitudinal studies that have assessed and compared the course of postevent mental health problems in the short, medium, and long term among affected employed and unemployed victims of traumatic events, despite the fact that work status may be associated with posttrauma mental health. The aim of the present study was to fill this gap in scientific knowledge and determine if employment status is indeed relevant for the early identification of adults affected by potentially traumatic events. For this purpose, we extracted data from a three-wave longitudinal study conducted following the large-scale fireworks disaster that took place in May 2000 in a residential area in the city of Enschede in the Netherlands. Participants received a €12 (approximately $15 USD) token gift at the time they took the second and third surveys. Surveys were administered to exposed adult residents at 2–3 weeks (Time 1 [T1]), 18 months (Time 2 [T2]), and 4 years (Time 3 [T3]) postdisaster. Response rates were 33.3%, 79.5% and 73.0% at T1, T2, and T3, respectively. Nonresponse analyses showed that nonresponse had little effect on the prevalence rates of mental health problems (Grievink, Van der Velden, Yzermans, and Grievink, 2009). The same was true for loss to follow-up (Dijkema, Grievink, Stellato, Roorda, & Van der Velden, 2005). For the present study, we compared the course of mental health among employed affected adults (defined as those who worked 19 hr per week or more; n = 291) with that of affected adults who were not active in the workforce (including individuals who had lost their employment or who were retired, disabled, or homemakers, but not students; n = 269). We selected only those residents who were either employed or not employed at all three times of measurement.

**Measures**

**Disaster exposure.** Disaster exposure was assessed at T1 using a list of 21 items that indexed experiences during or immediately after the disaster, such as “felt air pressure from the fatal explosion,” “experienced intense fear,” or “seen injured or dead people.” Participants were asked to respond yes or no, and responses were coded as 0 for no and 1 for yes.

**Posttraumatic stress symptoms.** We measured event-related intrusion and avoidance reactions using the original 15-item Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979), as the revised version (i.e., the IES-R) was not yet available in Dutch at T1. Previous studies of different traumatic events have proven the construct validity and reliability of the Dutch version of this instrument (Van der Ploeg, Mooren, Kleber, Van der Velden, & Brom, 2004). Cronbach’s
Table 1

Descriptive Characteristics of the Sample

| Characteristic          | Employed (n = 291) | Unemployed (n = 269) | p²  |
|-------------------------|--------------------|----------------------|-----|
|                         | %                  | M        | SD  | %      | M   | SD  |     |
| Sex (male)              | 62.9               |          |     | 25.7   |     |     | <.001 |
| Education               |                    |          |     |        |     |     |     |
| None/primary            | 5.3                |          |     | 22.3   |     |     | <.001 |
| Lower                   | 26.0               |          |     | 50.0   |     |     |     |
| Intermediate            | 42.1               |          |     | 16.9   |     |     |     |
| Higher                  | 26.7               |          |     | 10.8   |     |     |     |
| Exposure                | 11.05              | 5.25     |     | 10.78  | 5.18 |     | .539 |
| Age, years              | 38.67              | 9.45     |     | 51.84  | 13.46|     | <.001 |
| IES                     |                    |          |     |        |     |     |     |
| T1                      | 32.71              | 16.89    |     | 43.72  | 16.41|     | <.001 |
| T2                      | 17.47              | 16.90    |     | 26.47  | 18.20|     | <.001 |
| T3                      | 11.62              | 15.09    |     | 23.00  | 19.80|     | <.001 |
| SCL-90-R Depression     |                    |          |     |        |     |     |     |
| T1                      | 27.13              | 11.79    |     | 32.32  | 13.28|     | <.001 |
| T2                      | 22.76              | 9.55     |     | 28.00  | 12.54|     | <.001 |
| T3                      | 21.69              | 9.25     |     | 26.95  | 12.82|     | <.001 |
| SCL-90-R Anxiety        |                    |          |     |        |     |     |     |
| T1                      | 16.42              | 7.19     |     | 21.34  | 9.63 |     | <.001 |
| T2                      | 13.80              | 5.92     |     | 17.79  | 8.13 |     | <.001 |
| T3                      | 12.94              | 5.14     |     | 16.63  | 8.15 |     | <.001 |
| SCL-90-R Sleep Difficulties |                |          |     |        |     |     |     |
| T1                      | 6.64               | 3.56     |     | 8.00   | 3.72 |     | .343 |
| T2                      | 5.16               | 2.81     |     | 6.82   | 3.43 |     | <.001 |
| T3                      | 4.83               | 2.53     |     | 6.65   | 3.63 |     | <.001 |

