Ethnic/Racial Diversity and Posttraumatic Distress in the Acute Care Medical Setting

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Recent commentary has advocated for epidemiological investigation as a foundational science for understanding disparities in the delivery of mental health care and for the development of early trauma–focused interventions. Few acute care investigations have examined the diversity of ethnic/racial heritages or compared variations in early posttraumatic distress in representative samples of injured trauma survivors. Hospitalized injury survivors at two United States level I trauma centers were randomly approached in order to document linguistic and ethnic/racial diversity. Approximately 12% of patients approached were non–English speaking with 16 languages represented. English speaking, inpatients were screened for posttraumatic stress disorder, peritraumatic dissociative, and depressive symptoms. For 269 English speaking study participants, ethnic/racial group status was clearly categorized into one group for 72%, two groups for 25%, and three groups for 3% of participants. Regression analyses that adjusted for relevant clinical and demographic characteristics revealed that relative to whites, patients from American Indian, African American, Hispanic, and Asian heritages demonstrated significant elevations in one or more posttraumatic symptom clusters. A remarkable diversity of heritages was identified, and posttraumatic distress was elevated in ethnic/racial minority patients. Policy–relevant clinical investigations that combine evidence–based treatments, bilingual/bicultural care–management strategies, and support for trauma center organizational capacity building may be required in order to enhance the quality of mental health care for diverse injured trauma survivors.
A comprehensive literature now exists on disparities in the quality of mental health care available to members of racial and ethnic minority groups (U.S. Department of Health and Human Services, 2001). Foundational epidemiologic research that includes representative samples of minority individuals has been encouraged as part of the basic science required in the effort to address these disparities in the quality of mental health care (U.S. Department of Health and Human Services, 2001).

Patients with psychiatric disorders frequently present to general medical settings for treatment (Wang et al., 2005). In the United States, acute care settings have been targeted for improvements in the detection and treatment of patients with psychiatric disorders (New Freedom Commission on Mental Health, 2003). Each year in the United States approximately 37 million Americans visit medical settings after injury, and 2.5 million incur injuries so severe that they require acute care inpatient admissions (Bonnie, Fulco, & Liverman, 1999). Trauma exposure coupled with physical injury increases the risk for the development of posttraumatic stress disorder (PTSD) (Green, 1993; Hoge, Auckterlonie, & Milliken, 2006; Koren, Hemel, & Klein, 1999). Trauma exposure coupled with physical injury increases the risk for the development of posttraumatic stress disorder (PTSD) (Green, 1993; Hoge, Auckterlonie, & Milliken, 2006; Koren, Hemel, & Klein, 1999). Additionally, recent natural and man–made disasters have brought investigation and policy regarding early posttraumatic distress among injured trauma survivors to the forefront of medical research and practice (de Ceballos et al., 2005; National Center for Child Traumatic Stress, 2005; National Institute of Mental Health, 2002; Ryan & Montgomery, 2005).

Literature review, however, revealed few investigations that have documented the extent of ethnic/racial diversity or described variations in early posttraumatic distress for injured minority patients treated in acute care inpatient settings. A recent national study examined PTSD symptom development 12 months after injury in 2,931 patients recruited from 69 American acute care hospitals (MacKenzie et al., 2006; Zatzick et al., 2007). The investigation identified a significantly elevated risk of 12–month post–injury PTSD symptoms among American Indian, African American, and Hispanic injury survivors relative to non–Latino white injury survivors; significant group differences persisted even after adjustments for relevant clinical and demographic characteristics (Zatzick et al., 2007).

Another previous investigation suggested that minority patients treated in acute care medical settings may be at risk for receiving poor quality medical care; in a single–site emergency department study, Latino patients with long bone injuries were twice as likely to receive no pain medication when compared to non–Latino white patients (Todd, Samaroo, & Hoffman, 1993).

