

# Posttraumatic Stress Disorder: The Burden to the Individual and to Society

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**Background:** Little is known about the total population prevalence and societal costs of posttraumatic stress disorder (PTSD); this report reviews relevant literature on these topics. **Method:** A literature search of computerized databases for published reports on trauma and PTSD was conducted. This literature was reviewed to find data on general population exposure to trauma, conditional risk of PTSD among those exposed to trauma both in focused samples of trauma victims and in general population samples, and the adverse consequences of PTSD. **Results:** PTSD was found to be a commonly occurring disorder that often has a duration of many years and is frequently associated with exposure to multiple traumas. The impairment associated with PTSD in U.S. samples, where the majority of research on these consequences has been carried out, is comparable to, or greater than, that of other seriously impairing mental disorders. Risk of suicide attempts is particularly high among people with PTSD. Available evidence suggests that the prevalence of PTSD and the adverse emotional and psychological consequences of PTSD are much greater in the many countries around the world that are in the midst of armed conflicts involving political, racial, or ethnic violence. **Conclusion:** PTSD is a highly prevalent and impairing condition. Only a minority of people with PTSD obtain treatment. Early and aggressive outreach to treat people with PTSD could help reduce the enormous societal costs of this disorder. (J Clin Psychiatry 2000;61[suppl 5]:4-12)

It has long been known that pathologic stress response syndromes can result from exposure to war,<sup>1</sup> sexual assault,<sup>2</sup> and other types of trauma.<sup>3-6</sup> It was only with the codification of diagnostic criteria for these responses in the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III)*<sup>7</sup> under the diagnosis of posttraumatic stress disorder (PTSD) that epidemiologic research on stress response syndromes began in earnest. Most of the subsequent research on PTSD has focused on victims of specific traumas such as physical assault,<sup>8,9</sup> sexual assault,<sup>10,11</sup> natural disaster,<sup>12,13</sup> and military com-

bat.<sup>14,15</sup> Less is known about the total population prevalence and societal costs of PTSD. However, it is possible to piece together such a portrait by combining the results of recently collected general population surveys with the results of more in-depth studies carried out in trauma samples. The current report attempts just this.

To find data on general population exposure to trauma, conditional risk of PTSD among those exposed to trauma both in focused samples of trauma victims and in general population samples, and the adverse consequences of PTSD, MEDLINE and current contents were searched in the years 1995 to 1999 for published reports using the key words *trauma* and *PTSD*.

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## THE MAGNITUDE OF THE PROBLEM

### The Prevalence of Trauma Exposure

Any assessment of the societal impact of a disorder must begin with a consideration of prevalence. Although a great deal of research has been carried out on the prevalence of PTSD in trauma samples, less is known about the prevalence of trauma in the general population or about the conditional risk of PTSD among trauma victims in the general population. The largest body of general population data on these prevalences comes from America. Recent U.S. surveys show that exposure to trauma is highly prevalent. In a community survey of young adults enrolled in a health maintenance organization (HMO) in

**Table 1. Lifetime Prevalence of Trauma Exposure by Gender in the U.S. National Comorbidity Survey<sup>a</sup>**

| Trauma Exposure                            | Men   |     | Women |     |
|--|-------|-----|-------|-----|
|  | %     | SE  | %     | SE  |
| I. Aggregate exposure                      |       |     |       |     |
| Any trauma                                 | 60.7* | 1.9 | 51.2  | 1.9 |
| Number of traumas                          |       |     |       |     |
| 1  | 26.5  | 1.5 | 26.3  | 1.7 |
| 2  | 14.5  | 0.9 | 13.5  | 0.9 |
| 3  | 9.5*  | 0.9 | 5.0   | 0.6 |
| 4 or more                                  | 10.2* | 0.8 | 6.4   | 0.6 |
| II. Exposure to particular types of trauma |       |     |       |     |
| Witnessing a traumatic event               | 35.6* | 2.0 | 14.5  | 0.7 |
| Life-threatening accident                  | 25.0* | 1.2 | 13.8  | 1.1 |
| Natural disaster                           | 18.9* | 1.4 | 15.2  | 1.2 |
| Threatened with weapon                     | 19.0* | 1.3 | 6.8   | 0.6 |
| Trauma occurred to loved one               | 11.4  | 1.1 | 12.4  | 1.1 |
| Physical attack                            | 11.1* | 1.0 | 6.9   | 0.9 |
| Sexual assault other than rape             | 2.8*  | 0.5 | 12.3  | 1.0 |
| Rape                                       | 0.7*  | 0.2 | 9.2   | 0.8 |
| Combat exposure in a war                   | 6.4*  | 0.9 | 0.0   | ... |

<sup>a</sup>From Kessler et al.,<sup>19</sup> with permission.

\*Gender difference significant at the .05 level, 2-sided test.

the Detroit, Mich., area, Breslau et al.<sup>16</sup> found that more than one third of respondents already had experienced at least 1 traumatic event by the beginning of early adulthood. In a survey of exposure to trauma in 4 southeastern cities of the United States, Norris<sup>17</sup> found that two thirds of respondents had experienced at least 1 of the 10 traumas inquired about at some time during their life and that one fifth had been exposed in the past year. Resnick et al.<sup>18</sup> carried out a national telephone survey of women that inquired about a wide range of traumatic criminal victimization experiences, such as being raped and physically assaulted, and found that close to 70% of respondents had experienced 1 or more of these events during their life.

The nationally representative data on lifetime trauma exposure in the United States presented in Table 1 come from the U.S. National Comorbidity Survey (NCS).<sup>19</sup> The NCS was a face-to-face household survey that included a checklist of traumatic events. As shown in part I of the table, 60.7% of men and 51.2% of women reported exposure to at least 1 lifetime traumatic event. It is noteworthy that this study used the DSM-III-R criteria to define an event as traumatic. The prevalence of trauma exposure increases when DSM-IV criteria are used as shown below. The majority of the NCS respondents who reported trauma exposure experienced more than 1 type of trauma. As shown in part II of the table, the most commonly occurring types of trauma in the NCS were witnessing a traumatic event, personally having a life-threatening accident, and being involved personally in a natural disaster.