Note. T1 = Time 1; T2 = Time 2; T3 = Time 3; IES = Impact of Events Scale; SCL-90-R = Symptom Checklist-90-Revised

αComparison between samples.

alpha values for the IES were high across all time points and for both samples (αs = .92–.95).

Anxiety, depression, and sleeping difficulties. We assessed anxiety, depression, and sleeping difficulties using the appropriate subscales of the Dutch version of the Symptom Checklist-90-R (SCL-90-R; Derogatis, 1979). The validity and reliability of the Dutch version of this measure has been demonstrated (Arindell & Ettema, 1986). In the current samples and across all time points, the Cronbach’s alpha values for the Anxiety (αs = .82–.94), Depression (αs = .88–.95), and Sleeping Difficulties subscales (αs = .73–.90) were high.

Data Analysis

We first assessed differences in demographics and study variables using t tests and chi-square statistics, and used Cohen’s d for effect size. The courses of posttrauma mental health problems were analyzed using linear mixed-effect models. To rule out the possibility that differences in the course of problems between both groups could be attributed to expected differences in demographics between employed and unemployed participants as well as possible differences in disaster exposure, we added these variables into our analyses as fixed effects. The models included random intercepts. The estimated fixed effects were age, sex, education, exposure, time, group, and Time × Group interaction. Maximum likelihood estimation was used to deal with missing values for any of the study variables. Model fit was assessed using Bayesian Information Criterion (BIC). In model comparisons, the model with the lowest BIC is the better fitting model. We used IBM SPSS, version 23, to conduct all statistical analyses.

Results

The descriptive characteristics of both groups are presented in Table 1. Our results showed that the average levels of mental health problems were significantly different at all three time points between groups, and the groups differed in demographic characteristics (see Table 1). Unemployed residents had significantly higher levels of posttraumatic stress, depression, and anxiety than employed residents. Effect sizes (Cohen’s d) were
medium-to-large for posttraumatic stress, $d_s = 0.51–0.67$, and anxiety, $d_s = 0.56–0.72$; and medium for depression, $d_s = 0.41–0.45$, at all waves and for sleeping difficulties, $d_s = 0.53–0.59$, at T2 and T3, $d_s = 0.53–0.59$). To give an indication of the severity of mental health problems, we investigated the proportion of each group who scored above the commonly used IES cutoff score for probable PTSD of 35 or higher (Neal, Busuttil, Rollins, Herepath, & Turnbull, 1994; Wohlfarth, van den Brink, Winkel, & Ter Smitten, 2003). Among the employed residents, 45.4% scored above the cutoff at T1, 18.9% at T2, and 11.0% at T3. Among unemployed participants, the probable PTSD prevalence was 70.1%, 32.5%, and 30.0% at T1, T2, and T3, respectively.

Results of linear mixed-effects modeling showed that whereas both group membership (employed or unemployed) and the effect of time were significant, the interaction between time and group was not (see Tables 2 and 3). In other words, although mean symptom levels were different among employed and unemployed residents, the rate of recovery was similar for both groups. Longitudinal results were similar for posttraumatic stress, depression, anxiety, and sleeping difficulties. All other main effects in the analyses were significant, except for the effect of sex.