Beyond traumatic injury, a series of reports have assessed variations in enduring posttraumatic symptoms across diverse trauma–exposed populations. Findings from the National Vietnam Veterans’ Readjustments study suggested that Hispanic Vietnam veterans were at greater risk for developing PTSD when compared to white Vietnam veterans (Kulka et al., 1990; Ruef, Litz, & Schlenger, 2000). Subsequent investigations in male veteran populations identified ethnic group variations in posttraumatic symptoms presentation that both persist (Friedman, Schnurr, Sengupta, Holmes, & Ashcraft, 2004) and are eradicated when controlling for relevant demographic and event–related characteristics (Beals et al., 2002; Zatzick, Marmar, Weiss, & Metzler, 1994). Investigations conducted in civilian trauma–exposed populations suggest that ethnic/racial group differences may be independently associated with variations in the development of symptomatic distress in the wake of trauma exposure (Alim, Charney, & Mellman, 2006; Galea et al., 2002; Pole, Best, Metzler, & Marmar, 2005). Galea and colleagues (2002) reported that Hispanic ethnicity was an independent risk factor for the development of high PTSD and depressive symptom levels among civilians exposed to the September 11, 2001, World Trade Center terrorist attack. Pole and colleagues (2001) report that Hispanic American trauma–exposed police officers evidenced increased PTSD and peritraumatic dissociative symptoms when
compared to their African American and white counterparts. These findings, as well as additional commentary and meta-analyses, suggest that ethnic/racial minority individuals may be among those at highest risk for the development of enduring posttraumatic disturbances after individual and mass trauma (Brewin, Andrews, & Valentine, 2000; Norris & Alegria, 2005; Pole et al., 2005).

Recent commentary has argued that clinical epidemiological investigation, by systematically capturing patient, provider, and organizational level contextual factors, may be a key foundational science for the development of feasibly delivered early trauma-focused screening and intervention procedures (Zatzick & Galea, 2007). The current investigation used clinical epidemiological methods to explore the spectrum of ethnic and racial diversity and associated posttraumatic symptomatic responses in a representative sample of acutely injured trauma survivors. We hypothesized that ethnic/racial minority patients would report elevated early posttraumatic symptomatic distress relative to white injury survivors. It was also hypothesized that ethnic/racial minority group status would remain significantly and independently associated with variations in early posttraumatic symptoms, even after adjustments for relevant clinical and demographic characteristics.

METHODS

Participants and Procedures

Patients included in the study were participants in longitudinal prospective cohort and randomized clinical trials investigations (Zatzick et al., 2002; Zatzick et al., 2004). Two hundred and sixty-nine patients were recruited from the University of Washington’s Harborview Medical Center (Harborview, n = 152) and the University of California Davis Medical Center (UC Davis, n = 117) level I trauma centers. On weekdays, newly admitted trauma surgery inpatients were randomly selected for approach by a research associate using numerical assignments from a random numbers table. Prior analyses demonstrated no significant differences in relevant clinical, injury, and demographic characteristics between patients included in the investigation and all other patients admitted to the trauma center, with the exception of increased inpatient length of stay in study patients (Zatzick et al., 2002; Zatzick et al., 2004).

Patients included in the investigations were survivors, ages 14 and older, of intentional and unintentional injury; 10% of patients were adolescents between the ages of 14 and 19. Patients who were so severely injured that they could not participate in the interview (e.g., severe head injury) were excluded from the investigation. Patients who reported suicidal ideation or other extreme levels of distress were immediately evaluated by the principal investigator, a consultation-liaison psychiatrist, and referred for further psychiatric treatment on an as-needed basis; and acutely suicidal patients were excluded from the investigation.

All informed consent procedures and trauma registry analyses were approved by the University of Washington and UC Davis institutional review boards prior to study initiation. Adolescent patients were included in the investigation, as they were routinely hospitalized with adults in surgical inpatient services. For participants under the age of 18, adolescent assent and parental consent were obtained. A comprehensive description of ethical considerations in the recruitment and consent procedure has been published previously (Ruzek & Zatzick, 2000).

Although non–English-speaking patients were not interviewed, detailed records were kept regarding excluded patients’ primary spoken languages and heritages. Languages spoken by non–English speaking patients were primarily determined when research associates approached patients, family, and nursing staff in the surgical inpatient unit.

Ethnic/Racial Group Classification

We collected three categories of ethnic/racial group data. First, ethnic/racial
group status (i.e., African American, American Indian, Asian Pacific Islander, Hispanic, white, other) was abstracted from the automated trauma registry admission medical record. Automated trauma registry data is abstracted from a variety of sources, including emergency department admission records and/or inpatient medical, nursing, or social work notes. Second, patients were asked to report their categorical ethnic/racial group identification (i.e., African American, American Indian, Asian-Pacific Islander, Hispanic, white, other) during the surgical ward interviews. Finally, patients were asked the open-ended question, How do you describe your ethnicity? After asking this question, research associates were instructed to explore with patients in an open-ended fashion their ethnocultural identity. The open-ended description of ethnic/racial group identification was asked immediately after elicitation of the categorical ethnic/racial group identification. Patients who were clearly identified with a single ethnic/racial group across all three indices were assigned to one category (e.g., white individuals who were identified as white in the trauma registry and who self-reported themselves as white and then identified their background as Irish). For individuals who self-identified more than one group, or who endorsed “other,” decision rules were derived from the 2000 U.S. Census categorization criteria (United States Census Bureau, 2000). The census allows individuals to check more than one ethnic or racial background and allows for the classification of mixed racial background by including categories such as “African American alone or in combination” (United States Census Bureau, 2000). When patients either endorsed more than one category or had conflicting data from trauma registry and self-report sources, patient open-ended descriptions of ethnic/racial group identification were used to aid in the classification of patients.

