Humanitarian Relief Workers and Trauma-related Mental Illness

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Humanitarian relief work is a growing field characterized by ongoing exposure to primary and secondary trauma, which has implications for workers’ occupational mental health. This paper reviews and summarizes research to date on mental health effects of relief work. Twelve studies on relief workers and 5 studies on organizations that employ relief workers are examined to determine whether relief work is a risk factor for trauma-related mental illness. Although studies are inconsistent regarding methods and outcomes documenting trauma-related mental illness among relief workers, it appears that relief workers, compared with the general population, experience elevated trauma rates and suffer from more posttraumatic stress disorder, depression, and anxiety. Organizations that employ relief workers have varying approaches to train for these risks, and more support in the field is needed.

anxiety; depression; mental health; relief work; stress disorders, post-traumatic; stress disorders, traumatic, acute; stress, psychological; substance-related disorders

Abbreviation: PTSD, posttraumatic stress disorder.

BACKGROUND

Humanitarian relief work is dangerous. The year 1998 marked the first time that more United Nations aid workers than peacekeeping soldiers were killed (1). A 2000 study of death among humanitarian aid workers found that of 375 known deaths, 69% were due to violence and 17% were motor vehicle related (2). Fatal and nonfatal attacks on humanitarian workers have increased as their numbers have grown, according to the Center for International Cooperation at New York University. In 1997, there were approximately 136,000 humanitarian aid workers, and the rate of attacks was 4 per 10,000. By 2008, 290,000 humanitarian aid workers experienced a rate of attacks of about 9 per 10,000, with the fatality rate exceeding that for United Nations peacekeepers (3).

The danger is emotional as well as physical; ongoing occupational trauma exposure has implications for mental health. With global complex emergencies and humanitarian crises rising, relief workers are increasingly and continually exposed to trauma, both primary involving direct dangers to workers and secondary through exposure to others’ suffering. Trauma exposure creates emotional and psychological risk, and anecdotal literature on relief workers theorizes workers are highly susceptible to posttraumatic stress disorder (PTSD) and other trauma-related mental illness (4–6), although empirical findings have not been consistent. This article reviews the peer-reviewed literature on mental illness of relief workers who serve during or following complex emergencies outside the United States to determine whether relief workers are at increased risk of trauma-related mental illness.

Assignment to complex emergencies entails multiple stressors resulting from the work environment and separation from normal sources of psychological and social support. Complex emergencies can result from natural or technological disasters, epidemics, or conflicts and are defined by the United Nations as “humanitarian crisis in a country, region or society where there is total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single agency and/or the ongoing United Nations country program” (7, section C).

Trauma-exposed individuals may experience physical and emotional stress reactions and are consequently at risk of developing depression, PTSD, or anxiety symptoms. However, the relation between trauma and mental illness is neither predetermined nor linear (8, 9). By definition, everyone with PTSD has experienced trauma, but not everyone who experiences trauma develops psychiatric illness; most do not. Other
mental illness may result from trauma exposure, have a biologic or genetic basis, or stem from a combination of factors. Available support systems, attitudes toward help-seeking, and presence of additional stressors are among characteristics that may explain why some individuals develop posttraumatic mental illness while others do not (10–12).

Witnessing violence can also be traumatizing. The 1995 National Comorbidity Survey found that, among men with PTSD (n = 139), witnessing the death or serious injury of another was the most serious trauma for 24.3% of them, second only to combat exposure (13). Secondary or vicarious trauma is related to PTSD. Studies on mental health clinicians identify higher rates of PTSD symptoms among those who work with traumatized populations (14), and findings from research on sexual assault counselors are similar (16).

Despite growing use of relief workers, there is no standard definition of relief work and little common understanding of their role. Relief workers are often confused with peacekeepers who serve the same emergencies, yet they are distinctly different. Relief workers are civilians employed by nongovernment organizations. They may be deployed from abroad (expatriates) or be hired in the country of crisis (national staff.) They have varied professional backgrounds ranging from non-professional (drivers or guards) to highly skilled (medical professionals). They may receive no preservice screening for mental health functioning, their health care is fragmented, and postservice care is usually unrelated to their work. Relief workers are generally not trained or prepared for trauma exposure in the field.