**Discussion**

The goal of this longitudinal study was to examine to what extent employment status affects the course of posttrauma mental health problems. We assessed this using a sample of employed and unemployed adult victims of a large-scale disaster. Results of the comparisons between employed residents and unemployed residents indicated that employment status is relevant for posttrauma recovery. As hypothesized, unemployed residents suffered from higher levels of posttraumatic stress symptoms, anxiety, depression, and sleeping difficulties in the first weeks postevent, but also in the long term (i.e., both at 18 months and at 4 years postevent). However, the Time × Group interaction effects were not significant, indicating that the rate in which symptom levels of depression, anxiety, sleeping problems, and PTSD declined over time was very similar for both groups. These findings signify two things: Employed residents did not recover at a swifter pace than those who were unemployed; however, the unemployed participants not only suffered from higher levels of mental health problems initially, but they continued to do so in the long term, even years after exposure. The difference in average symptom levels between the two groups did not diminish as time progressed. This could be the result of a higher baseline of mental health problems that were already present before the disaster or of a more severe reaction when a person was confronted with a traumatic event. To determine which scenario is true, additional research using pre-event measurements of mental health would be needed.

Another question is whether employment status helps to explain the differences in posttrauma recovery often found between affected civilians and rescue workers (e.g., Norris, Friedman et al., 2002; Zhang et al., 2016). Rescue workers are often mostly healthy and relatively young individuals. As such, they are generally considered to be a healthier group than the general population, just as the working population has been found to be healthier than the general population (e.g., Van der Velden et al., 2013). The fact that rescue workers are healthier as

| Table 2 | Tests of Fixed Effects |
|---------|------------------------|
|         | df       | F     | p    |
| **Posttraumatic Stress** |         |       |      |
| Intercept | 1,524.86 | 10.988 | .001 |
| Age       | 1,523.87 | 5.708  | .017 |
| Sex       | 1,526.87 | 3.157  | .076 |
| Education | 3,529.07 | 5.486  | .001 |
| Exposure  | 1,527.96 | 65.192 | <.001|
| Time      | 2,715.22 | 388.692| <.001|
| Group     | 1,526.81 | 16.213 | <.001|
| Time × Group | 2,715.18 | .799  | .450 |

| **Depression (BIC 0-model)** | 12713.10 (13256.67) |
| **Anxiety** |         |       |      |
| Intercept   | 1,533.66 | 156.750| <.001|
| Age         | 1,533.59 | 13.151 | <.001|
| Sex         | 1,534.77 | 2.681  | .102 |
| Education   | 3,534.43 | 2.923  | .033 |
| Exposure    | 1,533.77 | 41.827 | <.001|
| Time        | 2,702.32 | 70.463 | <.001|
| Group       | 1,535.09 | 33.419 | <.001|
| Time × Group | 2,702.33 | .096  | .909 |

| **Sleeping Difficulties (BIC 0-model)** | 10241.54 (10718.16) |
| **BIC (BIC 0-model)** | 11240.86 (11890.58) |

Note. BIC = Bayesian information criterion.
Table 3

Parameter Estimates

|                          | B     | 95% CI       | p       |
|--------------------------|-------|--------------|---------|
| Depression               |       |              |         |
| Intercept                | 23.61 | [16.72, 30.49] | < .001  |
| Time 1                   | 2.30  | [1.65, 3.83]  | .124    |
| Time 2                   | 1.09  | [0.69, 1.49]  | .146    |
| Time 3                   | 0.61  | [0.27, 0.95]  | .124    |
| Group employed           | 6.33  | [4.75, 7.92]  | < .001  |
| Time 2* Group employed   | 1.09  | [0.69, 1.49]  | .146    |
| Time 3* Group employed   | 0.61  | [0.27, 0.95]  | .124    |
| Time 2* Employed         | 0.61  | [0.27, 0.95]  | .124    |

| Anxiety                  |       |              |         |
| Intercept                | 21.61 | [14.52, 28.69] | < .001  |
| Time 1                   | 1.50  | [0.70, 2.30]  | .102    |
| Time 2                   | 0.56  | [0.17, 0.94]  | .035    |
| Time 3                   | 0.37  | [0.14, 0.61]  | .028    |
| Group employed           | 3.66  | [2.87, 4.45]  | < .001  |
| Time 2* Group employed   | 0.37  | [0.14, 0.61]  | .028    |
| Time 3* Group employed   | 0.37  | [0.14, 0.61]  | .028    |
| Time 2* Employed         | 0.37  | [0.14, 0.61]  | .028    |