DSM-IV expanded the set of stressful experiences that qualify as trigger events for PTSD. Diagnosis with a life-threatening illness and the sudden death of a close friend or loved one, for example, both qualify as traumas in DSM-IV. In 1998, Breslau et al.<sup>20</sup> were the only ones to

publish results from a community epidemiologic survey that assessed trauma exposure using DSM-IV criteria. Nearly 90% of respondents in this pioneering survey reported exposure to at least 1 lifetime traumatic event. According to these results, 37.7% of respondents experienced traumatic assaultive violence (such as rape, torture, or military combat), 59.8% experienced some other traumatic personal injury or shocking experience (such as a life-threatening accident, natural disaster, life-threatening illness, or witnessing a traumatic event), 60.0% experienced the sudden, unexpected death of a loved one, and 62.4% lived through a nonfatal traumatic experience that occurred to a loved one (e.g., daughter raped or spouse seriously injured in an automobile accident).

It is unclear whether these U.S. results generalize to other developed countries. The fact that crime statistics for extreme forms of assaultive violence such as murder and rape are considerably higher in the United States than in other developed countries<sup>21</sup> means that exposure to traumatic interpersonal violence is likely to be lower in other developed countries than in the United States. However, rates of exposure to natural disasters and life-threatening accidents, 2 of the most commonly reported traumas in the U.S. surveys, are presumably comparable in other developed countries.

The situation is almost certainly quite different in less developed countries, where we know that exposure to traumatic events involving interpersonal violence is much more common. Many less developed countries are either controlled by repressive political regimes or are in the midst of armed conflicts involving political, racial, or ethnic violence. There are well over 100 countries of this sort in the world today.<sup>22</sup> Large proportions of the populations in these countries have been exposed either directly or indirectly to terrorist acts, torture, sexual assault, and forced relocation.<sup>23-25</sup> To take but one of many examples from the literature, a sample of 791 Bosnian school children aged 7-15 years in Sarajevo at the end of the city's siege in 1994 reported that during the previous year, 85% had been shot at by snipers, 66% had lost a family member, and between 10% and 48% had experienced various types of physical deprivation, such as water shortage and lack of shelter.<sup>26</sup>

### The Prevalence of PTSD

The earliest U.S. general population prevalence surveys of PTSD were conducted as part of the Epidemiologic Catchment Area (ECA) Study.<sup>27,28</sup> These surveys did not attempt to estimate the prevalence of trauma exposure, but rather asked respondents whether they ever had trauma-related stress reactions. Based on these assessments, the ECA investigators concluded that PTSD is a rare disorder with a lifetime prevalence of only 1% to 2%. A lifetime prevalence of 2.6% was subsequently found in the control sample of a case control study of the Mount

St. Helens volcanic eruption that used the same measurement methodology as the ECA Study.<sup>29</sup>

However, much higher prevalences of PTSD were found in more recent U.S. studies that included systematic assessments of trauma exposure along with assessments of reactivity to trauma. In an urban sample of HMO enrollees, Breslau et al.<sup>16</sup> found that 11.3% of women had a lifetime history of DSM-III-R PTSD. In a nationally representative sample, Resnick et al.<sup>18</sup> found that 12.3% of women had a lifetime history of DSM-III-R PTSD associated with criminal victimization. Finally, the NCS found that 7.8% of respondents had a lifetime history of DSM-III-R PTSD.<sup>19</sup>

Several factors that probably contribute to the much higher prevalences of PTSD found in these recent studies compared with the earlier ECA studies are differences in diagnostic criteria, in assessment procedures, and in sample characteristics. All of these differences play an important part in prevalence estimates in previous research.<sup>30,31</sup> An additional important factor specific to the ECA questions about PTSD is the way in which these questions were asked. Respondents had to volunteer the name of their trauma in order to report its occurrence. For example, a woman would have to tell an interviewer out loud, "I was raped" to report this trauma. In comparison, in the more recent surveys, participants simply had to say yes or no in response to questions read by interviewers. This latter procedure created greater emotional distance that may have contributed to the much higher reports of trauma.

Resnick et al.<sup>18</sup> suggest that the anonymity of telephone interviews may have contributed to the comparatively high rates of trauma reported in their study. Consistent with this possibility, recent methodological research in the United States shows that experimental manipulation of the anonymity of responses importantly affects the prevalence estimates of potentially embarrassing behaviors such as drug use and sexual behavior.<sup>32</sup> Because of this possibility, the NCS used a self-administration procedure that increased emotional distance by presenting respondents with a trauma list and by referring to these events by number rather than name. This procedure may have contributed to the comparatively high prevalences of PTSD found in the NCS, despite administering interviews face-to-face rather than by telephone.

Estimates of the prevalence of PTSD in the general populations of other countries are lacking. Based on the preceding evidence on differential exposure to stress and the premise that people exposed to the same traumas in different countries are at comparable conditional risk of PTSD, it is plausible to assume that the prevalence of PTSD is somewhat lower in other developed countries and considerably higher in many less developed countries. However, as detailed in the next section of the article, the assumption of comparable conditional risks may not be plausible.

**Table 2. Conditional Risk of Posttraumatic Stress Disorder (PTSD) Associated With Particular Types of Trauma by Gender in the U.S. National Comorbidity Survey<sup>a</sup>**

| Trauma Exposure                        | Men   |      | Women |     |
|--|-------|------|-------|-----|
|  | %     | SE   | %     | SE  |
| Exposure to particular types of trauma |       |      |       |     |
| Witnessing a traumatic event           | 6.4   | 1.2  | 7.5   | 1.7 |
| Life-threatening accident              | 6.3   | 1.8  | 8.8   | 4.3 |
| Natural disaster                       | 3.7   | 1.8  | 5.4   | 3.8 |
| Threatened with weapon                 | 1.9*  | 0.8  | 32.6  | 7.8 |
| Trauma occurred to loved one           | 4.4*  | 1.4  | 10.4  | 2.0 |
| Physical attack                        | 1.8*  | 0.9  | 21.3  | 7.3 |
| Sexual assault other than rape         | 12.2* | 5.3  | 26.5  | 4.0 |
| Rape                                   | 65.0  | 15.6 | 45.9  | 5.9 |
| Combat exposure in a war               | 38.8* | 9.9  | ...   | ... |
| Any trauma                             | 8.1   | 1.0  | 20.4  | 1.5 |

<sup>a</sup>From Kessler et al.,<sup>19</sup> with permission.

\*Gender difference significant at the .05 level, 2-sided test.

