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Gender and Ethnicity Differences in the Prevalence of Traumatic Events:
Evidence from a New Zealand Community Sample

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Traumatic Events in New Zealand

Summary

One thousand five hundred community residing New Zealand adults were assessed regarding their experience of traumatic events. Sixty-one percent of those surveyed reported exposure to a traumatic event during their lifetime. Unexpected death of a close friend or relative was the most prevalent traumatic experience for the present sample, whereas combat and natural disasters were the least prevalent traumatic events. Consistent with prior research demonstrating gender differences in exposure to traumatic events, child and adult sexual assault was more common among women, and motor vehicle accidents and combat were more common among men. The present study also found that Maori individuals (indigenous people) had experienced a number of traumatic events to a greater extent than their European counterparts. These results are discussed within the New Zealand social context.

Keywords: TRAUMA, PREVALENCE, NEW ZEALAND

Gender and Ethnicity Differences in the Prevalence of Traumatic Events:

Evidence from a New Zealand Community Sample

The past five decades has provided unquestionable evidence linking social stress and a variety of health outcomes, including psychological distress (Fauerbach, Lawrence, Haythornthwaite, & Richter, 1997; McFarlane & Papay, 1992; Resnick, Kilpatrick, & Lipovsky, 1991; Stretch, Knudson, & Durand, 1998) and physical health symptoms (Golding, 1994; Taft, Stern, King, & King, 1999; Ullman & Siegel, 1996). Research based on the restrictive definition of traumatic stress described in the Diagnostic and Statistical Manual of Mental Disorders (3rd ed.; DSM-III-R, American Psychiatric Association [APA], 1987), has suggested that a large proportion of adults are exposed to at least one distressing life event. Breslau, Davis, Andreski, and Peterson (1991) estimated that 39% of a community sample aged 21-30 years had been exposed to trauma, whereas slightly older adults have reported higher rates of 67% (i.e., Bernat, Ronfeldt, Calhoun, & Arias, 1998; Norris, 1992). A similarly high rate of trauma exposure was found in the National Comorbidity Survey of adults aged 15-54 years in the United States (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Lifetime exposure (i.e., recent or past exposure) was reported at 71.6% among the middle aged (40-59 years), with a reduction to 68.8% among older adults (60 years or more) classification in Norris (1992). Similarly, Breslau et al. (1998) observed an 89.6% lifetime prevalence of exposure. If we accept that retrospective accounts of at least one traumatic event are accurate, then these studies suggest that exposure to such events in the United States is reasonably common for even young members of the community.

Definition of what constitutes as traumatic event has varied considerably. When an associated disorder was first included in DSM-III (APA, 1980), the criteria outlined “a

recognizable stressor that would evoke significant symptoms of distress in almost everyone” (p. 238). The subsequent revision of the manual (i.e., DSM-III-R, APA, 1987) added to this conceptualization by stating that the event be “outside the range of human experience” (p. 250). In the DSM-IV (APA, 1994), the event is no longer required to be unusual, but it is defined as involving “actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (p. 427). Additionally, the event must provoke a response involving “intense fear, helplessness, or horror” (p. 427). Throughout this progression, the definition of traumatic events has continued to refer to a distinct aspect of the stress experience (Wheaton, 1994).

Studies of traumatic events conducted outside the United States have been limited in their focus on specific sub-sections of the general population. For example, research has focused on refugees samples in a wide variety of countries, including Afghanistan (Lipson, Omidian, & Paul, 1995), Bosnia (Momartin, Silove, & Manicavasagar, 2002), Herzegovina and Croatia (Marusic, Kozaric-Kovacic, Folnegovic-Smalc, & Ljubin, 1995), Kosovo (Ai, Peterson, & Ubelhor, 2002), Sri Lanka (Reppesgaard, 1997), Somalia (Roodenrijs, Scherpenzeel, & de Jong, 1998; Bhui, Abdi, & Abdi, 2003), and Tibet (Crescenzi, Ketzer, & Van ommeren, 2002; Servan-Schreiber, Lin, & Birmaher, 1998). At the same time, researchers have studied the correlates and predictors of adverse response to trauma among war veterans in Australia (Grayson, Dobson, & Marshall, 1998), Britain (Hull, David, & Hyams, 2002), Croatia (Jankovic, Stivicevic & Dodig, 1998), Canada (Beal, 1995), Holland (Op den Velde, Hovens, Aarts, & Frey-Wouters, 1996), Israel (Skodol, Schwartz, Dohrenwend, & Levav, 1996), New Zealand (MacDonald, Chamberlain, & Long, 1999), Russia (Zelenova, Lazebnaia & Tarabrina, 2001), and Turkey (Sungur, Surmeli, & Ozcubukcuoglu, 1995). In addition, terrorist activities have prompted studies of trauma impact in New York (Cardenas, Williams, & Wilson, 2003), Kenya (Pfefferbaum, North, & Doughty, 2003), as well as among those experiencing terrorist activities vicariously through other peoples’