In contrast, peacekeepers are generally professional military personnel, although a few countries deploy civilian volunteers or police as peacekeepers (17). Military peacekeepers deploy from abroad and are part of a highly cohesive workforce. They are usually armed, although some serve as unarmed observers. Peacekeepers participate in ongoing occupation-specific health care before, during, and after deployment. Military peacekeepers from high-income countries benefit from the same physical and mental health care as combat troops do, while those from less-well-funded military systems have fewer resources available.

This review deals with relief workers only. It summarizes the literature on mental health effects of relief work.

METHODS

Literature search

For this study, 3 databases were searched to identify articles: Medline, PsycInfo, and Google Scholar. Medline is administered by the US National Library of Medicine and indexes biomedicine and public health literature, with over 5,200 journals. PsycInfo is a database of psychology literature produced by the American Psychological Association, with more than 2,450 journals. Google Scholar is a free-access search engine that indexes scholarly literature across a wide range of disciplines.

Literature searches were completed in August 2010. For each of the 3 databases, a search was conducted by using 3 terms to describe relief work: “relief workers,” “humanitarian workers,” and “aid workers” (although not all aid workers are relief workers). These terms were searched in conjunction with “and mental illness,” “and mental health,” “and depression,” “and posttraumatic stress disorder,” “and anxiety disorder,” “and substance use disorder,” and “and suicide.” In addition to the online search process, citations from relevant articles were searched for additional appropriate articles.

Limits included publication between 1999 and 2010, English language, and journal article. PsycInfo includes dissertations and books in addition to journal articles; therefore, literature from sources other than peer-reviewed journals was excluded post facto. One author reviewed all titles and abstracts for eligibility, and all authors reviewed the process.

Inclusion criteria

To be considered for inclusion, articles had to include quantification in 1 of 6 domains: 1) depressive disorder among relief workers, 2) PTSD among relief workers, 3) anxiety disorder among relief workers, 4) alcohol or substance use disorder among relief workers, 5) suicidal behavior or orientation among relief workers, and 6) personnel practices of organizations that employ relief workers. Articles included feature research on relief workers who serve abroad during complex emergencies. Research on peacekeepers and development aid workers was excluded post facto.

Review strategy

Information was abstracted into a standardized format. Abstraction categories included country of origin, data collection method, study population, and results. Study characteristics reviewed included sampling strategy, sample size, and response rate.

We compared estimates of PTSD and other trauma-related mental illness with those for the general population. There are no established international estimates of mental illness, but we compared estimates for relief workers with estimates of lifetime prevalence among adults from the United States and western Europe.

FINDINGS

Trauma exposure

Relief workers experience significant trauma. Table 1 details results from the 3 studies estimating occupational trauma exposure of relief workers (18–20). If an event was described as a trauma or trauma event, we reported it as such. Although estimates varied, the 5 most common primary traumas were frightening situation (55%–78%), threats or being chased (16%–47%), forced separation from family (40%), shelling/bombing of office or home (13%–43%), and hostility of the local population (10%–37%). Studies noted that workers additionally experienced secondary trauma through witnessing or knowing of trauma experiences of local populations or colleagues.

Prevalence of and risk factors for mental illness among relief workers

Twelve studies examined the mental health of relief workers. Characteristics of the study populations and methodologies
ported exposure to more trauma events and elevated symptoms and expatriate (psychological morbidity among Kosovar Albanian (both groups. Cardozo et al. (18) examined risk factors for those hired in-country, but only one compared results between work.

1.6% for Kosovar Albanian workers (18).

mated the prevalence of symptoms at 16% for expatriate and (18, 19, 21). One study also included alcohol abuse and esti-

from 8% to 20% for depression and 8% to 29% for anxiety depression and general anxiety disorder, with rates ranging

with varying results (24, 25, 27–29).

burnout, or acute stress reactions as preindicators for PTSD, with rates ranging from 1% to 30% (18–20, 25, 26). One study examined predictors of posttraumatic PTSD symptoms, with rates ranging from 1% to 43%. Five studies estimated rates of diagnosed PTSD (20–24), with results ranging from 8% to 43%. Five studies assessed rates of diagnosed PTSD (20–24), and 4 involved qualitative interviews (31–34). The combined number of individuals or organizations in those studies is very small (n = 66). All organizational studies featured very small sample sizes, nonrandomized selection, and low response rates.