| Posttraumatic Stress     |       |              |         |
| Intercept                | 3.15  | [2.32, 4.07]  | < .001  |
| Time 1                   | 0.76  | [0.48, 1.03]  | .001    |
| Time 2                   | 0.52  | [0.36, 0.70]  | < .001  |
| Time 3                   | 0.28  | [0.20, 0.36]  | < .001  |
| Group employed           | 3.46  | [2.62, 4.33]  | < .001  |
| Time 2* Group employed   | 0.52  | [0.36, 0.70]  | < .001  |
| Time 3* Group employed   | 0.28  | [0.20, 0.36]  | < .001  |
| Time 2* Employed         | 0.28  | [0.20, 0.36]  | < .001  |

| Sleep Difficulties       |       |              |         |
| Intercept                | 6.08  | [4.02, 8.14]  | < .001  |
| Time 1                   | 0.01  | [0.37, 0.64]  | < .001  |
| Time 2                   | 0.03  | [0.07, 0.14]  | < .001  |
| Time 3                   | 0.02  | [0.07, 0.14]  | < .001  |
| Group employed           | 7.21  | [5.00, 9.43]  | < .001  |
| Time 2* Group employed   | 0.03  | [0.07, 0.14]  | < .001  |
| Time 3* Group employed   | 0.02  | [0.07, 0.14]  | < .001  |
| Time 2* Employed         | 0.02  | [0.07, 0.14]  | < .001  |

Note. Reference categories for categorical variables: sex (male); education (no/primary); group (higher, group); time (1 = pretrauma, 2 = posttrauma, 3 = long-term follow-up).

We assessed the healthy worker effect in the perspective of posttrauma recovery among a large sample of disaster victims. Future research is warranted to assess the extent to which the differences and similarities found between employed and unemployed disaster victims can be generalized to victims of other potentially traumatic events, such as traffic incidents, intimate partner violence, and terrorist attacks. Although we used well-validated measures and questionnaires, a possible limitation of the current study is that we did not conduct clinical interviews or assess clinician-rated symptoms. The unemployed sample in this study was a mixed group that included individuals who were unemployed and looking for work, retirees, and homemakers. Due to cell count limits, we were not able to assess and compare the course of posttrauma mental health problems for these subgroups. However, this is common practice when investigating the healthy worker effect: The control groups are generally unemployed, general population samples (e.g., Agerbo, 2005; Li & Sung, 1999).

In addition to the limitations described, this study had important strengths, such as the longitudinal design, the long-term follow-up, and the use of several different mental health outcomes used to investigate the effect of employment status in posttrauma recovery. Future research on the mechanisms behind the effect of employment status in the light of posttrauma recovery is warranted, such as the role of social capital, financial resources, sense of purpose, and other benefits of employment.

Employment status is relevant in posttrauma recovery, yet only to a degree. Although workers have better posttrauma mental health levels—both initially and over time—the rate of recovery is the same for employed and unemployed individuals, which indicates enduring worse mental health problems among the unemployed. Results have implications for both research and policy. Research into the mental health of disaster victims should take employment status into account. The clinical implication of these findings is that the unemployed are
a group that needs special attention and monitoring, as on the group level they suffer from a greater degree of mental health problems than the general public. Differences in mental health did not disappear or diminish in this group, even years postevent. Targeted mental health care might help this vulnerable group recover more quickly after future mass traumatic events.

References

Agerbo, E. (2005). Effect of psychiatric illness and labour market status on suicide: A healthy worker effect? Journal of Epidemiology & Community Health, 59, 598–602. https://doi.org/10.1136/jech.2004.025288

Arindell, W. A., & Ettema, J. H. M. (1986). SCL-90: Handleiding bij een multidimensionele psychopathologie-indicator [SCL-90: Manual to a multidimensional psychopathologic-indicator]. Lisse, The Netherlands: Swest.