verbal descriptions (Eidelson, D'Alessio & Eidelson, 2003). Therefore, the primary aim of the present study was to survey the prevalence of traumatic events in a broad cross section in a general community sample.

Studies have consistently sought to clarify whether there are gender differences in the impact of traumatic events (e.g., Watson et al., 1997; Wilkie, 2001). The vast majority of trauma literature has highlighted combat as “male” trauma, and rape as “female” trauma among adults (Brewin, Andrews, & Valentine, 2000). At the same time, large-scale studies of gender differences in mental health reactions to trauma, such as victimization, and have focused almost entirely on the development of a diagnosable clinical condition, such as post traumatic stress disorder, with less attention directed towards other traumatic events and reactions (Pimlott-Kubiak & Cortina, 2003). Women have also reported higher incidence in categories of physical assault, negative change in life circumstances, death of a loved one, and witness of injury or death, while males have tended to report higher incidence in motor vehicle accidents, natural disaster and unexpected medical or psychological conditions, though the evidence for a clear gender difference in adverse reactions is less clear (see Freedman, Gluck, & Tuval-Mashiach, 2002; Hoffmann, 2002; Salcioglu, Basoglu & Livanou, 2003; Tonelli, 2002). Interestingly, one recent study was unable to show that risk factors for posttraumatic stress disorder are influenced by gender (Gill, 2002), thereby contributing to the ongoing controversy in this literature regarding gender differences (Gershuny & Thayer, 1999).

Studies have also sought to clarify whether there are ethnic differences in the impact of traumatic events (e.g., Meston, Heiman, Trapnell & Carlin, 1999). While there is some degree of inconsistency in the findings, there is a general trend in epidemiological rates of posttraumatic stress disorder in response to combat-related trauma (Breslau et al., 1998). For instance, minority combat veterans in United States samples (i.e., African-Americans and Hispanic-Americans)

have been shown to have higher rates of the absolute posttraumatic stress disorder. However, differences in English comprehension and education have been highlighted as two potentially confounding factors in this growing literature (see review in Frueh et al., 1998). Indeed, there is a paucity of research on ethnic and other subgroup differences in the experience of traumatic events among general population samples outside of the United States. In order to contribute to this growing literature, the present study was designed to survey the prevalence of traumatic events and examine ethnic differences among the New Zealand community.

According to 2001 data from the most recent New Zealand census (Statistics New Zealand, 2003), Maori individuals (indigenous people) represent approximately 526,281 or 14.7% of the New Zealand population. English is the primary language taught in New Zealand schools, but there are a number of Maori language education programmes taught as a separate subjects (Ministry of Maori Development, 2000). Maori are over-represented in the lower socio-economic groups and those without any school or university qualifications when compared to non-Maori (Edmonds, Williams, & Walsh, 2000). Maori also have poorer health status than non-Maori (King & Turia, 2002), evidenced by recent research indicating increased cancer-related deaths (Blakely & Robson, 2003), and over-representation in statistics of alcohol, drug abuse, and addiction (Hirini, Flett, Kazantzis, Long, MacDonald, & Millar, 1999). Factors of lower socioeconomic status and poor health may be related to the finding that Maori also hold disproportionately high rates of mental illness and psychiatric hospital admissions (Durie, 1994; Edmonds et al., 2000). Given these differences, it was considered essential to explore the possible ethnic differences in the experience of traumatic events in the present study.