Studies of nongovernment organizations indicated that predeployment preparation to prevent psychological stress in the field was limited, stress management practices in the field varied widely, and staff support resources were underdeveloped. Organizational studies all referenced the importance of debriefing after assignment, and most organizations reported use of critical incident stress debriefing.

Table 1. Nature of Direct Trauma Experienced by Relief Workers

<table>
<thead>
<tr>
<th>Type of Trauma</th>
<th>Percentage of Survey Respondents</th>
<th>Reference No(s.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frightening situation</td>
<td>55–78</td>
<td>18, 19</td>
</tr>
<tr>
<td>Threats or being chased</td>
<td>16–47</td>
<td>18–20</td>
</tr>
<tr>
<td>Forced separation from family</td>
<td>40</td>
<td>19</td>
</tr>
<tr>
<td>Shelling/bombing of office or home</td>
<td>13–43</td>
<td>18–20</td>
</tr>
<tr>
<td>Hostility of local population</td>
<td>10–37</td>
<td>18, 19</td>
</tr>
<tr>
<td>Life in danger</td>
<td>19–33</td>
<td>18, 19</td>
</tr>
<tr>
<td>Sniper fire/direct range of gunfire</td>
<td>19–32</td>
<td>18–20</td>
</tr>
<tr>
<td>Life-threatening illness</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>Handling dead bodies</td>
<td>24–25</td>
<td>18, 19</td>
</tr>
<tr>
<td>Road accidents</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Torture</td>
<td>1–25</td>
<td>18–20</td>
</tr>
<tr>
<td>Murder of friend/family member</td>
<td>5–21</td>
<td>18, 19</td>
</tr>
<tr>
<td>Robbery, armed attack</td>
<td>15–19</td>
<td>18, 20</td>
</tr>
<tr>
<td>Imprisonment</td>
<td>3–1</td>
<td>18, 19</td>
</tr>
<tr>
<td>Murder of coworker</td>
<td>6–14</td>
<td>19</td>
</tr>
<tr>
<td>Held hostage/kidnapped</td>
<td>0.9–10</td>
<td>18–20</td>
</tr>
<tr>
<td>Being beaten or mugged</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Landmine injuries</td>
<td>2–6</td>
<td>18, 19</td>
</tr>
<tr>
<td>Rape/sexual assault</td>
<td>0.6–3</td>
<td>18, 20</td>
</tr>
</tbody>
</table>

for the studies of individual relief workers are described in Table 2. The combined number of subjects in studies identified was small (n = 1,842), almost half of the subjects were from a single study, and only 4 studies featured more than 100 subjects. Study populations represented multiple nationalities. All studies were cross-sectional. Studies included male and female subjects; males comprised two-thirds of the total subjects in studies that identified gender (2 of 12 studies did not).

Five studies assessed rates of diagnosed PTSD (20–24), with results ranging from 8% to 43%. Five studies estimated PTSD symptoms, with rates ranging from 1% to 30% (18–20, 25, 26). One study examined predictors of posttraumatic stress symptoms (25). Five studies measured secondary stress, burnout, or acute stress reactions as preindicators for PTSD, with varying results (24, 25, 27–29).

Three studies examined diagnoses or symptoms of major depression and general anxiety disorder, with rates ranging from 8% to 20% for depression and 8% to 29% for anxiety (18, 19, 21). One study also included alcohol abuse and estimated the prevalence of symptoms at 16% for expatriate and 1.6% for Kosovar Albanian workers (18).

No studies were identified on suicidal behavior and relief work.

Studies usually identified workers as either expatriates or those hired in-country, but only one compared results between both groups. Cardozo et al. (18) examined risk factors for psychological morbidity among Kosovar Albanian (n = 325) and expatriate (n = 285) human rights workers, and they reported exposure to more trauma events and elevated symptoms of general anxiety, depression, and PTSD among national staff compared with expatriates. Seven studies either assessed only expatriates or national staff, and 2 studied both but did not differentiate results.