Bonanno, G. A. (2004). Loss, trauma and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? American Psychologist, 59, 20–28. https://doi.org/10.1037/0003-066X.59.1.20

Bonanno, G. A., & Mancini, A. D. (2012). Beyond resilience and PTSD: Mapping the heterogeneity of responses to potential trauma. Psychological Trauma, Theory, Research, Practice and Policy, 4, 74–83. https://doi.org/10.1037/a0017829

Bosmans, M.W.G., Benight, C. C., Van der Knaap, L. M., Winkel, F. W., & Van der Velden, P. G. (2013). The associations between coping self-efficacy and posttraumatic stress symptoms 10 years post-disaster: Differences between men and women. Journal of Traumatic Stress, 26, 184–191. https://doi.org/10.1002/jts.21789

Breslau, N. (2002). Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. The Canadian Journal of Psychiatry, 47, 923–929. https://doi.org/10.1177/152483800934448

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. Journal of Consulting and Clinical Psychology, 68, 748–766. https://doi.org/10.1037/0022-006X.68.5.748

Chen, S., Westman, M., & Hobfoll, S. E. (2015). The commerce and crossover of resources: Resource conservation in the service of resilience. Stress and Health, 31, 95–105. https://doi.org/10.1002/smi.2574

Derogatis, L. R. (1979). SCL-90-R: Administration, scoring, and procedures manual-I for the R(edited) version. Baltimore, MD: Johns Hopkins University School of Medicine.

Dijkema, M., Grievink, L., Stellato, R., Roorda, J., & Van der Velden, P. G. (2005). Determinants of response in a longitudinal health study following the wildfire-disaster in Enschede, the Netherlands. European Journal of Epidemiology, 20, 839–847. https://doi.org/10.1007/s10654-0052149-6

Dyregov, A., Kristofferson, J. I., Gjestad, R. (1996). Voluntary and professional disaster-workers: Similarities and differences in reactions. Journal of Traumatic Stress, 9, 541–555. https://doi.org/10.1007/BF02103663

Galea, S., Nandi, A., & Vlahov, D. (2005). The epidemiology of posttraumatic stress disorder after disasters. Epidemiologic Reviews, 27, 78–91. https://doi.org/10.1093/epirev/mxi003

Grievink, L., van der Velden, P. G., Yzermans, C. J., Roorda, J., & Stellato, R. K. (2006). The importance of estimating selection bias on prevalence estimates shortly after a disaster. Annals of Epidemiology, 16, 782–788. https://doi.org/10.1016/j.aneuproc.2006.04.008

Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. Psychosomatic Medicine, 41, 209–218. https://doi.org/10.1097/00006842-197905000-00004

Keane, T. M., Marshall, A. D., & Taft, C. T. (2006). Posttraumatic stress disorder: Etiology, epidemiology, and treatment outcome. Annual Review of Clinical Psychology, 2, 161–197. https://doi.org/10.1146/annurev. clinpsy.2.022305.095305

Li, C. Y., & Sung, F. C. (1999). A review of the healthy worker effect in occupational epidemiology. Occupational Medicine, 49, 225–229. https://doi.org/10.1093/occmed/49.4.225

McKee-Ryan, F. M, Song Z., Wanberg, C. R., & Kinicki, A. J. (2005). Psychological and physical well-being during unemployment: A meta-analytic study. Journal of Applied Psychology, 90, 53–76. https://doi.org/10.1037/0022-006X.90.1.53

Neal, L. A., Busuttil, W., Rollins, J., Herepath, R., Strike, P., & Turnbull, G. (1994). Convergent validity of measures of post-traumatic stress disorder in a mixed military and civilian population. Journal of Traumatic Stress, 7, 447–455. https://doi.org/10.1002/jts.2490070310

Norris, F. H., Foster, J. D., & Weissshaar, D. L. (2002). The epidemiology of sex differences in PTSD across developmental, societal, and research contexts. In R. Kimerling, P. Ouimette, & E. Wolfe (Eds.), Gender and PTSD (pp. 3–42). New York, NY: Guilford Press.