The present study was designed to investigate the prevalence of traumatic events in an adult community sample of the New Zealand population. Gender and ethnic differences were examined. Given the results of prior research demonstrating increased vulnerability for minority

groups, Maori were hypothesized to have experienced a greater proportion of trauma in comparison to their European counterparts.

In prior studies of trauma in the community, researchers have focused on traumatic events designated by respondents as the worst or most distressing that they have experienced in order to measure lifetime prevalence in the population. This methodology has been based on evidence suggesting that the worst trauma is responsible for subsequent psychological sequelae, such as generalized anxiety and posttraumatic stress disorders (e.g., Breslau, Davis, Peterson, & Schultz, 1997). On the other hand, there is evidence to suggest that a restricted focus on worst trauma is likely to overstate the relationship between trauma and indicators of psychological distress (Breslau et al., 1998; Norris, 1992) leading researchers to elicit complete accounts of all traumatic events. Consequently, the present study sought to survey the diversity in traumatic events experienced in the New Zealand community.

Method

Sample

The study was carried out across both New Zealand islands, and included both rural and urban populations. A structured interview was carried out using the data from a 1995-1996 study of the non-institutionalized New Zealand population (Flett, Millar, Long, & MacDonald, 1998).

A three-stage cluster sampling methodology was employed to select the participants. The first stage involved the random selection of 150 census enumeration districts from both New Zealand islands. In order to reliably investigate particular subgroups of the New Zealand population, such as Maori ancestry and rural residing individuals, it was necessary to ensure that the final sample included an adequate proportion of these groups. Thus, the sampling design allowed for the deliberate oversampling of Maori ancestry and rural residing individuals. While this stratification does not reflect a household probability sampling methodology, it is similar to that used in prior surveys (e.g., Hornblow, Bushnell, Wells, Joyce, & Oakley-Browne, 1990).

The second stage of the sampling strategy involved the random selection of a sample of dwellings from each of the enumeration districts. Households were contacted by trained National Research Bureau (NRB) staff on behalf of the Massey University research team, and up to three visits were made to each dwelling before substitution (in the event of non-contact). In total, 150 enumeration districts were sampled and 10 interviews conducted in each¹.

The third stage of the sampling strategy involved selecting an eligible participant from each household. If there was more than one eligible individual in a given household (i.e., greater than 18 years of age), then individuals were listed in descending order of age onto a sampling grid. The individual selected for an interview was the individual with the next birthday. Using this sampling strategy, 2,590 households were successfully contacted. Of this total, 1,090 refused to be interviewed yielding a sample of 1500, and a response rate of 58%.

This strategy yielded a sample of 1500 community residing New Zealand adults, 536 men and 961 women (mean age = 45.39, SD = 16.89). Forty-five percent of the sample were “younger adults” (aged 18-39 years), 31% were “middle-aged adults” (40-59 years), and 24% were “older adults” (aged 60-90 years). Thirty percent were Maori, 46% were employed and 61% were married. The characteristics of the sample were somewhat similar to national estimates: gender (48% male, 52% female), age (50% young, 38% middle aged, 12% older), ethnicity (15% Maori), marital status (48% married), and employment status (6% unemployed), as reported in the latest census reports (Statistics New Zealand, 1999, 2003).

Measure

Given the evidence demonstrating that a high percentage of community samples experience multiple traumatic events, it was important for the interview to incorporate a broad definition and assessment of trauma. The present study used a modified version of the Traumatic Stress Schedule (TSS; Norris, 1990) to collect past (greater than 12 months) and recent (less than 12 months) exposure to traumatic events. Since the TTS is restricted to a general assessment of traumatic events, three items were modified to distinguish between child and adult sexual assault, familial physical assault and other physical assault, and serious motor vehicle accident and other serious accidents. The definition for disaster was also expanded from the context of Hurricane Hugo to include exposure to general experiences of natural disasters (i.e., including fire, flood, or earthquake). The resultant measure assessed past and recent incidence of 12 different traumatic events: combat, child sexual assault, adult sexual assault, domestic assault, other physical assault, robbery or holdup, motor vehicle accident, other accident resulting in injury, disaster experience, and being forced to leave home or take other precautions because of natural disaster. Further demographic information for the sample are presented in Table 1.