### The Conditional Risk of PTSD Among Trauma Victims

The conditional risk of PTSD among trauma victims in U.S. samples varies enormously depending on the type of trauma to which they were exposed. Illustrative results from the NCS are presented in Table 2.<sup>19</sup> The general pattern in this table and in other U.S. studies<sup>9,20,33</sup> is that the risk of PTSD is much greater after exposure to a trauma involving assaultive violence than after other forms of trauma. As noted previously, there is good reason to believe that the prevalence of traumas involving assaultive violence is higher in the United States than in most other developed countries. This suggests that, all else being equal, the prevalence of PTSD is probably higher in the United States than in other developed countries.

Comparative data from studies carried out in trauma samples in other developed countries yield no systematic evidence that conditional risk of PTSD differs from that in the United States. For example, Shalev et al.<sup>34</sup> found that 29.9% of a heterogeneous sample of trauma victims in Israel who presented with minor injuries due to their trauma developed PTSD, while Brewin et al.<sup>35</sup> found that 20% of a heterogeneous sample of crime victims recruited from a community sample in England developed PTSD. These conditional risks are quite similar to the 20.9% of victims of assaultive violence who developed PTSD in the 1998 community survey in the United States conducted by Breslau et al.<sup>20</sup> Another example is that studies of PTSD among professional firefighters exposed to traumatic stress show similar conditional risks of PTSD in the United States, Canada, and Germany.<sup>36,37</sup> Adding a final example, data collected in the Republic of Ireland found that 9% of the people seeking medical treatment for minor injuries associated with a motor vehicle accident subsequently developed PTSD.<sup>38</sup> This corresponds well with the 7.5% risk of PTSD among accident victims in the NCS.<sup>19</sup>

As one might expect, the available evidence suggests that risk of PTSD is considerably higher among people

from less developed countries who have been exposed to prolonged traumatic experiences associated with political or ethnic violence. Representative epidemiologic studies have not been carried out in these countries, but a number of studies of refugee populations have been done.<sup>39-41</sup> These studies show clearly that the conditional risk of PTSD is substantially higher among people exposed to these types of ongoing horrific trauma than among victims of the traumas more characteristic of developed countries. For example, 65% of the Bosnian refugees resettled in the United States suffered from PTSD,<sup>41</sup> while 72.8% of the Palestinian children exposed to war trauma experienced PTSD.<sup>42</sup>

### PTSD Over the Life Course

All of the previously discussed general population studies involving PTSD in the United States focused on the lifetime prevalence of PTSD rather than on its point prevalence. This was dictated by a methodologic feature of general population PTSD assessment that is not shared with other mental disorder assessments. PTSD identification begins by the interviewer focusing on a particular event. Interviewers in general population surveys start with questions about lifetime exposure to traumatic events. As mentioned earlier, the majority of respondents in U.S. surveys report lifetime exposure to more than a single traumatic event. Since assessing PTSD for each of these traumas is not feasible, the interviewer asks respondents to choose the "worst" or "most upsetting" lifetime trauma for PTSD assessment. The assumption is that anyone not meeting criteria for PTSD after this most extreme trauma is unlikely to do so after a lesser trauma, yielding a fairly accurate lower bound estimate of lifetime prevalence of PTSD.

This approach makes sense for the estimation of lifetime prevalence, but it creates problems for evaluating the societal burden of PTSD. It gives us no way either to know how many people in the population suffer from PTSD at a point in time or to determine the typical lifetime duration of PTSD. Some information is available on the typical duration of PTSD associated with specific events. The NCS found that the median duration of PTSD associated with worst lifetime trauma is between 3 years (among respondents who obtained treatment) and 5 years (among respondents who did not receive treatment).<sup>19</sup> However, these estimates ignore the very real possibility that people may experience PTSD more than once in their lives. This is particularly likely in light of the fact that a great many people report exposure to multiple traumas over the life course.

This uncertainty can be resolved by including 2 assessments of PTSD rather than 1 in community epidemiologic surveys, as discussed in more detail elsewhere.<sup>43</sup> The first assessment would be linked to the respondent's self-reported most upsetting event, in order to classify the respondent in terms of lifetime prevalence. The second

assessment would then be linked to 1 event selected at random from all those reported by the respondent in order to generate more representative information at the aggregate level. The data regarding prevalence of PTSD associated with the random event would subsequently be weighted to adjust for between-person differences in number of lifetime traumas.

Data collected in this way can be combined to reconstruct a portrait of the lifetime duration of PTSD. The previously mentioned community epidemiologic survey of Breslau et al.<sup>20</sup> is the only research to date ever to implement this strategy. The results illustrate the potential of this method and document the enormity of the burden of PTSD in the lives of individuals who have this disorder. Nearly 90% of respondents in this survey reported exposure to at least 1 DSM-IV traumatic event in their lifetime, and these participants averaged exposure to 4.8 lifetime traumas. The probability of PTSD from the most upsetting trauma was 13.6%, while the probability of PTSD was 9.2% for the randomly selected trauma (N.B., the most upsetting trauma also could be selected as the random trauma). This means that there were close to 40 episodes of PTSD for every 100 people in the sample (i.e.,  $9.2\% \times 4.8 \times 90\%$ ) and that these episodes were concentrated largely in 12% of the population (i.e.,  $13.6\% \times 90\%$ ). Further, this means that this 12% of the population average 3.3 episodes of PTSD during their life ( $40/12$ ). Since the average duration of each episode is reported to be more than 7 years, these results suggest that the typical person with PTSD has a duration of active symptoms lasting for more than 2 decades.

These results are striking in 2 respects. First, they raise a comparatively neglected issue in the PTSD literature: a substantial proportion of people with a history of PTSD experience multiple episodes of the disorder associated with different traumas. Second, they show that the average lifetime duration of PTSD is much longer than previously estimated in studies that focused on reactions to single traumas. It is not clear whether these results apply only to the United States. The existence of multiple episodes of PTSD in a single individual might be more true in some countries than others because of variation in the nature of the traumatic events to which people are exposed. In the United States, and presumably in other developed countries as well, the majority of qualifying traumas for PTSD are discrete rather than ongoing. It is also fairly common to find people who report multiple exposures to trauma over the life course. This pattern of exposure would be expected to lead to a high proportion of lifetime cases who have multiple episodes associated with different traumatic experiences.