Surgical Ward Interviews

English-speaking injured patients were interviewed for approximately 1 hour. The hour-long interview contained measures assessing current symptoms and pre-injury health service use and functioning. Self-report was used to assess all symptoms. The principal investigator, an acute care clinician–investigator with experience conducting early posttraumatic assessments and interventions, oversaw the training for the recruitment and interview procedure. Training of the research associate for interviews included the use of mock assessments and training manuals.

Posttraumatic Stress Symptoms

The PTSD Checklist–Civilian Version (PCL) was used to measure levels of PTSD symptoms. The PCL is a 17-item self-report questionnaire with Likert responses (scale = 1–5) that assesses the intrusive, avoidant, and arousal PTSD symptom clusters (Weathers & Ford, 1996). Blanchard and colleagues (1996) reported a correlation of 0.93 between the total scores on the PTSD Checklist and the Clinician Administered PTSD Scale, the gold-standard diagnostic interview for PTSD (Blake et al., 1990; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). Symptom reports were anchored to the injury event that brought the patient to the hospital. The PCL stem read, “How bothered have you been by these experiences since the event that brought you to the hospital?” Patients were then queried regarding each of the 17 PCL PTSD items.

Peritraumatic dissociation

The Peritraumatic Dissociative Experiences Questionnaire (PDEQ) was used to assess levels of dissociation. The PDEQ is an 8-item, interview-based questionnaire for assessing retrospective reports of depersonalization, amnesia, out of body experience, and altered time perception associated with a particular traumatic event (Marmar, Weiss, & Schlenger, 1994). The measure has been demonstrated to be internally consistent, and evidence supports its convergent, discriminant, and predictive validity (Marmar, Weiss, & Metzler, 1997).
Depressive Symptoms

The Center for Epidemiological Studies Depression Scale (CES–D) was used to measure levels of depressive symptoms (Radloff, 1977). The CES–D is a 20–item self–report measurement with Likert responses (scale = 0–3) that assesses depressive symptoms. We modified the administration of the measure by asking inpatients, “How often have you felt this way since the event that brought you to the hospital?”

Pre–injury Trauma

To assess for traumatic life events prior to the index injury, we used a modified version of the traumatic event inventory that accompanies the Composite International Diagnostic Interview as developed for the National Comorbidity Survey (NCS) (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). The measure screens for the occurrence of 12 traumatic life events, such as physical and sexual assault, natural disasters, and combat.

Statistical Analysis

We first assessed variation in demographic, injury, and clinical characteristics across the ethnic/racial categorical groups. Next, we used analyses of covariance (ANCOVA) to assess symptomatic variation across the groups while adjusting for the following covariates: injury type (intentional vs. unintentional), chronic disease (1 or more), gender, severity of injury (injury severity score; Johns Hopkins Health Services Research and Development Center, 1989), age, employment, education, marital status, insurance status, income, and pre–injury trauma. Selection of covariates was informed by prior investigations of post–injury PTSD predictors (Zatzick et al., 2002; Zatzick et al., 2007).

We observed that white patients demonstrated the lowest symptom levels on the PCL, PDEQ, and CES–D scales. Therefore, when differences across groups achieved statistical significance, we performed ANCOVAs that adjusted for the same covariates comparing white patients to patients from each of the four minority groups. In order to assess differences within the four minority groups, we performed Scheffe post–hoc tests; the Scheffe procedure does not allow for the use of covariates.