Procedure

Participants were given a detailed information sheet that described the nature of the study, their rights as participants and the responsibilities of the researchers. Participants were informed that their responses would be kept anonymous and confidential, that they could skip or omit any of the interview questions, and they could discontinue participation in the study at any time. Given that the survey involved sensitive issues about experiences of traumatic events, participants were interviewed in their homes by trained NRB staff (professional interviewers who had extensive experience with population interviews and surveys). After pilot testing, all interviewers spent seven hours practicing for this project, with the help of a one-hour structured interview designed specifically for this study. Data collection was conducted over a three-month period in 1995.

Results

Sixty-one percent of the present sample indicated lifetime exposure to serious traumatic events. Table 2 displays lifetime frequencies for each traumatic event. Lifetime frequencies for the total sample ranged from 3.6% for combat to 22.5% for tragic death (i.e., loss of a loved one by homicide, suicide, or accident). Of those deaths, 10% involved spouses, 18% involved children, 13% involved parents, 21% involved siblings, 24% involved other relatives, and 14% involved someone else. Secondary trauma, domestic assault, and motor vehicle crashes were also prevalent, each demonstrating a frequency of more than 10% of respondents. Only a small proportion (5.7%) of this sample had exposure to a traumatic event resulting from natural disasters. Recent exposure to all traumatic events was low in the present sample. Adult sexual assault, tragic death, and secondary trauma were the most frequent events experienced during the 12 months prior to the interview (each occurring 3%). All other trauma were less frequent in this interval (each occurring 1% or less).

Table 2 also presents recent and past frequencies for each sub-group of the present sample. Generally, traumatic events maintained their same rank order of frequency across the age, gender, and ethnic subgroups. One exception was combat, where only older men had been exposed to traumatic combat-related events. As hypothesized, there were gender differences in past experience of traumatic events (as indicated by chi square tests). Women were more likely to have been violently and sexually assaulted. However, men were more likely to have serious motor vehicle accidents, to have other serious accidents, or to have experienced theft by force. No gender differences were found in recent exposure to these events.

There were a number of differences between ethnic groups. As hypothesized, Maori were more likely to have experienced violent assault or sexual assault, and tragic death. Contrary to expectation, Europeans were more likely to have experienced child sexual assault and combat

than Maori, despite the fact that Europeans were socioeconomically advantaged in terms of education, $t(1343) = 9.99$, $p < .001$, $d = .55$, occupational status, $t(1387) = 9.82$, $p < .001$, $d = .53$, and income $t(978) = 5.85$, $p < .001$ ³. The one difference that emerged for recent exposure was that Maori were more likely to have experienced adult sexual assault.

A consistent trend in the data was for recent exposure to decrease with age. This trend also held for certain past experience of traumatic events, with 3% of older adults reported having been physically assaulted compared to 14% and 18% for middle-aged and younger adults, respectively. Domestic and sexual assault showed a similar pattern. While middle-aged adults were the most likely age group to have been exposed to natural disasters or other hazards either recently or in the past, these differences were not significant.

Discussion

Previous research has demonstrated that the experience of traumatic events is relatively common in community samples in the United States (i.e., Bernat et al., 1998; Norris, 1992) and Canada (Stein, Walker, Hazen, & Forde, 1997). While the 61% lifetime prevalence found in this New Zealand sample is somewhat less than other countries (i.e., 78% found in the Stein et al. study), the experience of unexpected death of a close relative or friend, and involvement in a serious motor vehicle accident have consistently emerged as the most prevalent traumatic experiences. In addition, the majority of participants in the present sample (75% of those exposed to trauma) had experienced two or more events, a rate consistent with that found in prior studies (e.g., Davidson, Hughes, Blazer, & George, 1991; Norris, 1992). The present results also expand the range of stressors to be considered as potentially relevant to adverse responses among New Zealand community members, as many of the 12 events surveyed clearly fall outside the definition for traumatic experience included in the DSM-IV. In addition, the majority of adverse life events were found to be significantly different among, age, gender, ethnic subgroups of the sample. With the experience of disaster and hazard events aside, all of the remaining 10 were significant.