The situation is probably different in less developed countries, where traumas are more likely to be associated with ongoing war, famine, political repression, and sectarian violence. It is not implausible to posit that a more

chronic form of PTSD is found in situations of this sort. Indeed, there is evidence consistent with this speculation showing that the PTSD found among victims of chronic interpersonal trauma from less developed countries who have emigrated to Western countries is much more likely to be chronic than the PTSD associated with the acute traumas more characteristic of developed countries.<sup>44</sup>

Not only are patients who suffer from the effects of chronic interpersonal violence more likely to have chronic PTSD, but the symptom profile is likely to be more complex and often involves severe forms of dissociation not found in more typical cases of PTSD. So distinct is this profile, in fact, that some researchers have argued for the creation of a separate diagnosis to characterize this response. Advocates of this new diagnosis refer to it as “complex PTSD”<sup>45,46</sup> or “disorders of extreme stress not otherwise specified” (DESNOS).<sup>47,48</sup> Although this proposed diagnosis is not included in DSM-IV due to the fact that the vast majority of patients with this symptom cluster also meet criteria for PTSD, it is nonetheless clear that a complex PTSD subtype exists. This subtype is more chronic and disabling than other cases of PTSD, and it is particularly common among patients who were exposed at an early age to chronic traumatic interpersonal violence. Based on this result, it seems likely that PTSD over the life course is more chronic and the symptom profile more complex and disabling in less developed countries than in developed countries.

### THE CONSEQUENCES OF PTSD

#### Secondary Mental Disorders

A number of studies in both treatment samples<sup>49-51</sup> and general population samples<sup>9,29,52</sup> document high rates of psychiatric comorbidity among people with PTSD. At least 2 possible explanations exist. One explanation is that a prior history of other mental disorders might be associated with increased risk of PTSD, either as a risk factor or as a marker.<sup>53</sup> This could be due either to an increased probability of trauma exposure or to an increased conditional risk of PTSD after exposure to trauma in individuals with mental disorders. The other possible explanation is that PTSD might be associated with increased risk of subsequent disorders.

Survival analysis was used in the NCS to study the effects of PTSD on the onset of subsequent DSM-III-R disorders (Table 3). The survival analysis models used PTSD as a time-varying predictor of the subsequent first onset of the mood, anxiety, and substance use disorders considered in Table 3. Controls were included in these equations for age and cohort, although the effects of these control variables are not shown in the table. The results are clear: respondents with PTSD are substantially more likely to develop other anxiety, mood, and substance disorders than other respondents without PTSD. An important related

**Table 3. The Effects of Prior PTSD in Predicting Subsequent First Onset of Other DSM-III-R Disorders by Gender in the U.S. National Comorbidity Survey<sup>a</sup>**

| DSM-III-R Disorder             | Men             |             | Women           |             |
|--------------------------------|-----------------|-------------|-----------------|-------------|
|                                | OR <sup>b</sup> | 95% CI      | OR <sup>b</sup> | 95% CI      |
| <b>Mood disorders</b>          |                 |             |                 |             |
| Major depressive episode       | 5.7*            | 4.0 to 8.2  | 3.4*            | 2.7 to 4.2  |
| Dysthymia                      | 5.3*            | 3.2 to 8.7  | 4.4*            | 3.1 to 6.1  |
| Mania                          | 15.5*           | 5.0 to 48.0 | 4.1             | 0.9 to 19.7 |
| <b>Anxiety disorders</b>       |                 |             |                 |             |
| Generalized anxiety disorder   | 5.3*            | 3.2 to 8.8  | 2.9*            | 1.9 to 4.4  |
| Panic disorder                 | 4.6*            | 2.1 to 10.0 | 3.1*            | 2.1 to 4.6  |
| Social phobia                  | 3.0*            | 2.0 to 4.5  | 2.3*            | 1.8 to 3.1  |
| Simple phobia                  | 6.0*            | 3.9 to 9.2  | 2.3*            | 1.8 to 3.0  |
| Agoraphobia                    | 4.4*            | 2.3 to 8.4  | 3.2*            | 2.3 to 4.4  |
| <b>Substance use disorders</b> |                 |             |                 |             |
| Alcohol abuse                  | 2.0*            | 1.3 to 2.9  | 2.1*            | 1.7 to 2.7  |
| Alcohol dependence             | 3.0*            | 2.1 to 4.2  | 3.2*            | 2.5 to 4.2  |
| Drug abuse                     | 2.2*            | 1.5 to 3.3  | 3.7*            | 2.8 to 4.9  |
| Drug dependence                | 3.7*            | 2.3 to 5.9  | 4.2*            | 2.9 to 6.3  |

<sup>a</sup>Previously unpublished data from the U.S. National Comorbidity Survey.

<sup>b</sup>Odds-ratios (ORs) were obtained by exponentiating coefficients from a series of discrete-time survival equations with the person-year as the unit of analysis in which PTSD was a time-varying predictor of the subsequent first onset of the other disorders. Age at onset information was obtained from retrospective reports. All equations controlled for age and cohort. Diagnoses are defined without DSM-III-R hierarchy rules.

\*Significant at the .05 level, 2-sided test.

subsequent result is that the elevated risk of secondary disorders disappears with the remission of PTSD symptoms. In other words, if we divide the sample of people with a history of PTSD into those with an active disorder and those in remission, we find that it is only those with active PTSD who have elevated risk of secondary disorders. This means that the causal mechanism leading to the association between PTSD and the subsequent onset of other disorders is not due to some underlying vulnerability to PTSD, but rather to factors associated with PTSD itself. Although this finding does not prove that PTSD causes secondary disorders, it is consistent with the possibility that this is so.