RESULTS

A total of 741 patients were screened for research participation at the two level I trauma center sites, and 269 (36%) participated in the surgical ward interviews. Ninety–one patients (12.3%) of patients screened were non–English speaking. At the University of California Davis (non–English speaking N = 54), > 50% of patients were Spanish speaking (n = 35), and a total of 10 languages were identified, including Armenian (n = 1), Cambodian (n = 1), Cantonese (n = 1), Korean (n = 2), Laotian (n = 2), Punjabi (n = 2), Russian (n = 4), Swedish (n = 1), and Vietnamese (n = 4). At Harborview (non–English speaking n = 37), < 50% of non–English speaking patients spoke Spanish (n = 17), and 12 other languages, including Arabic (n = 1), Cantonese (n = 4), Hindi (n = 1), Laotian (n = 1), Mandarin (n = 2), Portuguese (n = 1), Russian (n = 2), Somali (n = 1), Tagalog (n = 1), Thai (n = 1), Ukrainian (n = 1), and Vietnamese (n = 4) were identified.

English speaking patients who completed the symptom measures were clinically and demographically heterogeneous (Table 1). The mean age of patients was 36.5 years [Standard Deviation (SD) = 14.0]. Across ethnocultural groups, over 35% of patients had experienced 4 or more serious traumatic life events that predated the injury admission. Ethnic/racial group status was clearly categorized into one group for 72% (n = 195) of patients. Twenty–five percent (n = 67) of patients had overlap across 2 groups (e.g., Trauma registry = white, Categorical self–report = American Indian, Open–ended patient ethnic identification = Blackfoot Indian/ Ukrainian). Three percent of patients (n = 7) had overlap across 3 groups.

Automated trauma registry medical record admission data misclassified 20% of pa-
Over 50% of misclassifications were attributable to non–white patients being identified in the trauma registry as white. Coding by U.S. census criteria determined that 59% (n = 160) of patients were from white/European backgrounds, while 41% (n = 109) of patients were from non–white backgrounds (i.e., African American 16% (n = 43), Asian 5% (n = 13), Hispanic 11% (n = 29), and American Indian 9% (n = 24)) backgrounds. Of note, 12% (n = 32) of patients endorsed 2 distinct groups in response to the self–described ethnocultural heritage question.

ANCOVA that adjusted for differences in baseline clinical and demographic characteristics revealed significant variation in surgical ward PCL scores across groups \([F(4,215) = 2.42, p = .05]\). American Indian \([F(1,146) = 4.50, p = .036]\) and Asian \([F(1,135) = 6.21, p = .014]\) patients demonstrated significantly elevated PCL scores relative to white patients. Scheffe post–hoc tests revealed no significant differences in comparisons across the 4 ethnic minority groups.

ANOVA also revealed significant variations in PDEQ scores across groups \([F(4,211) = 3.6, p = .007]\). African American \([F(1,159) = 6.68, p = .011]\), Hispanic \([F(1,148) = 5.73, p = .018]\), and American Indian \([F(1,143) = 9.39, p = .003]\) patients demonstrated elevated levels of peritraumatic dissociative symptoms relative to white patients. There were no significant differences in Scheffe post–hoc comparisons across the 4 ethnic minority groups.

No significant differences in CES–D scores were identified across the 5 groups \([F(4, 219) = 1.26, p = .29]\). The trend, however, for white patients having the lowest mean symptom scores was again observed (Table 2).

**DISCUSSION**

The investigation identified remarkable linguistic and ethnic/racial diversity among randomly sampled hospitalized injury survivors recruited from two United States level I trauma centers. Approximately 1 in 9 patients approached for study participation was non–English speaking with 16 languages represented. Among English speaking patients, 41% were from non–white backgrounds. Over 25% of injured trauma survivors were classified into 2 or more ethnic/racial groups.

The investigation found that medical record classifications of ethnic/racial group status contained within trauma registry information systems were inaccurate in 20% of patients. Non–white patients were most frequently misidentified. Injured patients are often admitted to trauma centers unconscious or obtunded, and this inability to communicate may contribute to the observed misclassifications. These results suggest that trauma registry data on ethnic and racial group status may need to be augmented with patient self–reports whenever possible, particularly when data is being used for research (Rivara et al., 1993).