**Organizational studies**

Five studies addressed organizational practices of nongovernment aid/relief organizations, focusing on how organizations recruit, train, and support relief workers (Table 3). One study used a quantitative survey (30), and 4 involved qualitative interviews (31–34). The combined number of individuals or organizations in those studies is very small (n = 66). All organizational studies featured very small sample sizes, nonrandomized selection, and low response rates.

Studies of nongovernment organizations indicated that predeployment preparation to prevent psychological stress in the field was limited, stress management practices in the field varied widely, and staff support resources were underdeveloped. Organizational studies all referenced the importance of debriefing after assignment, and most organizations reported use of critical incident stress debriefing.

**DISCUSSION AND IMPLICATIONS**

Relief workers face chronic occupational exposure to trauma, which appears to result in subsequent elevated rates of PTSD in comparison with rates for the general adult population. We found that rates of diagnosed PTSD were higher than those for adults in the United States and western Europe. However, most studies assessed symptoms and not diagnoses. We would expect that estimates of symptoms would exceed estimates of actual diagnoses, which makes it difficult to compare results from studies that estimated symptoms of PTSD or other mental illness, or of secondary stress, burnout, or other preindicators of PTSD. Because of the variation in measures used, it was not possible to compare results through a meta-analysis.

There are 3 main implications of this review. First, the nature and circumstances of humanitarian relief work warrant preparing workers for trauma exposure and stress in the field, and providing psychological support during service. Second, research on relief workers should look more broadly at mental health outcomes related to trauma, in particular assessing for depression, anxiety, and alcohol use. Third, there is a need for consensus on methodology and measures used to assess for PTSD and other trauma-related mental illness.

At present, there is no evidence base regarding how to prepare relief workers for occupational trauma and stress. While the high rates of reported trauma to relief workers indicate a need for preservice training and support, methods of the studies reviewed did not allow for respondent suggestions about training or support. Further research is needed to determine what specific training and support would be helpful in preparing workers for trauma exposure and increasing worker resiliency. One approach that could be evaluated with relief workers in the future is derived from the US military. US military members are screened for mental illness prior to deployment to plan for support during service, which has
<table>
<thead>
<tr>
<th>First Author, Year (Reference No.)</th>
<th>Method of Data Collection and Timeframe</th>
<th>Sampling and Subjects</th>
<th>Response Rate</th>
<th>Gender</th>
<th>Measures</th>
<th>Outcomes of Interest</th>
<th>Prevalence</th>
<th>Other Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardozo, 2005 (18)</td>
<td>Written survey</td>
<td>Humanitarian aid workers from 22 organizations in Kosovo, Albania</td>
<td>Expatriates = 69%, Kosovars = 76%</td>
<td>M and F</td>
<td>GHQ-28, HSCL-25, and HTQ</td>
<td>Symptoms of PTSD</td>
<td>Expatriates = 1.05%, Kosovars = 6.2%</td>
<td>Kosovar nationals experienced more trauma events than expatriates did. Number of trauma events and difficulty maintaining contact with family were associated with depression.</td>
</tr>
<tr>
<td>Holtz, 2002 (19)</td>
<td>Written survey</td>
<td>Human rights workers from 4 area agencies in Kosovo, Albania (n = 70)</td>
<td>73.4%</td>
<td>M and F: M = 63%, F = 37%</td>
<td>GHQ-28, HSCL-25, and HTQ</td>
<td>Symptoms of PTSD</td>
<td>7.1%</td>
<td>Symptoms of anxiety exceeded symptoms of PTSD.</td>
</tr>
<tr>
<td>Musa, 2008 (29)</td>
<td>Written survey</td>
<td>Humanitarian aid workers from 11 organizations in Darfur, Sudan (n = 53)</td>
<td>Not specified</td>
<td>M and F: M = 49%, F = 43.4%</td>
<td>Professional Quality of Life, Relief Worker Burnout Questionnaire, GHQ-28</td>
<td>Secondary traumatic stress</td>
<td>25% scored in top quartile</td>
<td>Sudanese aid workers experienced more burnout and secondary stress than expatriates did.</td>
</tr>
</tbody>
</table>
During service 60% Sudanese, 39.6% international
Randomly sampled among those working in camps

Possible burnout 16%
Nonpsychotic psychiatric cases 50%
Young age was related to burnout and secondary stress.