Norris, F. H., Friedman, M. J., & Watson, P. J. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981–2001. Psychiatry, 65, 240–260. https://doi.org/10.1521/psyh.65.3.207.20173

Norris, F. H., Tracy, M., & Galea, S. (2009). Looking for resilience: Understanding the longitudinal trajectories of responses to stress. Social Science and Medicine, 68, 2190–2198. https://doi.org/10.1016/j.socscimed.2009.03.043

North, C. S., Tivis, L., McMillen, J. C., Pfefferbaum, B., Cox, J., Spitznagel, ... Smith, E. M. (2002). Coping, functioning, and adjustment of rescue workers after the Oklahoma City bombing. Journal of Traumatic Stress, 15, 171–175. https://doi.org/10.1023/A:1015286909111

Ozer E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2008). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. Psychological Trauma: Theory, Research, Practice and Policy, 3, 3–36. https://doi.org/10.1037/1942-9681.S.1.3

Paul, K. I., & Butnic, B. (2010). The need for work: Jahoda’s latent functions of employment in a representative sample of the German population. Journal of Organizational Behavior, 31, 45–64. https://doi.org/10.1002/job.622

Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. Journal of Vocational Behavior, 74, 264–282. https://doi.org/10.1016/j.jvb.2009.01.001

Roberts, A. L., Gilman, S. E., Breslau, J., Breslau, N., & Koenen, K. C. (2011). Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. Psychological Medicine, 41, 71–83. https://doi.org/10.1017/S0033291710000401

Stuber, J., Resnick, H., & Galea, S. (2006). Gender disparities in post-traumatic stress disorder after mass trauma. Gender Medicine, 3, 54–67. https://doi.org/10.1016/S1550-8579(06)80194-4

Van der Ploeg, E., Mooren, T. T., Kleber, R. J., van der Velden, P. G., & Brom, D. (2004). Construct validation of the Dutch version of the impact of event scale. Psychological Assessment, 16, 16–26. https://doi.org/10.1037/1040-3590.16.1.162004-11653-003

Van der Velden, P. G., Rademakers, A. R., Vermeuten, E., Yzermans, J., Portengen, M. A., & Grievink, L. (2013). Police officers: A high risk
group for the development of mental health disturbances? A cohort study. *British Medical Journal–Open*, 3(1). https://doi.org/10.1136/bmjopen-2012-001720

Van der Velden, P. G., Yzermans, C. J., & Grievink, L. (2009). The Enschede Fireworks Disaster. In Y. Neria, S. Galea, & F. Norris (Eds.), *Mental health and disasters* (pp. 473–496). New York, NY: Cambridge University Press.

Van der Velden, P. G., Wong, A., Boshuizen, H. C., & Grievink, L. (2013). Persistent mental health disturbances during the 10 years after a disaster: Four-wave longitudinal comparative study. *Psychiatry and Clinical Neuroscience*, 67, 110–118. https://doi.org/10.1111/pcn.12022

Vogt, D., Erbes, C. R., & Polusny M. A. (2017). Role of social context in posttraumatic stress disorder (PTSD). *Current Opinions in Psychology*, 14, 138–142. https://doi.org/10.1016/j.copsyc.2017.01.006

Wohlfarth, T. D., van den Brink, W., Winkel, F. W., & ter Smitten, M. (2003). Screening for posttraumatic stress disorder: An evaluation of two self-report scales among crime victims. *Psychological Assessment*, 15, 101–109. https://doi.org/10.1037/1040-3590.15.1.101

Zhang, G., Pfefferbaum, B., Narayanan, P., Lee, S., Thielman, S., & North, C. S. (2016) Psychiatric disorders after terrorist bombings among rescue workers and bombing survivors in Nairobi and rescue workers in Oklahoma City. *Annals of Clinical Psychiatry*, 28, 22–30. https://doi.org/10.1037/1040-3590.15.1.101