Analyses comparable to those shown in Table 3 were also carried out in the NCS to study the effects of PTSD on suicidal behaviors. The results are presented in Table 4,<sup>54</sup> where we see that people with PTSD are 6 times as likely as demographically matched controls to attempt suicide. A decomposition of this total effect shows that the impact of PTSD is strongest in predicting onset of suicidal ideation and weaker, although still statistically significant, in predicting both the development of a suicide plan and the occurrence of an impulsive, unplanned attempt. It is noteworthy that comparative analyses in the NCS found that PTSD has a stronger association with suicidality than any other anxiety disorder.<sup>54</sup> This result is especially striking in light of the suggestion that panic disorder might be as important as depression in promoting suicidal behavior.<sup>55,56</sup> PTSD, which was not examined in these earlier

**Table 4. The Effects of Prior PTSD, Mood Disorders, and Anxiety Disorders in Predicting Subsequent First Onset of Suicidal Thoughts and Behaviors in the U.S. National Comorbidity Survey<sup>a</sup>**

| Suicide Behavior                              | PTSD            |             | Mood Disorders  |             | Anxiety Disorders |            |
|---|-----------------|-------------|-----------------|-------------|-------------------|------------|
|   | OR <sup>b</sup> | 95% CI      | OR <sup>b</sup> | 95% CI      | OR <sup>b</sup>   | 95% CI     |
| Attempted suicide                             | 6.0*            | 3.4 to 10.7 | 12.9*           | 7.8 to 21.3 | 3.2*              | 2.0 to 5.2 |
| Suicidal ideation                             | 5.1*            | 3.9 to 6.8  | 10.7*           | 8.4 to 13.5 | 2.8*              | 2.2 to 3.5 |
| Suicide plan among ideators                   | 2.4*            | 1.7 to 3.3  | 1.9*            | 1.3 to 2.8  | 1.7*              | 1.1 to 2.5 |
| Impulsive attempt among ideators without plan | 1.7*            | 1.1 to 2.7  | 1.7*            | 1.2 to 2.6  | 1.3*              | 1.0 to 1.7 |
| Planned attempt among ideators with plan      | 1.0             | 0.6 to 1.6  | 2.0*            | 1.2 to 3.4  | 1.0               | 0.7 to 1.5 |

<sup>a</sup>From Kessler et al.,<sup>54</sup> with permission.

<sup>b</sup>Odds-ratios (ORs) were obtained by exponentiating coefficients from a series of discrete-time survival equations similar to those used to generate the results in Table 3.

\*Significant at the .05 level, 2-sided test.

**Table 5. The Effects of Current PTSD, Major Depression, and Panic Disorder in Predicting 30-Day Work Loss Days and Work Cutback Days in the U.S. National Comorbidity Survey<sup>a</sup>**

| Outcome           | PTSD                    |     | Major Depression        |     | Panic Disorder          |     |
|-------------------|-------------------------|-----|-------------------------|-----|-------------------------|-----|
|                   | Days/Month <sup>b</sup> | SE  | Days/Month <sup>b</sup> | SE  | Days/Month <sup>b</sup> | SE  |
| Work loss days    | 0.8                     | 0.6 | 0.4                     | 0.3 | 1.4                     | 1.0 |
| Work cutback days | 2.8*                    | 1.0 | 2.8*                    | 0.7 | 4.9*                    | 1.6 |

<sup>a</sup>From Kessler and Frank,<sup>64</sup> with permission.

<sup>b</sup>Coefficients were obtained for a series of linear regression equations to predict number of work loss or work cutback days in the 30 days prior to the interview. All equations controlled for sociodemographic variables.

\*Significant at the .05 level, 2-sided test.

studies, is clearly a more powerful risk factor than panic disorder for suicide attempts in the NCS.

As with other results reviewed above, it is unclear whether these findings regarding the prevalence of comorbidity in PTSD generalize beyond the United States. It appears to be the case from the U.S. data that risk of secondary comorbid disorders is significantly related to the complexity of the PTSD reaction, which, in turn, is associated with the severity of trauma.<sup>57</sup> This finding suggests that trauma victims in less developed countries are more likely than those in developed countries to experience secondary comorbid anxiety and mood disorders associated with their PTSD.

### Effects of PTSD on Role Functioning

Clearly, the rise of cost-effectiveness analysis and cost-benefit analysis as tools in making health care resource allocation decisions has led to a great increase in research on the adverse societal costs of illness.<sup>58-60</sup> Most research on this topic in the mental arena has focused on depression<sup>61-63</sup> and has concluded that major depression is among the most burdensome diseases in the world.<sup>59</sup> To my knowledge, only 1 published report<sup>64</sup> has considered PTSD among the disorders studied in this way. This report was based on analysis of the NCS data and examined the effects of mental disorders on work loss (missing a full day of work) and work cutback (either missing part of a day or working less efficiently than usual) during the month prior

to the interview.<sup>64</sup> Relevant results are reproduced in Table 5.

As shown in Table 5, the amount of work impairment associated with PTSD is very similar to the amount of work impairment associated with major depression, but less than the impairments associated with panic disorder. Assuming an annual prevalence of PTSD based on the duration analysis using the 1998 Breslau et al. data<sup>20</sup> described earlier in this article, and a value of a lost work day equal to the average wage in the U.S. labor force, the roughly 3.6 days of work impairment per month associated with PTSD translates into an annual productivity loss in excess of \$3 billion in the United States.

### Effects of PTSD on Life Course Opportunities

It is important to note that the estimates of productivity loss associated with PTSD that are referenced above use actual work roles as a starting point. The analysis focused solely on deviations from the respondent's typical daily functioning and ignored any chronic functional impairment embodied in structural deficits. For example, a trauma victim who works in a low paid job because he or she is unable to cope with the stresses of a higher paid job is not considered to exhibit any deficit in functioning unless he or she has performance problems on the current, low paid job.

An evaluation of the effects of PTSD on these larger life course opportunities requires the researcher to take a broader perspective than the one found in typical cost-benefit analyses. A series of reports from the NCS did this by using information on the age at onset of mental disorders to study effects in predicting subsequent transitions in educational attainment,<sup>65</sup> child-bearing,<sup>66</sup> marriage,<sup>67</sup> and earnings.<sup>68,69</sup> The results clearly show that mental disorders in general, and PTSD in particular, are associated with significantly elevated risk of many different adverse life course consequences. In terms of standardized (for sociodemographics) odds ratios, NCS respondents with PTSD had 40% elevated odds of high school and college failure, 30% elevated odds of teenage childbearing, 60% elevated odds of marital instability, and 150% elevated odds of current unemployment at the time of interview compared to people without PTSD.