**Non–white injury survivors consis-**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>White (n = 160)</th>
<th>African American (n = 43)</th>
<th>Hispanic (n = 29)</th>
<th>American Indian (n = 24)</th>
<th>Asian (n = 13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female %</td>
<td>34</td>
<td>30</td>
<td>17</td>
<td>38</td>
<td>39</td>
</tr>
<tr>
<td>Mechanism of Injury</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intentional %*</td>
<td>16</td>
<td>61</td>
<td>31</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>1 or more chronic medical diagnoses %</td>
<td>9</td>
<td>19</td>
<td>3</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>4 or more prior traumas %*</td>
<td>43</td>
<td>61</td>
<td>35</td>
<td>68</td>
<td>39</td>
</tr>
<tr>
<td>Age *</td>
<td>38.7 (13.6)</td>
<td>34.8 (15.6)</td>
<td>30.4 (9.2)</td>
<td>33.5 (14.1)</td>
<td>33.6 (14.0)</td>
</tr>
<tr>
<td>Injury Severity Score</td>
<td>10.0 (7.3)</td>
<td>7.3 (6.1)</td>
<td>10.3 (6.8)</td>
<td>9.6 (6.7)</td>
<td>9.5 (7.2)</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01.
tently demonstrated greater levels of early posttraumatic distress when compared to white injury survivors. These results are consistent with findings from prior investigations among injured (Zatzick et al., 2007) and uninjured (Alim, Graves et al., 2006; Beals et al., 2002; Galea et al., 2002; Galea et al., 2004; Pole et al., 2005) individuals, that suggest American Indian, African American, and Hispanic trauma survivors experience higher levels of enduring posttraumatic distress when compared to whites. The current investigation also found that Asian injury survivors had significantly higher early PTSD symptoms compared to whites. These findings contrast with prior reports that described no differences (Zatzick et al., 2007) or lower PTSD symptom levels among Asian trauma survivors (Friedman et al., 2004). Of note, one other acute care investigation reported intra-ethnic differences among intentionally injured Hispanic trauma survivors; more highly acculturated Hispanic Americans developed fewer peritraumatic dissociative symptoms when compared to less acculturated Hispanics (Marshall & Orlando, 2002). No significant differences were observed in depressive symptoms across groups. Future investigation could explore the possibility that depressive symptoms may be more strongly related to other pre-injury factors rather than ethnic/racial background and may be less reactive to the injury event.

Prior individual and meta-analytic investigations of trauma-exposed patients suggest that individuals from racial/ethnic minority groups are at increased risk for developing PTSD (Alim, Charney et al., 2006; Beals et al., 2002; Brewin et al., 2000; Galea et al., 2002; Galea et al., 2004; Kulka et al., 1990; Pole et al., 2005). Population-based investigation in the United States, however, has found that minority heritage may be a protective factor for the development of psychiatric disorders in general, and that individuals from Hispanic and African-American backgrounds have no increased risk for the development of PTSD relative to non-Hispanic whites (Breslau et al., 2006; Breslau, Kendler, Su, Gaxiola–Aguilar, & Kessler, 2005). These investigations suggest that members of ethnic minority groups may have an increased risk of persistence of disorders once they become ill, and that inability to obtain quality mental health care may be a factor in this persistence (Breslau et al., 2005). Thus, previous commentary regarding ethnic/racial minority health disparities and improvements in quality of care for members of disadvantaged groups (U.S. Department of Health and Human Services, 2001) may extend to injured trauma survivors treated in the acute care medical setting.

The investigation has limitations. A key limitation was the inclusion of the 28% of patients who identified with more than one group in the analyses that compared symptoms across single categorical grouping. Another limitation was the inability to translate scales and interviews for non-English speaking patients who comprised over 10% of the sample. This limitation may have led to relatively small samples in some non-white patient groups (i.e., Latino and Asian patients). Power to detect significant group differences in PTSD, peritraumatic dissociative, and de-

TABLE 2. Mean PTSDa, Dissociativeb, and Depressivec Scores Across Ethnic/Racial Groups

<table>
<thead>
<tr>
<th>Measure</th>
<th>White (n = 160)</th>
<th>African American (n = 43)</th>
<th>Hispanic (n = 29)</th>
<th>American Indian (n = 24)</th>
<th>Asian (n = 13)</th>
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<tbody>
<tr>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>PCLa*</td>
<td>34.0 (12.1)</td>
<td>39.9 (12.1)</td>
<td>36.0 (11.6)</td>
<td>42.0 (13.3)</td>
<td>41.4 (15.2)</td>
</tr>
<tr>
<td>PDEQb*</td>
<td>1.6 (.60)</td>
<td>1.9 (.60)</td>
<td>1.8 (.75)</td>
<td>2.2 (.65)</td>
<td>1.9 (.64)</td>
</tr>
<tr>
<td>CES–Dc</td>
<td>24.4 (10.4)</td>
<td>26.6 (8.2)</td>
<td>26.7 (9.1)</td>
<td>28.2 (9.3)</td>
<td>29.2 (9.0)</td>
</tr>
</tbody>
</table>

