Post-traumatic stress disorder (PTSD) exists among medical professionals during terror campaigns. Clinicians with PTSD may provide poor care. Psychological interventions have been advocated but doctors might be reluctant to receive them.

Previously, we demonstrated that 16% of hospital doctors practising during suicide-bombing attacks in Jerusalem suffered PTSD symptoms. No association was found between PTSD symptoms and professional exposure to victims of terror inside the hospital. Here we test the hypothesis that the presence of PTSD may be associated with exposure to other variables and that it may indicate the presence of coexisting psychological effects that may negatively affect work performance and a reluctance to receive psychological assistance.

**Method**

In our original study, conducted in the two Hadassah medical centres in Jerusalem (tertiary and district), a questionnaire-based survey of hospital doctors working in a mix of departments was conducted during staff meetings. Complimentary and confidential access to a neutral body offering cognitive–behavioural therapy was offered to those electing to be identified and found to be in need.

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The questionnaire included the Post-Traumatic Symptom Scale–Self-Report (PSS–SR), the Maslach Burnout Inventory (MBI), the Brief Symptom Inventory (BSI), the Brief COPE, exposure-to-trauma questionnaires and the Mastery Scale. The PSS–SR defined the study/control groups (PTSD/non-PTSD). Doctors who had a DSM–IV-defined traumatic event, who endorsed qualifying PTSD symptoms on the PSS–SR and who reported significant distress/impairment in functioning (PSS–SR items 18 and 19), were defined as having probable PTSD symptoms. All others were defined as not having PTSD. Outcome measures were: prevalence of causes of PTSD other than those described previously (exposure out of work, previous trauma, working hours); association of PTSD symptoms with additional comorbidities (symptoms following trauma (i.e. reduced functioning (Mastery Scale), stress-induced symptoms (BSI), suffering (PSS–SR item 20)), negative feelings (General Well-Being Schedule, item 27), burnout (MBI), poor coping (Brief COPE)); and adherence to therapy.

Data were analysed using SPSS 10.0 for Windows by H.O. and S.E. Factor analysis was performed for exposure to terror, burnout and coping strategies. Comparisons were performed as follows.

(a) Demographic characteristics: chi-squared was used for categorical variables, Fisher’s exact test for dichotomies, and multivariate analysis of variance (MANOVA) for interval variables based on the appropriateness of parametric methods found in the inspection of the distributions.

(b) Alternative causes of PTSD: MANOVA for the degree of exposure to terror overall and one-way post hoc ANOVA for breakdown of this comparison to exposure in/outside of work and workload assessment. Chi-squared for the prevalence of prior trauma.

(c) Comorbidities: MANOVA was used for all comparisons: burnout, coping, functioning, stress-induced symptoms and feeling (on the General Well-Being Schedule).

(d) Compliance with submitting personal details: chi-squared. Several models (linear, quadratic, cubic, logarithmic and inverse) representing the percentage of PTSD symptoms as a function of the percentage of compliance with questionnaire response were examined and ranked by their goodness of fit measured by $r^2$. Models requiring logarithmic transformation of the outcome variable (percentage of PTSD) could not be computed because of cases with non-positive values.

**Results**

Three-quarters of the doctors approached completed the questionnaires (212 out of 281, 75.4%). Thirty-three (15.6%) had PTSD symptoms. Post-traumatic stress disorder as a cause for bias in questionnaire completion was ruled out by demonstrating that the rate of PTSD symptoms remained proportional to the rate of questionnaire completion; the linear regression fitted best for the percentage of PTSD as a function of the percentage of responders ($r^2=0.353, P=0.01$).

The non-PTSD group comprised more Jewish ($P<0.001$), married participants ($P=0.02$) with higher incomes ($P=0.001$) who had performed army service ($P=0.001$). The groups had similar male-female ratios (22:11 PTSD, 144:35 non-PTSD; $P=0.14$). The participants’ age, number and age of their children, number of years living in Israel and number of years in clinical practice were also similar.

Participants with PTSD symptoms were more exposed to terror out of work ($P<0.001$). The prevalence of lifetime exposure to traumatic events potentially predisposing to PTSD was similar...
disatisfaction in professional relationships\(^\text{9}\) and suboptimal patient care.\(^\text{8}\) The perception of increased workload among the PTSD group may have contributed to burnout. Traumatic workplace experiences are associated with coping problems.\(^\text{10}\) Post-traumatic stress disorder is related to horror, grief and anxiety, and has also been associated with poor work performance.\(^\text{7}\) Burnout, reduced functioning, poor coping and PTSD coexist in our doctors continuing to provide care.

The precipitating condition is not identified in this study and PTSD symptoms may be confounding intermediaries as the relationship between comorbidities is not examined. The existence of prior trauma was only superficially addressed, albeit found equally in both groups. Regardless, it demonstrates that PTSD symptoms may flag those doctors requiring help. Training and debriefing may reduce the incidence of PTSD among doctors working in terror zones.\(^\text{11}\)

As organised acts of aggression against civilian populations spread worldwide, doctors with PTSD symptoms may be found in any hospital. Administrators should be alert to possible manifestations of PTSD among their staff and promote early intervention when necessary.

### References

Differences in psychological effects in hospital doctors with and without post-traumatic stress disorder
Sharon Einav, Arieh Y. Shalev, Hadas Ofek, Sara Freedman, Idit Matot and Carolyn F. Weiniger
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