It is unclear whether similar effects exist in other countries. It is relevant to note that NCS analyses found that the most extreme adverse effects of traumatic events are asso-

**Table 6. Reasons for Not Seeking Treatment Among Non-Patients With 12-Month PTSD by Gender in the U.S. National Comorbidity Survey<sup>a</sup>**

| Reason   | Men  |      | Women |     |
|--|------|------|-------|-----|
|  | %    | SE   | %     | SE  |
| Lack of perceived need                         |      |      |       |     |
| Did not have a problem requiring treatment     | 66.2 | 7.8  | 60.0  | 6.0 |
| Reasons among non-patients with perceived need |      |      |       |     |
| Situational barriers                           |      |      |       |     |
| Unsure about where to go                       | 40.0 | 11.5 | 49.4  | 9.6 |
| Inconvenient                                   | 43.4 | 16.7 | 29.4  | 7.6 |
| Language problem                               | 11.9 | 8.3  | 5.4   | 4.8 |
| Could not get an appointment                   | 1.6  | 1.7  | 8.0   | 4.8 |
| Any  | 62.9 | 16.1 | 56.4  | 9.5 |
| Financial barriers                             |      |      |       |     |
| Treatment was too expensive                    | 46.5 | 12.3 | 48.2  | 8.9 |
| Health insurance would not cover treatment     | 42.9 | 12.1 | 29.8  | 6.8 |
| Any  | 57.3 | 12.6 | 50.1  | 9.5 |
| Perceived lack of effectiveness                |      |      |       |     |
| It would not help                              | 59.4 | 15.5 | 25.6  | 8.2 |
| Went in the past and it did not help           | 21.3 | 9.4  | 17.3  | 6.7 |
| Not satisfied with services                    | 23.3 | 10.3 | 11.3  | 4.7 |
| Any  | 66.2 | 14.9 | 40.4  | 8.0 |
| Other  |      |      |       |     |
| Wanted to solve on own                         | 54.2 | 12.3 | 67.5  | 8.7 |
| Thought the problem would get better by itself | 43.4 | 11.6 | 66.5  | 8.9 |
| The problem went away by itself                | 4.0  | 3.0  | 32.6  | 8.2 |
| Afraid of forced hospitalization               | 34.6 | 12.7 | 22.0  | 7.2 |
| Stigma   | 23.0 | 7.9  | 17.3  | 6.0 |

<sup>a</sup>Previously unpublished data from the U.S. National Comorbidity Survey.

ciated with complex ongoing traumas that occur in childhood such as parental violence in conjunction with father alcoholism and mother depression.<sup>57</sup> These experiences affect both basic lifelong patterns of interpersonal relations and success in mastering the basic educational skills needed for later learning and role performance. Such experiences are comparatively rare in the United States and presumably also in other developed countries, where the majority of exposure to traumatic events is acute and occurs to adults. However, the situation is different in less developed countries in the throes of political and ethnic violence, where entire generations of children are exposed to ongoing horrific traumas, including sexual and physical assault, forced relocation, and witnessing of atrocities. It is almost certain that the emotional scars of these experiences are deeper and their long-term life course consequences are more dire than those found in the U.S. studies.

**Help-Seeking**

General population research in the United States estimates that 38% of people with PTSD are in treatment in a given year.<sup>70</sup> The majority of these patients (28% of cases and 75% of those in treatment) are seen in the medical sec-

tor of the treatment system, while the others are in the human services sector (e.g., seen by spiritual counselors or social workers) or the self-help sector. Approximately 22% of those with PTSD (58% of those in treatment) are in treatment with a psychiatrist, clinical psychologist, or other mental health professional. These rates of treatment are comparable to those found among people with major depression (36% any treatment), but higher than those among people with the other anxiety disorders (23%) or with substance use disorders (23%).

As shown in Table 6, the most commonly reported reason for not being in treatment among the 62% of PTSD cases in the NCS who were not in treatment is that those respondents did not think they had a problem. Even respondents who reported quite severe impairment cited this reason. Those who recognized their need for help provided a number of other reasons. The most common of these were the expense of treatment, uncertainty about where to go for help, thinking the problem will get better by itself, and wanting to solve the problem on one's own. The average respondent with a perceived need for treatment gave 4 different reasons for not seeking help. There is no available evidence as to whether similar or different patterns of reasons for failing to seek treatment exist in other countries. One can certainly imagine that the situation is a good deal worse in countries where access to professional treatment is more restricted than in the United States.

**DISCUSSION**

PTSD is a commonly occurring disorder that often has a duration of many years and is frequently associated with recurrences related to exposure to multiple traumas. The impairment associated with PTSD in U.S. samples is comparable to, or greater than, that of other seriously impairing mental disorders. This impairment includes both failure to realize one's potential in terms of education, marriage, and employment and impairment in day-to-day role functioning. The costs to the individual are substantial both in financial terms and in broader human terms. Risk of suicide attempts, an especially important indicator of extreme distress, is particularly high among people with PTSD.

The costs of PTSD to society are also substantial. For example, the constellations of individual life course consequences of PTSD reviewed earlier in this article—educational failure, teen childbearing, and marital instability—are the main factors in welfare dependency in Western societies. The costs of public assistance are societal costs paid by all taxpayers rather than by the welfare recipients themselves. A number of innovative welfare-to-work programs are currently being carried out in response to welfare reform legislation in the U.S.<sup>71,72</sup> Early reports from evaluations of these programs suggest that their success hinges on the mental health of welfare recipients.<sup>73</sup>

This is a population that carries an extremely high burden of psychopathology, with PTSD featuring prominently in this profile. It might well be that these evaluations will conclude that early outreach and treatment of people with emotional problems prior to their arrival on the welfare rolls cost less than the long-term societal costs associated with failure to provide early and effective treatment.

The societal costs of PTSD are likely to be substantially greater in the many countries throughout the world that have been ravaged by years of political and ethnic violence. These countries must reconstruct a viable social structure and economy so that they can take their place within the world order. This task requires a citizenry possessing basic cognitive and interpersonal skills that are lacking among victims of widespread trauma. In the absence of this human capital, it is difficult to see how viable social structures can be created. We are beginning the phase of world economic development in which leaders of developing countries must become concerned about the functional capacity of the workers in their countries compared to the workers in other countries.<sup>4</sup> Only when this realization drives us to systematically assess the impact of emotional functioning on productive capacity will we appreciate the full societal impact of trauma and PTSD on this domain of life. The evidence reviewed in this article leads us to believe that the impact will be staggering, that the toll in terms of emotional pain and suffering will be as large as the effect on productive capacity, and that the process of healing will have to be measured in terms of generations rather than years.

