

A Study of Posttraumatic Stress in a Student Population

DAVID G. PURVES

*Department of Psychology
London Guildhall University, London, England*

PHILIP G. ERWIN

*Psychology Unit
Edge Hill College, Lancashire, England*

ABSTRACT. The authors examined the incidence of posttraumatic stress (PTS), with respect to levels of exposure to traumatic events, in a British student population. Respondents ($N = 700$) completed a standard questionnaire booklet that contained a posttraumatic stress disorder interview. The questionnaire collected personal demographic information and was used by researchers to ascertain whether respondents had experienced a traumatic event. Consistent with previous American studies, PTS was found to be relatively common; 23.3% of the sample showed either current or past PTS. Female participants had a significantly higher incidence of PTS than did male participants, although the latter were more likely to report having experienced a traumatic event. The experience of trauma was significantly associated with the likelihood of PTS. The authors discuss implications of their results in terms of long-term consequences of unresolved trauma.

Key words: epidemiology, gender, posttraumatic stress, trauma

POSTTRAUMATIC STRESS DISORDER (PTSD) and adjustment disorder (AD) are potential outcomes from an individual's being exposed to psychological stressors, according to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV;* American Psychiatric Association, 1994). PTSD and AD have identical symptomatology. When clinical levels of symptoms exist, the differentiating factor between diagnoses of PTSD and AD is the nature of the stressor. When the stressor is clearly extreme in nature, a diagnosis of PTSD may be given. In those cases in which the stressor is less extreme, a diagnosis of AD may be given. The chronicity of the stressor (i.e., whether it was a single identifiable event or a series of events over an extended time period) is also considered by practi-

Address correspondence to Philip G. Erwin, Psychology Unit, Edge Hill College, St. Helen's Road, Ormskirk, Lancashire, L39 4QP, England; erwinp@edgehill.ac.uk (e-mail).

tioners, further complicating the diagnoses of PTSD and AD. Moreover, a wide variety of traumatic stressors may result in PTSD and AD symptoms.

Posttraumatic stress (PTS) is characterized by three main clusters of symptoms: memory intrusions, elevated autonomic nervous system arousal, and avoidance behaviors (*DSM-IV*; American Psychiatric Association, 1994). Researchers have accumulated evidence that nationally representative populations in the United States experience surprisingly high levels of traumatic events and that a significant number of those so exposed go on to develop PTSD (Breslau, Davis, Andreski, & Peterson, 1991; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Norris, 1992). Researchers have also shown that PTSD is significantly comorbid with other problems, such as major psychiatric illnesses (Saxe et al., 1993), alcohol dependence (Kessler et al., 1997), and major depression (Breslau, Davis, Peterson, & Schultz, 1997), illustrating the serious long-term consequences of earlier life trauma.

Early researchers of the prevalence of PTSD in the general population have demonstrated relatively low levels of the disorder. Helzer, Robins, and McEvoy (1987) conducted one of the first epidemiological studies on PTSD and showed lifetime rates (i.e., the proportion of the population that has ever met the diagnostic criteria) of PTSD for male participants of 0.5% and for female participants of 1.3%; however, substantially more respondents in that study had experienced subclinical symptoms after a trauma. Subsequent researchers, using more sensitive diagnostic instruments, have identified significantly higher levels of PTSD in the population.

Breslau et al. (1991), in a survey of 1,007 young adults in the United States, found that 39.1% of this group had experienced a trauma of which 23.6% went on to develop PTSD. The data of the Breslau et al. (1991) study revealed a lifetime prevalence rate for PTSD of 9.2%. Higher figures for lifetime prevalence of PTSD have also been supported by research aimed at sampling a nationally representative population within the United States. Kessler et al. (1995) demonstrated lifetime rates for PTSD of 7.8%. Importantly, that study was also able to yield population rates for exposure to traumatic events. In their sample, 60.7% of men had experienced trauma, which was most likely related to witnessing a death or accident; 10.7% of these men developed PTSD. Of the 51.2% of women who had experienced a trauma, the trauma was most likely the result of a sexual crime; 48.4% of those raped developed PTSD. Overall, women were considered more than twice as likely to suffer clinical symptoms of PTSD than were men following a trauma, with the greatest gender difference found in the age range of 15 to 24 years.