The distribution of traumatic events in the present study was largely, but not completely, consistent with our general hypothesis regarding gender and ethnic differences. Consistent with the patterns observed in other countries, certain classes of traumatic events emerged as significantly more common for women (e.g., child and adult sexual assault), whereas other classes were significantly more common for men (e.g., combat, motor vehicle accident, robbery or hold-up). In terms of ethnic differences, Maori had experienced more child sexual assault, physical assault, domestic assault, motor vehicle accidents, and tragic death during the course of their lifetimes. Maori had also more recent exposure to adult sex assault. As has been highlighted

in a number of detailed commentaries of the research on trauma, it is worthwhile noting that ethnicity is not a measure of biological distinctiveness, but rather an indicator of social and individual background (Lloyd & Turner, 2003; Williams, Spencer, & Jackson, 1999). The social consequences associated with being Maori have a long and detailed history. The New Zealand Maori culture is characterized by relative poverty, higher levels of social stresses, and poorer health status. Current government policy is targeted towards the recognition of Maori aspirations for autonomy, self-empowerment and a reduced reliance upon the State in health policy planning and the provision of health care. However, the effectiveness of these objectives has yet to be determined (Hirini et al., 1999).

The results of the present study are consistent with the hypothesis that the role of stress in the development of a diagnosable clinical condition, such as posttraumatic stress disorder, is much broader than the impact of a singularly violent or distressing event as would be defined in DSM. However, the findings reported herein do not allow for the identification of a focal distressing event, leading to at least two global interpretations of the results. It is possible that the experience of clinically significant anxiety disorders is substantially more prevalent in the New Zealand population than has been previously assumed. Whether this is the case or not, it is also possible that some of the events identified by individuals in the present sample may simply reflect aspects of their personal background that are characterized by a series of adverse life events, which in turn places them at increased risk for later development of mental and physical health reactions.

It is one thing to point out that traumatic events exist and are prevalent in the community; it is something else to demonstrate that it is meaningful from a mental health or physical health standpoint. There is a wealth of literature linking the experience of traumatic events with the experience of posttraumatic stress symptoms, general anxiety, depression, anger, dissociative

reactions, social and sexual difficulties, and psychophysiological changes and sensitivities, among others (Gershuny & Thayer, 1999). Investigation of these associated effects of traumatic life events among different gender and ethnic subgroups of the New Zealand community remains a valuable avenue for future research.

In this context, it must be acknowledged that the data reported in this study were not obtained through a random sampling procedure of all members of the New Zealand population, nor are they strictly representative of the general population. Other limitations of this investigation include those that characterize all prior studies that have derived estimates of the prevalence of adverse life events from a single structured interview that does not involve trained clinician judgment. As the data were gathered at a single point of time, the time frame of recent trauma exposure was short (past 12 months), and all identification of traumatic events relied on retrospective accounts. The hypotheses investigated in this study would be more effectively supported with prospective data collection strategy. However, there seems little prospect of a New Zealand community-based study that will gather a sufficiently large and geographically diverse sample over long enough time period to assess the central aims of the present study.

References

- Ai, A., Peterson, C., & Ubelhor, D. (2002). War-related trauma and symptoms of posttraumatic stress disorder among adult Kosovar refugees. Journal of Traumatic Stress, 15, 157-160.
- American Psychiatric Association (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.
- American Psychiatric Association (1987). Diagnostic and statistical manual of mental disorders (3rd ed. , rev.). Washington, DC: Author.
- American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.
- Beal, A. L. (1995). Post-traumatic stress disorder in prisoners of war and combat veterans of the Dieppe Raid: A 50-year follow-up. Canadian Journal of Psychiatry, 40, 177-184.
- Bernat, J. A., Ronfeldt, H. M., Calhoun, K. S., & Arias, I. (1998). Prevalence of traumatic events and peritraumatic predictors of posttraumatic stress symptoms in a nonclinical sample of college students. Journal of Traumatic Stress, 4, 645-664.
- Bhui, K., Abdi, A., & Abdi, M. (2003). Traumatic events, migration characteristics and psychiatric symptoms among Somali refugees: Preliminary communication. Social Psychiatry & Psychiatric Epidemiology, 38, 35-43.
- Blakely, T., & Robson, B. (2003). Decades of Disparity. Otago, New Zealand: University of Otago.
- Breslau, N., Davis, G., Andreski, P., & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. Archives of General Psychiatry, 48, 216-22.
- Breslau, N., Davis, G. C., Peterson, E., & Shultz, L. (1997). Psychiatric sequelae of posttraumatic stress disorder in women. Archives of General Psychiatry, 54, 81-87.

- Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: The 1996 Detroit Area Survey of Trauma. Archives of General Psychiatry, *55*, 626-632.
- Brewin, C., Andrews, B., & Valentine, J. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma exposed adults. Journal of Consulting and Clinical Psychology, *68*, 748-766.
- Cardenas, J., Williams, K., & Wilson, J. (2003). PTSD, major depressive symptoms and substance abuse following September 11, 2001, in a midwestern university population. International Journal of Emergency Mental Health, *5*, 15-28.
- Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Crescenzi, A., Ketzer, E., & Van ommeren, M. (2002). Effect of political imprisonment and trauma history on recent Tibetan refugees in India. Journal of Traumatic Stress, *15*, 369-375.
- Davidson, J. R. T., Hughes, D., Blazer, D. G., & George, L. K. (1991). Post-traumatic stress disorder in the community: An epidemiological study. Psychological Medicine, *21*, 713-721.
- Durie, M. H. (1994). Whaiora. Maori health development. Auckland, New Zealand: Oxford University Press.
- Edmonds, L., Williams, S., & Walsh, A. (2000). Trends in Maori mental health in Otago. Australian and New Zealand Journal of Psychiatry, *34*, 677-683.
- Eidelson, R., D'Alessio, G., & Eidelson, J. (2003). The impact of September 11 on psychologists. Professional Psychology: Research & Practice, *34*, 144-150.

- Fauerbach, J. A., Lawrence, J., Haythornthwaite, J., & Richter, D. (1997). Preburn psychiatric history affects posttrauma morbidity. Psychosomatics, *38*, 374-385.
- Flett, R. A., Millar, M. A., Long, N. R., & MacDonald, C. (1998). Community Survey of Trauma. Report to the Accident Rehabilitation and Compensation Insurance Corporation, New Zealand.
- Freedman, S., Gluck, N., & Tuval-Mashiach, R. (2002). Gender differences in responses to traumatic events: A prospective study. Journal of Traumatic Stress, *15*, 407-413.
- Frueh, B. C., Brady, K. L., & de Arellano, M. A. (1998). Racial differences in combat-related PTSD: Empirical findings and conceptual issues. Clinical Psychology Review, *18*, 287-305.
- Gershuny, B. S., & Thayer, J. F. (1999). Relations among psychological trauma, dissociative phenomena, and trauma-related distress: A review and integration. Clinical Psychology Review, *19*, 631-657.
- Gill, A. (2002). Risk factors for pediatric posttraumatic stress disorder after traumatic injury. Archives of Psychiatric Nursing, *16*, 168-175.
- Golding, J. M. (1994). Sexual assault history and physical health in randomly selected Los Angeles women. Health Psychology, *13*, 130-138.
- Grayson, D., Dobson, M., & Marshall, R. (1998). Current combat-related disorders in the absence of PTSD among Australian Vietnam veterans. Social Psychiatry, *33*, 186-192.
- Hirini, P. R., Flett, R. A., Kazantzis, N., Long, N. R., MacDonald, C., & Millar, M. (1999). Health care needs for older Maori: A study of Kaumatua and Kuia. Social Policy Journal, *13*, 136-153.