Studies of Expatriate Staff

<table>
<thead>
<tr>
<th>Study</th>
<th>Method</th>
<th>Country/Setting</th>
<th>Sample Size</th>
<th>Gender</th>
<th>Measure</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armagan, 2006 (22) Interview Turkish Red Crescent team in Asia after the tsunami (n = 33)</td>
<td>M and F: M = 51%, F = 49%</td>
<td>CAPS-1 PTSD</td>
<td>24.2%</td>
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</tr>
<tr>
<td>Chan, 2004 (23) Written survey Singapore national relief teams in Asia after the tsunami (n = 22)</td>
<td>M and F (no percentages given)</td>
<td>GHQ-28, IES, CISD PTSD</td>
<td>9% (2 of 30)</td>
<td></td>
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</tr>
<tr>
<td>Eriksson, 2009 (27) Interview-administered survey Multinational expatriates (n = 111) in 1 organization serving in 44 different countries</td>
<td>M = 69%</td>
<td>MBI HSS, Social Provisions Scale Burnout</td>
<td>For 40%, high risk of burnout on at least 1 of 3 subscales; high risk on all 3 subscales for only 3.6%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Eriksson, 2001 (20) Written survey After service (timeframe not specified) Humanitarian aid staff (n = 113) Subjects' country of origin not described</td>
<td>M and F: M = 42%, F = 58%</td>
<td>LASC, a Survey of Exposure to Traumatic Events, Personal Life Threat Index, the Support Rating Scale Symptoms of PTSD</td>
<td>10% 30%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Kasperson, 2003 (25) Written survey Norwegian UN observers and relief workers who served in the former Yugoslavia Relief workers = 46.6%, UN observers = 74.2%</td>
<td>M and F: M = &gt;45%, F = 85%</td>
<td>IES, TE, PTSS-10, SCL-90 for relief workers only Symptoms of PTSD</td>
<td>Relief workers = 2.8%–7.8%, UN observers = 5.6%–20.8%</td>
<td></td>
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</table>

It seems that the 2 groups were exposed to trauma in different ways.

For relief workers, witnessing violence toward others was more associated with psychopathology than was experiencing violence against self. For UN observers, findings were not consistent.
<table>
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<tr>
<th>First Author, Year (Reference No.)</th>
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<tbody>
<tr>
<td>Kasperson, 2003 (28)</td>
<td>Written survey After service (timeframe not specified)</td>
<td>Norwegian UN observers and relief workers who served in the former Yugoslavia</td>
<td>Relief workers: 46.6%, UN observers: 74.2%</td>
<td>M and F: M = &gt;85%</td>
<td>IES, TE, PTSS-10</td>
<td>Predictors of posttraumatic stress symptoms</td>
<td>• Relief workers: trauma exposure a significant predictor of all symptom variables; UN observers: more trauma exposed, but no effect on prediction of PTSD</td>
<td>For relief workers, family, friends, neighbors, and colleagues moderated the relation between trauma exposure and trauma reactions. For UN observers, only colleague index had a significant effect on PTSD symptoms.</td>
</tr>
<tr>
<td>Ehring, 2011 (21)</td>
<td>Written survey During service following the earthquake</td>
<td>Rehabilitation and reconstruction workers in Pakistan (n = 267)</td>
<td>96%</td>
<td>M and F: M = &gt;83%</td>
<td>IES, PADQ, BSI, MBI</td>
<td>PTSD</td>
<td>43% met criteria for diagnosis</td>
<td>In addition to serving in the recovery effort, 76% of workers directly experienced the earthquake; many needed alternative shelter, food, and water aid or had to relocate; 28% lost immediate family members.</td>
</tr>
<tr>
<td>Putnam, 2009 (26)</td>
<td>Written survey and focus groups</td>
<td>Guatemalan national aid workers</td>
<td>Survey = 68%</td>
<td>M and F: M = 36%, F = 64%</td>
<td>LASC, SCETV, MBI-HSS</td>
<td>PTSD symptoms</td>
<td>17%</td>
<td>Subjects had a high level of lifetime exposure to community violence. Focus groups found a lack of support structures from both organizations and government.</td>
</tr>
<tr>
<td>Shah, 2007 (24)</td>
<td>Written survey</td>
<td>Indian national humanitarian aid workers</td>
<td>100%</td>
<td>M and F (no percentages given)</td>
<td>STSS</td>
<td>Symptoms of secondary traumatic stress</td>
<td>100%</td>
<td>Workers of lower socioeconomic status had higher trauma scores. It was not clear that physical proximity to violence correlated with more trauma exposure.</td>
</tr>
</tbody>
</table>