It seems that research into the incidence of trauma has revealed remarkable levels of exposure to events that could potentially lead to clinical symptoms. In a survey of 4,008 American women, Resnick, Kilpatrick, Dansky, Saunders, and Best (1993) found that lifetime exposure to a traumatic stressor was 69%, leading to lifetime prevalence rates for PTSD of 12.3%. Elliot and Briere (1995), in

a survey of American adults, noted that 76% reported having been exposed to extreme stress at some point in their lives.

Virtually all research into the epidemiology of PTSD in nonclinical populations has been conducted in the United States; little information is available pertaining directly to Britain. Moreover, few researchers have attempted to ascertain either the level of exposure to traumatic stressors or their consequences. Given the likely prominence of trauma in some later life mental health issues, we considered it worthwhile to attempt to provide preliminary information regarding these factors.

Self-report measures do not allow independent assessment of PTSD, and certain events, although personally distressing, may not warrant the more serious designation of PTSD as defined by the *DSM-IV*. Therefore, we have used the term *PTS* throughout this article to refer to symptoms that were personally meaningful to the respondent and judged on a scale calibrated to clinical levels of distress as defined by the *DSM-IV*.

Method

Participants

Respondents were an opportunistic sample of 700 students attending a single university and enrolled in a variety of undergraduate courses. There were 222 male and 465 female respondents (13 respondents did not indicate their gender on the questionnaire). The mean age of respondents was 23 years ($SD = 6.26$).

Materials

We compiled a standard questionnaire for use with all respondents. The front page of the questionnaire asked for basic personal information, specifically, date of birth and gender. Next, a brief statement explained the broad aims of the study, followed by simple instructions for completing the rest of the booklet and a guarantee that any information supplied would be treated as confidential and used for research purposes only.

The front page of the questionnaire also contained a stressor criterion question modified from the Posttraumatic Stress Disorder Interview (PTSD-I) of Watson, Juba, Manifold, Kucala, and Anderson (1991). This question asked respondents whether they had "ever experienced something that is both very uncommon and so horrible that it would be distressing to almost anyone?" Brief examples included being involved in a particularly violent crime, in a bad accident, or in an incident in which "you feared for your life." If respondents replied affirmatively to the criterion question, they were asked to give their age at the time of the incident and the approximate date of the event. They were asked to use this incident as the basis for completing the subsequent questionnaire items. Respon-

dents replying negatively to the first question were asked to think of the most horrible or frightening event that they had experienced and to use that experience as a basis for answering the subsequent questionnaire items.

The second page in the questionnaire consisted of a copy of the Watson et al. (1991) PTSD-I, which closely matches *DSM-IV* diagnostic criteria for PTSD. The PTSD-I consists of 17 items referring to PTSD diagnostic criteria (to be rated on a 7-point Likert-type scale), plus two questions for assessing the frequency and recency of PTSD problems. These latter two questions enable researchers to make a determination of past or current (or both past and current) PTS. As a diagnostic instrument, the PTSD-I has shown high internal consistency and test-retest reliability, and it has demonstrated good concurrent and discriminant validity when compared with other clinical scales (e.g., Robins & Helzer, 1985; Keane, Caddell, & Taylor, 1988). We also asked respondents to rate the intensity of each of the 17 symptoms on a separate sheet, to reflect the inclusion of the criterion F factor from the *DSM-IV* (the F factor assesses the extent to which the PTSD symptoms lead to distress or impairment of functioning).

Procedure

Three research assistants worked in pairs to administer the study questionnaires to groups of student respondents, who, typically, were attending seminars and lectures. The research assistants presented the students with the questionnaire and informed them of their absolute right not to participate and their right to withdraw from the study at any time. No students declined to participate or chose to withdraw. After the questionnaire was completed and collected, the participants were debriefed.

Results

A total of 272 respondents (39%) indicated that they had experienced a traumatizing event, and 425 (60.7%) indicated that they had not (see Table 1). Responses to this initial question were missing on three of the questionnaires. Most respondents who acknowledged a traumatic event were aged mid to late teens at the time of the incident ($M = 17.17$ years); however, the range and spread of ages was wide (3 to 52 years, $SD = 6.62$ years). The mean time since the traumatizing event was 7.2 years ($SD = 6.90$ years) and ranged from 1 month to 42.1 years. We found a significant gender difference in the reporting of traumatic events, $\chi^2(1, N = 686) = 9.77, p < .01$. Of 221 male respondents, 105 reported such an experience (47.51%), in comparison with 163 of 465 female respondents (35.05%).

