

### Hospital Personnel Reactions to Haiti's Earthquake: A Preliminary Matching Study

**To the Editor:** On January 12, 2010, Haiti was struck by a magnitude 7.0 Mw earthquake.

The results of the earthquake were severe, as about 230,000 people were killed and more than 300,000 were injured.<sup>1</sup> The Israeli aid delegation arrived in Haiti on January 15, 2010, and established an advanced field hospital. The aid delegation medical wing consisted of 40 physicians and 24 nurses.<sup>2</sup> During a 2-week period, they treated 1,110 patients, conducted 319 successful surgeries of various levels, and delivered 16 births.<sup>3</sup>

The impact of large-scale natural disasters on hospital personnel is unknown. Most studies on hospital personnel have been conducted in the context of armed conflict, war, or terror.<sup>4,5</sup> Studies have shown that exposure to mutilated dead bodies of victims of violent death is a significant predictor of posttraumatic stress symptoms among rescue personnel.<sup>6</sup> Moreover, symptoms of posttraumatic stress disorder (PTSD) are also associated with functional decline among physicians.<sup>7</sup>

The purpose of this preliminary study was to survey the reactions of hospital personnel to the sights in Haiti. On the basis of previous research,<sup>5-7</sup> we hypothesized that the hospital personnel who were in Haiti would report a higher level of posttraumatic stress symptoms, lower life satisfaction, lower perceived coping, and lower self-rated health in comparison to the matched group of hospital personnel who were not in Haiti.

**Method.** The initial contact with the hospital personnel was made in Haiti; 75% (n = 48) gave their permission and consent to be interviewed after the aid mission to Haiti, while 25% (n = 16) refused without elaborating on their reasons. The initial contact with the remaining 75% (n = 48) was by phone, e-mail, and fax. Of

the 75%, 25% (n = 12) refused to participate, stating that they were busy; 29% (n = 14) said that they had returned to routine work at the hospital and, since the Haiti aid mission was behind them, did not feel the need to participate; and 2% (n = 1) did not respond to our contacts despite extensive efforts. The final sample consisted of 21 hospital personnel who were interviewed, representing a response rate of 32.8%. This response rate is similar to those reported in other studies that surveyed hospital personnel who were exposed to traumatic events (ranging from 27%–35%).<sup>8-10</sup>

Participants included 21 Israeli civilian hospital personnel who were in Haiti (mean [SD] age = 40.14 [7.79] years; age range, 25–52 years; 13 men; 14 married; 11 physicians) and 21 civilian Israeli hospital personnel who were not in Haiti and were matched on age, gender, marital status, and profession (mean [SD] age = 40.90 [8.49] years; range, 27–56 years; 13 men; 14 married; 11 physicians). Participants reported no history of medical or psychiatric disorders. Each participant signed an informed consent statement. Data were collected during the week of February 15–18, 2010. The study was approved by the institutional review board of the School of Social Work at Ariel University Center of Samaria.

Due to the conditions, each participant filled out a short demographic survey (age, sex, marital status, profession) along with a brief questionnaire. PTSD symptoms were assessed with the 22-item Impact of Event Scale–Revised (IES-R).<sup>11</sup> Items on this scale were rated from 0 (not at all) to 4 (extremely), representing the participants' distress during the past week. The IES-R total score ranges from 0–88. The Cronbach  $\alpha$  for the IES-R in this study was 0.907.

Life satisfaction was assessed with a single-item question: "In general, how satisfied are you with your life?" The scale ranged from 1 to 4 (1 = very dissatisfied, 2 = dissatisfied, 3 = satisfied, 4 = very satisfied). This measure was found to be valid and highly associated with objective indicators of well-being.<sup>12</sup>

Self-rated health was assessed with a single-item question: "In general, how do you rate your health?" The scale ranged from 1 to 4 (1 = bad, 2 = fair, 3 = good, 4 = excellent). This measure was found to be valid and highly associated with objective indicators of health.<sup>13</sup>

Perceived coping was assessed with the following question: "How well do you think you are handling the situation given the circumstances?" The scale ranged from 1 to 5 (1 = not at all, 2 = a little bit, 3 = moderately, 4 = much, 5 = very much).<sup>14</sup>

Hospital personnel from the 2 groups were compared using *t* tests for PTSD symptoms and life satisfaction. Cohen *d* was calculated in order to obtain the effect size along with a statistical power analysis that assessed type II error.<sup>15</sup> All analyses were performed using SPSS statistical software (version 16.0, SPSS Inc, Chicago, Illinois).

**Results.** In accordance with our hypothesis, Israeli hospital personnel who witnessed the effects of disaster in Haiti reported higher levels of PTSD symptoms in comparison to the matching hospital personnel group (mean [SD] IES score = 17.29 [10.52] vs 7.43 [8.23]; *t* = 3.382, *P* = .002, Cohen *d* = 1.069, observed power = .91) and perceived their level of coping with the situation to be lower in comparison to the matching group (mean perceived coping = 3.10 [1.45] vs 4.10 [0.94]; *t* = -2.654, *P* = .011, Cohen *d* = 0.819, observed power = .74).

However, we did not find significant differences between the group who went to Haiti versus the group who did not in life satisfaction scores (mean life satisfaction = 3.38 [0.50] vs 3.19 [0.75]; *t* = 0.970, *P* = .338, Cohen *d* = 0.307, observed power = .16) or in self-rated health scores (mean self-rated health = 3.48 [0.51] vs 3.43 [0.81]; *t* = 0.228, *P* = .821, Cohen *d* = 0.007, observed power = .06).

The results suggest that exposure to a large-scale natural disaster takes a toll on the mental health of hospital personnel when PTSD symptoms are considered. The IES-R scores seen in the study were

similar to those reported in another study of hospital personnel who were exposed to a traumatic event.<sup>4</sup> The development of PTSD symptoms is a negative effect that is specific to the traumatic event. Contrary to our hypothesis, the negative effect of the event was not generalized to the hospital personnel's overall health or life satisfaction. In fact, the level of life satisfaction was similar in both groups. This may imply that under extreme workloads, hospital personnel still show high levels of job value, responsibility, and purpose in aiding patients and gain satisfaction from saving life even when environmental conditions are harsh, as they were in Haiti.

These results should be interpreted with caution due to the small sample size and the cross-sectional design. Future studies should conduct longitudinal assessments with larger samples in order to learn the long-term effect of large-scale natural disasters on hospital personnel.

The common notion that hospital personnel are not affected after exposure to extreme conditions does not hold true.<sup>5</sup> This transitory effect is illustrated by a personal account from one of the hospital personnel:

I had a conversation of 3 hours with my colleagues, and yet I feel that I need to get more of it out of my heart and my stomach. Nobody asked, but I feel good. I think that the people around us do not realize the meaningful experience that I underwent, for better or for worse. Two weeks after my return [from Haiti], I'm slowly regaining strength and feel that I'm back to my usual self. Maybe we should have been given more time to rest before coming back to work.

In the case of hospital personnel providing aid in Haiti, there were also difficult ethical and medical issues and dilemmas that imposed strain.<sup>16</sup> Our findings may suggest that trauma-exposed hospital personnel need help processing the meaningful situation they have experienced. Toward this end, a brief debriefing by a colleague may be beneficial.

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