- Hornblow, A. R., Bushnell, J. A., Wells, J. E., Joyce, P. R., Oakley-Browne, M. A. (1990). Christchurch psychiatric epidemiology study: Use of mental health services. The New Zealand Medical Journal, 103, 415-417.
- Hull, L., David, A., & Hyams, K. (2002). Self-reported health of Persian Gulf war veterans: A comparison of help-seeking and randomly ascertained cases. Military Medicine, 167, 747-752.
- Jankovic, S., Stivicevic, V., & Dodig, G. (1998). Psychological characteristics of wounded and disabled Croatian war veterans. Military Medicine, 163, 331-336.
- 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.
- King, A., & Turia, T. (2002). He Korowai Oranga Maori Health Strategy. Ministry of Health: Wellington, New Zealand.
- Lipson, J. G., Omidian, P. A., & Paul, S. M. (1995). Afghan Health Education Project: A community survey. Public Health Nursing, 12, 143-150.
- Long, N., Chamberlain, K., & Vincent, C. (1992). The health and mental health of New Zealand Vietnam war veterans with posttraumatic stress disorder. New Zealand Medical Journal, 195, 417-419.
- Lloyd, D. A., & Turner, R. J. (2003). Cumulative adversity and posttraumatic stress disorder: Evidence from a diverse community sample of young adults. American Journal of Orthopsychiatry, 73, 381-391.
- Marusic, A., Kozaric-Kovacic, D., Folnegovic-Smalc, V., & Ljubin, T. (1995). Use of two PTSD scales in assessing posttraumatic stress disorder in refugees and displaced persons from Bosnia and Herzegovina and Croatia. Psychologische Beitrage, 37, 209-214.

- Meston, C. M., Heiman, J. R., Trapnell, P. D., & Carlin, A. S. (1999). Ethnicity, desirable responding, and self-reports of abuse: A comparison of European- and Asian-Ancestry undergraduates. Journal of Consulting and Clinical Psychology, *67*, 139-144.
- MacDonald, C., Chamberlain, & K., Long, N. (1999). Posttraumatic stress disorder and interpersonal functioning in Vietnam War Veterans: A mediational model. Journal of Traumatic Stress, *12*, 701-707.
- McFarlane, A. C., & Papay, P. (1992). Multiple diagnoses in posttraumatic stress disorder in victims of a natural disaster. The Journal of Nervous and Mental Disease, *180*, 498-504.
- Ministry of Maori Development. (2000). Fact Sheet 8: The Maori language and education. Wellington, New Zealand: Monitoring and Evaluation Branch.
- Momartin, S., Silove, D., & Manicavasagar, V. (2002). Range and dimensions of trauma experienced by Bosnian refugees resettled in Australia. Australian Psychologist, *37*, 149-155.
- Norris, F. H. (1990). Screening for traumatic stress: A scale for use in the general population. Journal of Applied Social Psychology, *20*, 408-418.
- 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.
- Op den Velde, W., Hovens, J. E., Aarts, P. G. H., & Frey-Wouters, E. (1996). Prevalence and course of posttraumatic stress disorder in Dutch veterans of the civilian resistance during World War II: An overview. Psychological Reports, *78*, 519-529.
- Pfefferbaum, B., North, C., & Doughty, D. (2003). Posttraumatic stress and functional impairment in Kenyan children following the 1998 American embassy bombing. American Journal of Orthopsychiatry, *73*, 133-140.

- Pimlott-Kubiak, S., & Cortina, L. (2003). Gender, victimization, and outcomes: Reconceptualizing risk. Journal of Consulting and Clinical Psychology, *71*, 528-539.
- Reppesgaard, H. O. (1997). Studies on psychosocial problems among displaced people in Sri Lanka. European Journal of Psychiatry, *11*, 223-234.
- Resnick, H. I., Kilpatrick, D. G., & Lipovsky, J. A. (1991). Assessment of rape related posttraumatic stress disorder: Stressor and symptom dimensions. Psychological Assessment. Journal of Consulting and Clinical Psychology, *3*, 561-572.
- Roodenrijs, T. C., Scherpenzeel, R. P., & de Jong, J. T. V. M. (1998). Traumatic experiences and psychopathology among Somalian refugees in the Netherlands. Tijdschrift voor Psychiatrie, *40*, 132-142.
- Salcioglu, E., Basoglu, M., & Livanou, M. (2003). Long-term psychological outcome for non-treatment-seeking earthquake survivors in Turkey. Journal of Nervous & Mental Disease, *191*, 154-160.
- Servan-Schreiber, D., Lin, B. L., & Birmaher, B. (1998). Prevalence of posttraumatic stress disorder and major depressive disorder in Tibetan refugee children. Journal of the American Academy of Child & Adolescent Psychiatry, *37*, 874-879.
- Skodol, A. E., Schwartz, S., Dohrenwend, B. P., & Levav, I. (1996). PTSD symptoms and comorbid mental disorders in Israeli war veterans. British Journal of Psychiatry, *169*, 717-725.
- Statistics New Zealand. (1999). Demographic trends: 1998. Wellington, New Zealand: Author.
- Statistics New Zealand (2003). Maori Population Summary, 1858 – 2001. Wellington, New Zealand: Author.