aAs measured by the PTSD Checklist (PCL) (Weathers, 1991); bAs measured by the Peritraumatic Dissociative Experiences Questionnaire (PDEQ) (Marmar et al., 1997); cAs measured by the Center for Epidemiological Studies Depression Scale (CES–D) (Radloff, 1977). *p < .05. For PCL, White > American Indian and White > Asian comparisons achieved statistical significance. For PDEQ, White > African American, White > American Indian, and White > Asian comparisons achieved statistical significance.
pressive symptom clusters may have therefore been limited for these patient groups. Also, the health services research approach employed continuous measures of posttraumatic symptoms (Zatzick, Wagner, & Simon, 2006). Other single-site trauma-focused clinical investigations have employed early, in-depth, structured psychiatric assessments (Bryant, Harvey, Guthrie, & Moulds, 2000; O’Donnell, Creamer, & Pattison, 2004; Shalev, Peri, Canetti, & Schreiber, 1996; Ursano et al., 1999). A limitation of the current approach is lack of clarity regarding the clinical relevance of the ethnic/racial group differences identified with continuous measures of posttraumatic symptoms. Of note, the investigation of early posttraumatic stress symptoms is a rapidly emerging area of inquiry, and consensus has been difficult to achieve even for the clinical relevance of categorical diagnostic criteria, such as Acute Stress Disorder (Marshall & Schell, 2002; Marshall, Spitzer, & Liebowitz, 1999).

Beyond these limitations, this investigation has important implications for the development of early screening and intervention procedures for injured trauma survivors treated in acute care medical settings. The current investigation identified remarkable linguistic and ethnic/racial diversity among acute care inpatients. Other commentary, including the Surgeon General’s supplemental report, Mental Health: Culture, Race, and Ethnicity, has noted the demographic trend towards the increasing heterogeneity of American civilian populations, as well as the difficulties faced in classifying individuals into a small number of discrete ethnic or racial categories (U.S. Department of Health and Human Services, 2001; Wright, 1996).

Various strategies have been proposed to enhance the delivery of quality mental health interventions to ethnic/minority patients. These strategies include improving clinicians’ awareness of their own cultural orientation and their skills with different cultural groups (Sue, 2006; U.S. Department of Health and Human Services, 2001). Other recommendations include reducing barriers to treatment and supporting capacity building through community and organizational level change (U.S. Department of Health and Human Services, 2001).

A growing literature describes the development and delivery of mental health treatments to ethnically/racially diverse primary care medical patients (Arean et al., 2005; Borowsky et al., 2000; Miranda, Azocar, Organista, Dwyer, & Areane, 2003; Miranda, Schoenbaum, Sherbourne, Duan, & Wells, 2004; Schraufnagel, Wagner, Miranda, & Roy-Byrne, 2006). These investigations suggest that care management strategies, when combined with evidence-based psychotherapeutic and psychopharmacological interventions, can enhance the quality of mental health services for sub-groups of patients such as Latino and African-American primary care patients (Arean et al., 2005; Miranda et al., 2004). Prior investigations in community settings describe outreach strategies that include bilingual, bicultural staff (Snowden, Masland, Ma, & Ciemens, 2006). For ethnically and linguistically diverse Asian-American individuals, the presence of bilingual, bicultural staff may increase access to community mental health services.

The marked diversity encountered in acute care medical settings may require a creative amalgam of approaches to the development of high quality care. Randomized effectiveness trials of stepped care interventions that begin with care management and add in evidence-based treatments for PTSD and related comorbidities have shown promise (Zatzick et al., 2004). County hospital-based clinical services integrating bilingual, bicultural care managers and addressing the spectrum of post-injury linguistic, medical, and mental health needs have been developed (Jackson, Zatzick, Harris, & Gardiner, 2007) and could be adapted to the level I trauma center clinical context. These collaborative care programs tailored for heterogeneous ethnic/minority patients could subsequently be tested in randomized designs. Trauma surgery policy makers have demonstrated a willingness to act upon randomized clinical trial data substantiating the effectiveness of mental health interventions, particularly if policy-rel-
evant outcomes (e.g., reduction in recurrent injury) are targeted by the studies (American College of Surgeons Committee on Trauma, 2006). Thus, coordinated investigative and policy efforts have the potential to inform the development of sustainable high quality mental health services for the remarkably diverse population of injured trauma survivors treated in the acute care medical setting.

REFERENCES


National Center for PTSD.