On the basis of the PTSD-I, 535 respondents (76.4%) were classified as exhibiting no PTS, 110 (15.7%) were classified as having symptoms of current PTS, and 53 (7.6%) were classified as having previously experienced clinical

TABLE 1
Gender, the Experience of Trauma, and the
Incidence of Posttraumatic Stress (PTS)

Participants	No PTS	Past PTS	Current PTS
Males	183	13	25
Females	343	39	82
Experienced trauma	184	26	62
Did not experience trauma	350	27	48

Note. Numbers are based on the number of participants who gave complete answers to the questions concerned.

levels of PTS. The combined PTS groups constituted 23.3% of the sample, suggesting that PTS may be substantially unrecognized. We found a significant difference in the incidence of PTS in male and female respondents, $\chi^2(2, N = 685) = 6.67, p < .05$, as shown in Table 1. At some point in their lives 26.1% of female respondents, compared with 17.2% of male respondents, experienced clinical levels of PTS.

We performed a chi-square test to assess the extent to which those respondents reporting a traumatic event were actually the individuals being identified by the PTSD-I. The data for this analysis are contained in Table 1. We found a significant association between the self-reported experience of a traumatic event and PTS, $\chi^2(2, N = 697) = 20.82, p < .001$.

Diagnoses of PTS using the PTSD-I are complex, requiring consideration of scores on three subscales and taking into account the duration and recency of symptoms. We, therefore, sought to establish the extent to which the differential PTS identification can be predicted from a simple summation of the scores of the various items on the scale. The mean PTSD-I scores for the non-PTS, current PTS, and past PTS groups were respectively, 37.10, 64.49, and 72.46. We used a one-way between-subjects analysis of variance (ANOVA) to compare PTSD-I scores between the three respondent groups. We found a significant difference in the PTSD-I scores of the three groups, $F(2, 687) = 479.52, p < .0001$. Post hoc comparisons of means using the Scheffé test showed that all three means were significantly different from each other at $p < .05$.

Discussion

The results of this study reveal that a substantial percentage of a student population fulfilled the diagnostic criteria for PTS. This is in accord with general epidemiological data from the United States that show a similar pattern (Kessler et al., 1995). In addition, and again confirming American findings, these data show that large numbers of our sample had experienced an event that they defined as

traumatic. The proportion of participants in our sample who acknowledged having experienced a traumatic event was smaller than what one would predict on the basis of past epidemiological studies. This finding may be due to the relatively young mean age of the participants in this study. The finding may also reflect the format of the question concerning the experience of a traumatic event. The PTSD-I diagnostic question on traumatic experiences focuses on the unusual and extreme nature of an event rather than simply on its personal significance for the individual. Consequently, many respondents who answer negatively to this question may still report personal experiences that they regard as extremely traumatizing. This explanation is supported by the substantial number of individuals who fulfilled diagnostic criteria yet did not acknowledge having experienced a trauma.

This study also revealed a significant gender difference in the incidence of PTS, whereby the female participants experienced significantly greater levels than the male participants. This finding is consistent with previous American research, though the magnitude of the gender difference in the current study is substantially greater. Kessler et al. (1995) noted that women, compared with men, reported just over twice the incidence of PTSD. In this study, the women were diagnosed with PTS three times more frequently than the men. Although we acknowledge that a number of factors moderate the onset of PTS (e.g., developmental factors, the intensity of the trauma, and personal coping mechanisms), there may be a combination of unique circumstances linked to gender that make the likelihood of PTSD greater for females.

With respect to the contribution of trauma to a PTS designation, the male respondents in our study reported a higher incidence of trauma than the female respondents. Given that a defining feature of PTS is the experience of a traumatic event, this incongruity, which has also been noted by previous researchers (Breslau et al., 1991), is worthy of explanation. The difference may arise from the types of trauma that males and females are likely to experience. Kessler et al. (1995) found that male trauma was most often linked to death or accident, and female trauma was most often related to a sexual crime. Rape and sexual assault are the events most predictive of the development of PTSD (Norris, 1992), implying that, although males seem to experience higher levels of trauma, the nature of female trauma apparently makes females more vulnerable to PTS afterward.