Abbreviations: CAPS-1, Clinician Administered PTSD Scale; CISD, Critical Incident Stress Debriefing feedback form; F, females; GHQ-28, General Health Questionnaire; HSCL-25, Hopkins Symptom Checklist; HTQ, Harvard Trauma Questionnaire; IES, Impact of Events Scale; LASC, Los Angeles Symptom Checklist; M, males; MBI, Maslach Burnout Inventory; MBI-HSS, MBI Human Service Scale; PADQ, Pakistan Anxiety and Depression Questionnaire; PTSD, posttraumatic stress disorder; PTSS-10, Posttraumatic Stress Scale; SCETV, Survey of Children’s Exposure to Community Violence; SCL-90, Symptom Checklist 90; STSS, Secondary Traumatic Stress Scale; TE, trauma exposure; UN, United Nations.
<table>
<thead>
<tr>
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<th>Sampling and Subjects</th>
<th>Outcome of Interest</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>McCall, 1999 (31)</td>
<td>Semistructured telephone interview</td>
<td>Not specified</td>
<td>Organizations ( n = 12 ) that deploy medical and other relief personnel based in the United States, United Kingdom, and other European countries (appears to be convenience)</td>
<td>Selection, training, and development of workers</td>
<td>No clear protocols for staff selection, limited orientation.</td>
</tr>
<tr>
<td>Ehrenreich, 2004 (30)</td>
<td>Written survey on managing stress in the field</td>
<td>About 17% (17 of &gt;100, exact number not specified)</td>
<td>Convenience, snowball sample of international humanitarian organizations (nongovernment, non-United Nations organizations) ( n = 17 ) individuals</td>
<td>Psychological support in the field</td>
<td>3 organizations had policies specific to mental health support. Most used postassignment debriefing.</td>
</tr>
<tr>
<td>Wilson, 2004 (32)</td>
<td>Structured interviews, observation, and record review</td>
<td>Not specified</td>
<td>Convenience among expatriate Dutch national organizations ( n = 6 ) in Rwanda (interviews targeted both deployed and home office staff)</td>
<td>Secondary posttraumatic stress</td>
<td>All provided critical incident debriefing; 3 reported scheduled stress management; 13 helped those with stress, but not by trained individuals; only 18% reported preventive activities for managing stress in the field.</td>
</tr>
<tr>
<td>Bjerneld, 2004 (33)</td>
<td>Interviews (phone or in person), with qualitative analysis</td>
<td>Not specified</td>
<td>Convenience, obtained by contacting nongovernment organizations ( n = 20 ) individuals</td>
<td>Perceived training needs of personnel</td>
<td>Identifying human resources strategies to support workers</td>
</tr>
<tr>
<td>Hearn, 2007 (34)</td>
<td>Qualitative interviews with aid workers</td>
<td>Not specified</td>
<td>Volunteers from Europe-based nongovernment organizations ( n = 6 ) who served in recent multiple complex emergencies</td>
<td>Perceived support of aid workers who have recently deployed</td>
<td>Recruiting more experienced professionals, clear expectations and more support in the field would improved the work environment.</td>
</tr>
</tbody>
</table>

**Table 3. Studies of Relief Worker Organizations**
reduced mental health problems and medical evacuations from the field (35).