- Stein, M. B., Walker, J. R., Hazen, A. L., & Forde, D. R. (1997). Full and partial posttraumatic stress disorder: Findings from a community survey. American Journal of Psychiatry, *154*, 1114-1119.
- Stretch, R. H., Knudson, K. H., & Durand, D. (1998). Effects of premilitary and military trauma on the development of post-traumatic stress disorder symptoms in female and male active duty soldiers. Military Medicine, *163*, 466-470.
- Sungur, M., Surmeli, B. A., & Ozcubukcuoglu, A. (1995). Common features of PTSD cases amongst a group of military staff referred from the southeast region of Turkey. Journal of Cognitive Psychotherapy, *9*, 279-286.
- Taft, C. T., Stern, A. S., King, L. A., & King, D. W. (1999). Modeling physical health and functional health status: The role of combat exposure, posttraumatic stress disorder and personal resource attributes. Journal of Traumatic Stress, *12*, 3-23.
- Tonelli, K. (2002). Are there gender differences in self-report symptomatology of children and adolescents exposed to domestic violence? Dissertation Abstracts International: Section B: The Sciences & Engineering, *63*, 2609.
- Ullman, S. E., & Siegel, J. M. (1996). Traumatic events and physical health in a community sample. Journal of Traumatic Stress, *9*, 703-720.
- Watson, C. G., Barnett, M., Nikunen, L., Schultz, C., Randolph-Elgin, T., & Mendez, C. M. (1997). Lifetime prevalences of nine common psychiatric/personality disorders in female domestic abuse survivors. Journal of Nervous & Mental Disease, *185*, 645-647.
- Wheaton, B. (1994). Sampling the stress universe. In W. R. Avison & I. H. Gotlib (Eds.), Stress and mental health: Contemporary issues and prospects for the future (pp. 77-104). New York: Plenum Press.

- Wilkie, S. (2001). The traumatic effects of wife-beating: An ecological perspective. Dissertation Abstracts International Section A: Humanities & Social Sciences, 62, 2251.
- Williams, D. R., Spencer, M. J. & Jackson, J. (1999). Race, stress, and physical health: The role of group identity. In R. J. Contrada & R. D. Ashmore (Eds.), Self and identity: Fundamental issues (pp. 71-100). New York: Oxford University Press.
- Zelenova, M., Lazebnaia, E., & Tarabrina, N. (2001). Psychological characteristics of post-traumatic stress states in Afghan war veterans. Journal of Russian & East European Psychology, 39, 3-28.

Footnotes

1. Geographic distribution of enumeration districts ($N = 150$) were as follows:
Northland ($n = 16$); Auckland ($n = 23$); Waikato ($n = 19$); Bay of Plenty ($n = 28$); Gisborne ($n = 16$); Hawkes Bay ($n = 7$); Taranaki ($n = 5$); Manawatu-Wanganui ($n = 8$); Wellington ($n = 10$); Nelson-Marlborough ($n = 2$); West Coast ($n = 2$); Canterbury ($n = 7$); Otago ($n = 4$); Southland ($n = 3$).
2. A copy of the interview and administration procedure is available from the senior author.
3. Cohen's d effect size index (Cohen, 1988) is presented along with the results of all statistical tests in this manuscript.

Table 1

Demographic Characteristics of Sample (N = 1500)

Characteristic	%
Work Status	
Professional	11.7
Managerial / technical	7.4
Non-manual skilled occupation	8.7
Manual skilled occupation	20.8
Partly skilled occupation	14.5
Unskilled occupation	36.8
Employment	
Employed full-time	28.6
Employed part-time	16.1
Housekeeper	6.8
Unemployed	24.7
Retired	21.1
Student / trainee	2.7
Living Situation	
Spouse / partner	26.6
Parent	40.6
Other relative	7.4
Friends	6.4
Alone	14.5

Note. Values represent valid percentages.