Yet even allowing for idiosyncrasies in the self-report of trauma, our results suggest that a significant proportion of this research population suffered from ongoing consequences of events thought of as traumatic by the effected individual. This finding could simply be attributed to everyday experience, if it were not for the very specific nature of PTS symptoms and the ability of the PTSD-I to allow for discrimination between those who have experienced a trauma with symptoms and those who have experienced a trauma with no symptoms.

Researchers have amply demonstrated that trauma can have enduring effects (Kessler et al., 1995). Many people who experience a trauma do not seek help in

the immediate aftermath of the trauma, which may have long-term mental health consequences. Purves and Crompton (1998) showed in a cross-sectional study that 62% of all clients in a counseling practice had experienced symptoms of PTSD related to trauma that happened an average of 15 years before. Thus, it appears that many people may cope with the psychological consequences of trauma for much or all of their lives and may only seek counseling support when their normal coping mechanisms are no longer effective. Clearly, the student participants in this study were able to function adequately enough to enroll in a higher education institution, and we assume that the majority will graduate (although we have no data pertaining to this issue). We do not view the continued normal functioning of trauma sufferers as invalidating the concept of PTS, but rather as evidence that people are highly resilient and adaptive in finding ways of living with difficult issues.

As a preliminary survey, this study demonstrates that a significant number of students struggle with the potentially damaging psychological consequences of past events. For the therapeutic professions, our results imply that many people seem to suffer something that they would call a trauma, irrespective of whether it meets *DSM-IV* criteria or not, and that although disturbing psychological symptoms seem to exist and persist, in some cases for years, many people are able to continue functioning. The majority of the participants in this sample will probably never seek counseling, but may continue to live with the consequences of their traumatic experience. Unfortunately, we do not, as yet, have an adequate understanding of the possible ways that a trauma may affect the quality of an individual's life. This question alone is worthy of concern and future research.

REFERENCES

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Breslau, N., & Davis, G. (1987). Post-traumatic stress disorder: The stressor criterion. *Journal of Nervous and Mental Diseases*, *175*, 255-264.
- Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. (1991). Traumatic events and post-traumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry*, *48*, 216-222.
- Breslau, N., Davis, G. C., Peterson, E. L., & Schultz, L. (1997). Psychiatric sequelae of posttraumatic stress disorder in women. *Archives of General Psychiatry*, *54*, 81-87.
- Elliot, D. M., & Briere, J. (1995). Posttraumatic stress associated with delayed recall of sexual abuse: A general population study. *Journal of Traumatic Stress*, *8*, 629-648.
- Helzer, J. E., Robins, L. N., & McEvoy, L. (1987). Post-traumatic stress disorder in the general population. *The New England Journal of Medicine*, *317*, 1630-1634.
- Keane, T. M., Caddell, J. M., & Taylor, K. L. (1988). Mississippi scale for combat related posttraumatic stress disorder: Three studies of combat related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, *56*, 85-90.
- Kessler, R. C., Crum, R. M., Warner, L. A., Nelson, C. B., Schulenberg, J., & Anthony, J. C. (1997). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with

- other psychiatric disorders in the national comorbidity survey. *Archives of General Psychiatry*, *5*, 313–321.
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the national comorbidity survey. *Archives of General Psychiatry*, *52*, 1048–1060.
- Norris, F. H. (1992). Epidemiology of trauma: Frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology*, *60*, 409–418.
- Purves, D. G., & Crompton, J. (1998). A survey into the prevalence of post-traumatic stress disorder in a sample of the counselling population. *Proceedings of the British Psychological Society*, *7*, 76.
- Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders B. E., & Best, C. L. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology*, *61*, 984–991.
- Robins, L. N., & Helzer, R. A. (1985). *Diagnostic interview schedule (DIS III-A)*. St. Louis, MO: Washington University, Department of Psychiatry.
- Saxe, G. N., van der Kolk, B. A., Berkowitz, R., Chinman, G., Hall, K., Lieberg, G., et al. (1993). Dissociative disorders in psychiatric inpatients. *American Journal of Psychiatry*, *150*, 1037–1042.
- Watson, C. G., Juba, M. P., Manifold, V., Kucala, T., & Anderson, P. E. D. (1991). The PTSD interview: Rationale, description, reliability, and concurrent validity of a DSM-III-based technique. *Journal of Clinical Psychology*, *47*, 179–188.

Received December 12, 2000