## REFERENCES

- Freud S. Introduction to the Psychology of the War Neuroses, vol 18. Standard ed. London, England: Hogarth Press; 1919
- Burgess AW, Holstrum L. The rape trauma syndrome. *Am J Psychiatry* 1974;131:981-986
- Grinker K, Spiegel S. *Men Under Stress*. Philadelphia, Pa: Blakiston; 1945
- Horowitz MJ. *Stress Response Syndromes*. New York, NY: Jason Aronson; 1976
- Lindemann E. Symptomatology and management of acute grief. *Am J Psychiatry* 1944;101:141-148
- Parad H, Resnick H, Parad Z. *Emergency Mental Health Services and Disaster Management*. New York, NY: Prentice Hall; 1976
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Third Edition*. Washington, DC: American Psychiatric Association; 1980
- Kilpatrick DG, Saunders BE, Veronen LJ, et al. Criminal victimization: lifetime prevalence, reporting to police, and psychological impact. *Crime Delinq* 1987;33:479-489
- Kilpatrick DG, Resnick HS. Posttraumatic stress disorder associated with exposure to criminal victimization in clinical and community populations. In: Davidson JRT, Foa EB, eds. *Posttraumatic Stress Disorder: DSM-IV and Beyond*. Washington, DC: American Psychiatric Press; 1992:113-143
- Frank E, Anderson BP. Psychiatric disorders in rape victims: past history and current symptomatology. *Compr Psychiatry* 1987;28:77-82
- Pynoos RS, Nader K. Children who witness the sexual assaults of their mothers. *J Am Acad Child Adolesc Psychiatry* 1988;27:567-572
- Goenjian AK, Najarian LM, Pynoos RS, et al. Posttraumatic stress disorder in elderly and younger adults after the 1988 earthquake in Armenia. *Am J Psychiatry* 1994;151:895-901
- Koopman C, Classen C, Spiegel D. Predictors of posttraumatic stress symptoms among survivors of the Oakland/Berkeley, Calif., firestorm. *Am J Psychiatry* 1994;151:888-894
- Kulka RA, Schlenger WE, Fairbank JA, et al. *Trauma and the Vietnam War Generation*. New York, NY: Brunner/Mazel; 1990
- Solomon Z, Neria Y, Ohry A, et al. PTSD among Israeli former prisoners of war and soldiers with combat stress reaction: a longitudinal study. *Am J Psychiatry* 1994;151:554-559
- Breslau N, Davis GC, Andreski P, et al. Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Arch Gen Psychiatry* 1991;48:216-222
- Norris FH. Epidemiology of trauma: frequency and impact of different potentially traumatic events on different demographic groups. *J Consult Clin Psychol* 1992;60:409-418
- Resnick HS, Kilpatrick DG, Dansky BS, et al. Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *J Consult Clin Psychol* 1993;61:984-991
- Kessler RC, Sonnega A, Bromet E, et al. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 1995;52:1048-1060
- Breslau N, Kessler RC, Chilcoat HD, et al. Trauma and posttraumatic stress disorder in the community: the 1996 Detroit Area Survey of Trauma. *Arch Gen Psychiatry* 1998;55:626-632
- Langan PA, Farrington DP. *Crime and Justice in the United States and in England and Wales, 1981-96*. Washington, DC: US Dept of Justice, Office of Justice Programs, Bureau of Justice Statistics; 1998
- Desjarlais R, Eisenberg L, Good B, et al. *World Mental Health*. New York, NY: Oxford University Press; 1995
- Corradi J, Fagen PW, Garretton M. *Fear at the Edge: State Terror and Resistance in Latin America*. Berkeley, Calif: University of California Press; 1992
- Nordstrom C, Martin J. *The Paths to Domination, Resistance, and Terror*. Berkeley, Calif: University of California Press; 1992
- Scheper-Hughes N. *Death Without Weeping: The Violence of Everyday Life in Brazil*. Berkeley, Calif: University of California Press; 1987
- Husain SA, Nair J, Holcomb W, et al. Stress reactions of children and adolescents in war and siege conditions. *Am J Psychiatry* 1998;155:1718-1719
- Helzer JE, Robins LN, McEvoy L. Post-traumatic stress disorder in the general population. *N Engl J Med* 1987;317:1630-1634
- Davidson JRT, Hughes D, Blazer D, et al. Posttraumatic stress disorder in the community: an epidemiological study. *Psychol Med* 1991;21:1-19
- Shore JH, Vollmer WM, Tatum EI. Community patterns of posttraumatic stress disorders. *J Nerv Ment Dis* 1989;177:681-685
- Koss MP. The scope of rape: implications for the clinical treatment of victims. *Clin Psychol* 1983;36:88-91
- Croyle RT, Loftus EF. Improving episode memory performance of survey respondents. In: Tanur JM, ed. *Questions About Questions: Inquiries into the Cognitive Bases of Surveys*. New York, NY: Russell Sage Foundation; 1992:95-101
- Turner CF, Ku L, Rogers SM, et al. Adolescent sexual behavior, drug use, and violence: increased reporting with computer survey technology. *Science* 1998;280:867-873
- March JS. What constitutes a stressor? The "Criterion A" issue. In: Davidson JRT, Foa EB, eds. *Posttraumatic Stress Disorder: DSM-IV and Beyond*. Washington, DC: American Psychiatric Press; 1992:37-54
- Shalev AY, Freedman S, Peri T, et al. Prospective study of posttraumatic stress disorder and depression following trauma. *Am J Psychiatry* 1998;155:630-637
- Brewin CR, Andrews B, Rose S, et al. Acute stress disorder and posttraumatic stress disorder in victims of violent crime. *Am J Psychiatry* 1999;156:360-366
- Corneil W, Beaton R, Murphy S, et al. Exposure to traumatic incidents and prevalence of posttraumatic stress symptomatology in urban firefighters in two countries. *J Occup Health Psychol* 1999;4:131-141
- Wagner D, Heinrichs M, Ehler U. Prevalence of symptoms of posttraumatic stress disorder in German professional firefighters. *Am J Psychiatry* 1998;155:1727-1732
- Conlon L, Fahy TJ, Conroy R. PTSD in ambulant RTA victims: a randomized controlled trial of debriefing. *J Psychosom Res* 1999;46:37-44
- Allodi F. Assessment and treatment of torture victims: a critical review. *J Nerv Ment Dis* 1991;179:4-11
- Mollica TF, Wyshak G, Lavelle J. The psychological impact of war trauma and torture in Southeast Asian refugees. *Am J Psychiatry* 1987;144:



- 1567–1572
41. Weine SM, Becker DF, McGlashan TH, et al. Psychiatric consequences of “ethnic cleansing”: clinical assessments and trauma testimonies of newly resettled Bosnian refugees. *Am J Psychiatry* 1995;152:536–542
  42. Thabet AA, Vostanis P. Post-traumatic stress reactions in children of war. *J Child Psychol Psychiatry* 1999;40:385–391
  43. Kessler RC, Sonnega A, Bromet E, et al. Epidemiological risk factors for trauma and PTSD. In: Yehuda R, ed. *Risk Factors for Posttraumatic Stress Disorder*. Washington, DC: American Psychiatric Press; 1999:23–59
  44. Simon RI. Chronic posttraumatic stress disorder: a review and checklist of factors influencing prognosis. *Harv Rev Psychiatry* 1999;6:304–312
  45. Herman JL. Complex PTSD: a syndrome in survivors of prolonged and repeated trauma. *J Trauma Stress* 1992;5:377–391
  46. Zlotnick C, Zakriski AL, Shea MT, et al. The long-term sequelae of sexual abuse: support for a complex posttraumatic stress disorder. *J Trauma Stress* 1996;9:195–205
  47. van der Kolk BA, Pelcovitz D, Roth S, et al. Dissociation, somatization, and affect dysregulation: the complexity of adaptation to trauma. *Am J Psychiatry* 1996;153(suppl):83–93
  48. Pelcovitz D, van der Kolk B, Roth S, et al. Development of a criteria set and a Structured Interview for Disorders of Extreme Stress (SIDES). *J Trauma Stress* 1997;10:3–15
  49. Davidson JRT, Swartz M, Stork M, et al. A diagnostic and family study of posttraumatic stress disorder. *Am J Psychiatry* 1985;142:90–93
  50. Sierles FS, Chen J, McFarland RE, et al. Posttraumatic stress disorder and concurrent psychiatric illness: a preliminary report. *Am J Psychiatry* 1983;140:1177–1179
  51. Green BL, Lindy JD, Grace MC, et al. Multiple diagnosis in posttraumatic stress disorder: the role of war stressors. *J Nerv Ment Dis* 1989;177:329–335
  52. Engdahl B, Dikel TN, Eberly R, et al. The comorbidity and course of psychiatric disorders in a community sample of former prisoners of war. *Am J Psychiatry* 1998;155:1740–1745
  53. Kraemer CK, Kazdin AE, Offord DR, et al. Coming to terms with the terms of risk. *Arch Gen Psychiatry* 1997;54:337–343
  54. Kessler RC, Borges B, Walters EE. Prevalence and risk factors of lifetime suicide attempts in the National Comorbidity Survey. *Arch Gen Psychiatry* 1999;56:617–626
  55. Weissman MM, Klerman GL, Markowitz JS, et al. Suicidal ideation and suicide attempts in panic disorder and attacks. *N Engl J Med* 1989;321:1209–1214
  56. Bronisch T, Wittchen HU. Suicidal ideation and suicide attempts: comorbidity with depression, anxiety disorders, and substance abuse disorders. *Eur Arch Psychiatry Clin Neurosci* 1994;244:93–98
  57. Kessler RC, Davis CG, Kendler KS. Childhood adversity and adult psychiatric disorder in the US National Comorbidity Survey. *Psychol Med* 1997;27:1101–1119
  58. Kessler RC, Mickelson KD, Barber C, et al. The effects of chronic medical conditions on work impairment. In: Rossi AS, ed. *Caring and Doing for Others: Social Responsibility in the Domains of Family, Work, and Community*. Chicago, Ill: University of Chicago Press. In press
  59. Murray CJL, Lopez AD. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020*. Cambridge, Mass: Harvard University Press; 1996
  60. Verbrugge LM, Patrick DL. Seven chronic conditions: their impact on US adults’ activity levels and use of medical services. *Am J Public Health* 1995;85:173–182
  61. Coulehan JL, Schulberg HC, Block MR, et al. Treating depressed primary care patients improves their physical, mental, and social functioning. *Arch Intern Med* 1997;157:1113–1120
  62. Mintz J, Mintz LI, Arruda MJ, et al. Treatments of depression and the functional capacity to work. *Arch Gen Psychiatry* 1992;49:761–768
  63. Simon GE, Katon W, Rutter C, et al. Impact of improved depression treatment in primary care on daily functioning and disability. *Psychol Med* 1998;28:693–701
  64. Kessler RC, Frank RG. The impact of psychiatric disorders on work loss days. *Psychol Med* 1997;27:861–873
  65. Kessler RC, Foster CL, Saunders WB, et al. Social consequences of psychiatric disorders, I: educational attainment. *Am J Psychiatry* 1995;152:1026–1032
  66. Kessler RC, Berglund PA, Foster CL, et al. Social consequences of psychiatric disorders, II: teenage parenthood. *Am J Psychiatry* 1997;154:1405–1411
  67. Kessler RC, Walters EE, Forthofer MS. The social consequences of psychiatric disorders, III: probability of marital stability. *Am J Psychiatry* 1998;155:1092–1096
  68. Ettner SL, Frank RG, Kessler RC. The impact of psychiatric disorders on labor market outcomes. *Ind Labor Relat Rev* 1997;51:64–81
  69. Jayakody R, Danziger S, Kessler RC. Early-onset psychiatric disorders and male socioeconomic status. *Soc Sci Res* 1998;27:371–387
  70. Kessler RC, Zhao S, Katz SJ, et al. Past year use of outpatient services for psychiatric problems in the National Comorbidity Survey. *Am J Psychiatry* 1999;156:115–123
  71. Friedlander D, Burtless G. *Five Years After: The Long-Term Effects of Welfare-to-Work Programs*. New York, NY: Russell Sage Foundation; 1996
  72. Gueron JM, Pauly E. *From Welfare to Work*. New York, NY: Russell Sage Foundation; 1991
  73. Danziger S, Corcoran M, Danziger S, et al. *Barriers to the Employment of Welfare Recipients*. Ann Arbor, Mich: University of Michigan, Poverty Research & Training Center; 1999
  74. Fukuyama F. *Trust: The Social Virtues and the Creation of Prosperity*. New York, NY: Simon & Schuster; 1996