Studies featured subjects from many different countries, which made it difficult to compare results. The European Study of the Epidemiology of Mental Disorders (ESEMeD) features adult subjects from 6 western European countries (36); the National Comorbidity Survey Replication (NCS-R) features US adults (37) (Table 4). Although prevalence of PTSD differed between the US (6.6%) and European (1.9%) samples, this difference may reflect comparatively lower rates of trauma exposure in the 6 western European countries included (38). Major depression is diagnosed in 16.6% of US and 12.8% of European adults; anxiety rates are 5.7% for US adults and 2.8% for Europeans at some point in their lives, and prevalence of diagnosed alcohol abuse is estimated at 13.2% in US and 4.1% in western European adults (37, 38). When these general prevalence estimates were compared with estimates for relief workers, rates of diagnoses and symptoms were often much higher in the studies reviewed. Diagnosed PTSD or symptoms of PTSD in these studies ranged between 8% and 43%, rates ranged from 8% to 20% for symptoms of depression and 8%–29% for symptoms of anxiety, and the single study estimating symptoms of alcohol abuse found a rate of 16% for expatriate and 1.6% for Kosovar workers.

Methodology may also contribute to differing prevalence estimates. The studies reviewed were all cross-sectional; some were administered during service and others after. Studies used different measures for PTSD or related symptoms and other mental illness and also varied in their use of cutoff points. This reflects a lack of consensus or standards for measuring mental illness (39).

All studies featured a single survey or interview, and none used a control group or predeployment baseline survey. A single assessment misses cases that develop later. By contrast, a larger and more detailed body of research on military peacekeepers uses repeat surveys or interviews at different points of service, from predeployment to deployment to post-deployment and discharge (40–44). Some include control groups. Future research on relief workers could adopt a similar longitudinal approach, with repeat surveys to obtain a more comprehensive view of stress and coping before, during, and after service. A predeployment baseline survey could assess for preservice trauma history and mental health status.

Studies tend to be country specific or to compare expatriates and nationals. Cultural differences may influence both reporting symptoms of mental illness and determining diagnoses for which measures used cannot account. Furthermore, many measures are validated for use within their country of origin only. It is thus difficult to compare results of studies from different cultures. The Diagnostic and Statistical Manual of Mental Disorders and International Classification of Diseases criteria are currently being used across cultures through the World Mental Health Survey, but their validity may be limited.

Three studies looked at mental illness among relief workers deployed from afar (expatriates) and those serving in-country (nationals) (18–20), although only one differentiated results (18), finding that national staff had greater trauma exposure and higher rates of mental illness. This finding warrants further study. Aside from cultural differences, the 2 populations have a somewhat different risk of trauma exposure and related mental illness. Both groups face exposure to occupational trauma. National staff are more likely to have personally suffered in the complex emergency at hand and to remain in close proximity to the crisis, which may result in further trauma. A 2009 report on violence against aid workers found higher casualty rates among national staff compared with expatriates (3). Families of national staff may still be in active danger, while those of expatriates are usually safe back home. In addition, national staff may lack access to the same institutional psychological and medical support as expatriates have.

Only one study assessed alcohol use among workers (18), finding excessive alcohol use among 16% of expatriates (high compared with the United States and Europe) but only 2% of Kosovar relief workers (low). This difference probably reflects differing cultural attitudes about alcohol and, in particular, prohibition against alcohol use among Kosovar Muslims.

Organizational support of relief workers deserves more systematic and thorough research. Ongoing exposure to trauma creates occupation-specific health needs. Unfortunately, the 5 organizational studies included in this review featured very small sample sizes, nonrandomized selection, and low response rates. Perhaps such studies could be conducted in collaboration with organizations studying humanitarian efforts to gain participation of more employing nongovernment organizations. Such collaborative research could also lead to shared models of training and support, both during and after service.

Despite known occupational hazards, anecdotal reports indicate that employers offer little social or psychological support in the field or after assignment (4–6, 18). Explanations differ. Nongovernment organizations may have unrealistic

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### Table 4. Mental Illness Prevalence Among Adults in the United States and Western Europe Compared With Estimates Among Relief Workers

<table>
<thead>
<tr>
<th></th>
<th>Lifetime Prevalence According to NCS-R, % (Reference 37)</th>
<th>Lifetime Prevalence According to ESEMeD, % (Reference 36)</th>
<th>Estimated Diagnoses Among Relief Workers, % (References 20–24)</th>
<th>Estimated Symptoms Among Relief Workers, % (References 18–20, 25, 29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major depression</td>
<td>16.6</td>
<td>12.8</td>
<td>8.6–17.2</td>
<td>8.8–17.1</td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>5.7</td>
<td>2.8</td>
<td>8–24</td>
<td>1–30</td>
</tr>
<tr>
<td>Posttraumatic stress disorder</td>
<td>6.6</td>
<td>1.9</td>
<td></td>
<td>1.6–16</td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>13.2</td>
<td>4.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: ESEMeD, European Study of the Epidemiology of Mental Disorders; NCS-R, National Comorbidity Survey Replication.
expectations of workers’ adaptive capabilities, combined with limited resources (6). One author suggested that non-government organizations may consider relief workers “expendable assets whose high attrition rates may be easily balanced with an ongoing supply of enthusiastic, committed humanitarians” (4, p. 2). One survey of nongovernment organizations’ human resources staff found that psychological support of workers was considered less important than that of the local population (31). Furthermore, workers themselves may feel that their suffering is less relevant as well (6).

These findings have implications for humanitarian agency employee practice as well as research. Prior to service, workers—both expatriate and national staff—should be informed of the risk of potential exposure to trauma and related psychological effects. Organizations should develop and facilitate appropriate evidence-based support services in the field. Humanitarian agencies should offer culturally appropriate medical and psychological support for national staff during service, and they should put systems in place for ongoing support following agencies’ departure from the site and expatriates’ return home.

All organizational studies referenced debriefing after assignment, and many organizations reported stress debriefing following a critical incident. However, research on debriefing finds that it is not proven to mitigate effects of trauma. Devilly et al. (45) reviewed debriefing studies and found it may not help—and may be harmful. The authors noted that litigation threats may drive psychological debriefing practices regardless of whether it is effective. Organizational policies on debriefing relief workers should therefore be considered carefully. A study of Singapore medical relief workers following the Asian tsunami was conducted through critical incident stress debriefing, which may have contributed to high rates of acute stress reaction (25). Psychological first aid is another model of psychological support following a trauma or disaster, and it may prove useful in settings with humanitarian workers (46, 47), although its effectiveness with this population has not been demonstrated.

Research on risk of trauma and mental illness among relief workers could benefit from a parallel focus on resiliency factors. Relief workers experience continuous traumas during service, and they do suffer elevated rates of trauma-related mental illness such as PTSD, although not by as much as might be expected. Psychological resiliency of humanitarian workers warrants further study.

To our knowledge, there is no standard definition of relief work or relief worker in the literature, whether it is referred to as “relief work,” “relief aid work,” “humanitarian work,” “humanitarian aid work,” or another term. The term “relief worker” first appeared in peer-reviewed health literature in 1976 (48). Earlier scholarly literature refers to “disaster workers,” but disaster work is not always consistent with relief work.

While some relief workers serve strictly as unpaid volunteers, virtually all are considered to have “volunteered” for service. Little information or research is available on the subpopulation of unpaid volunteer relief workers. A recent review on studies of volunteers working in disasters included some of the same studies as in the present one (49), but disaster work often differs from relief work, and the criteria for that review and this study differ.

Studies on mental health of relief workers focus on those serving in the field or shortly after, with little known about transition back to normal life. Anecdotal reports indicate that workers are not tracked after service, which makes it difficult to assess needs for after-care. This topic may justify future research.

Overall, as the demand for humanitarian relief work continues to grow, continual trauma exposure has important implications for occupational mental health. Research on psychological effects of relief work is limited and should look more broadly at trauma-related mental health outcomes, including depression, anxiety, and alcohol use in addition to PTSD. Findings on rates of trauma-related mental illness vary, reflecting methodological differences. There is a need for consensus on methodology and measures to assess for PTSD and other trauma-related mental illness. Longitudinal study design may yield more information on postdeployment mental health status. Research on employing organizations is even more limited. Employers may not adequately prepare workers for their unique occupational exposure to trauma, and support for workers in the field varies widely.

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REFERENCES


