

Domestic Violence, Psychological Distress, and Physical Illness among New Zealand Women: Results from a Community-Based Study

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This study aimed to measure the prevalence of psychological distress and physical illness among women in New Zealand, and to identify the risk factors for psychological distress and health, with specific reference to domestic violence.

A survey was carried out among a community sample of 961 women aged 19-90 years. Among all women surveyed, 25% were classified as experiencing psychological distress at the time of interview, 22% were classified as experiencing severe symptoms of physical illness, and 17% reported domestic violence by a family member at some point in their lives. Among those women who had experienced domestic violence, the perception that their life was in serious danger and the impact of the violence on their life each contributed significantly to variability in psychological distress (22% variance accounted).

An estimated 12% of all cases of psychological distress and 7% of all cases of serious physical illness were attributable to domestic violence. The study underscores the need to improve policy for mental and physical health screening and care for abused women within health services in New Zealand.

Domestic violence is increasingly becoming recognized as a worldwide public health problem that presents serious implications for the psychological and physical health of women and children. Despite the fact that population-based research is lacking, the available data suggests that between 20% and 50% of women in most countries have been abused at some point in their lives (Heise, Raikes, Watts, & Zwi, 1994). Domestic

violence has been indicated as a significant risk factor for a diverse range of health conditions, including but not limited to, low birth weight (Bullock & McFarlane, 1989), gynecological disorders (Schei & Bakketeig, 1989; Stewart & Stotland, 1993), injuries and mortality (Grisso, Schwarz, Miles, & Holmes, 1996), and sexually transmitted diseases (Handwerker, 1993). Indeed, preliminary research suggests a host of medical conditions may be associated with domestic abuse (see Fischbach & Herbert, 1997; Gerlock, 1999).

The impact of domestic violence on women's mental health has also been well documented (Koss, 1990). Battering may be the single most important factor in predicting suicidality in women (Stark & Flitcraft, 1996), and women exposed to domestic violence within an intimate relationship typically exhibit a wide variety of symptoms of psychological distress, including depression and anxiety, high avoidance or arousal, and substance abuse or addiction (Hill, 1995). In combination with the concomitant cognitive disturbances (Gondolf, 1998; Roberts, Williams, Lawrence, & Raphael, 1998), these psychological symptoms often meet criteria for diagnosis of posttraumatic stress disorder according to the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (1994).

A limitation of existing data on the risk of mental and physical illness following domestic violence is that the majority of studies have been conducted on convenience samples of women seeking help for mental health problems related to their abuse (Sorenson & Saftlas, 1994). Given that prior data is drawn from samples of women who have sought help, it is possible that the findings are not representative of those who do not seek help, either for domestic violence, or general physical and mental health problems. The existing studies that have surveyed population-based samples have focused exclusively on specific populations, such as Nicaraguan (Ellsberg, 1997) and American Indian (Norton & Manson, 1995) women. Thus, data on the impact of domestic violence among women in the general population is lacking.

Further rationale for sampling a broader cross-section

of the population may be drawn from the fact that gender differences are consistently found in epidemiological studies of psychiatric disorders. A primary example is depression. Studies examining point prevalence, 12-month prevalence, and lifetime prevalence of major depressive episode in the general population typically demonstrate a higher prevalence among women (Culbertson, 1997; McGrath, Keita, Strickland, Russo, 1990; Nolen-Hoeksema, 1990; Weissman, Bland, & Joyce, 1993). While the prevalence of depression in New Zealand is similar to other countries, the rate of suicide is much higher (450 suicides in total population of 3,618,300 in 1996, Ministry of Health, 1997). Whether this prevalence is related to a proportionately higher risk of domestic violence among women remains an empirical question. However, as with health statistics in other countries, lower socioeconomic and minority groups are over-represented in depression-related admissions to inpatient mental health settings, and suicide rates in New Zealand (Hirini et al. 1999). It seems important then, to consider the relative risk of mental illness among both gender and ethnic subgroups of a population.

A range of risk factors have been demonstrated as causal antecedents of mental illness among married women, including role restriction, lack of financial independence, poor communication with spouse, and marital discord (Lowe & Northcott, 1988; Weissman et al., 1993). While convenience samples of those seeking help have identified domestic violence as a predictor of specific psychological disorders, research has not examined how much domestic violence contributes to the risk of general psychological and physical illness among adult women. Therefore, a key goal of the present study was to determine the extent to which domestic violence affects women's general mental and physical health at a community level.

The present study represents the first population-based research on domestic violence and mental and physical health in New Zealand. The study had the following specific aims: (a) to measure the prevalence of domestic violence among a diverse sample of women aged 18 years or older, and (b) to identify the risk factors associated with psychological distress and physical illness in women, with specific reference to physical abuse by a family member.

Method

Sample and Procedure

The study was carried out across both New Zealand islands, including both rural and urban populations. A structured interview was carried out using a subsample taken from a household survey on trauma impact on community mental and physical health in 1995-1996 by Massey University (Flett, Millar, Long, & MacDonald, 1996).

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 the experience of traumatic events among particular subgroups of the New Zealand population, such as Maori ancestry (indigenous people) 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 did not reflect a household probability sampling methodology, it was similar to that used in prior community studies of the risk of mental and physical illness following exposure to domestic violence and other traumatic events (e.g., Norris, 1992).

The second stage of the sampling strategy involved the random selection of a sample of dwellings from each of the enumeration districts. Dwellings were defined according to the terms of New Zealand census, where: two or more houses or flats joined together; a flat or house joined to a business, shop, crib, or hut, were all defined as dwellings or "households". Non-private dwellings (barracks, boarding houses, guesthouses, hospitals, hotels, motels, motor camps, prisons, retirement homes), as well as temporary dwellings (caravans, cabins, tents, and boats) were excluded from this definition. 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 each ¹.

The third stage of the sampling strategy involved sampling 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 one individual who was next to celebrate a birthday. Prior to seeking consent to participate, however, potential 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 interviewed in their homes, where they 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. Data collection was conducted over a three-month period in 1995.

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%. Nine-hundred and sixty-one women were selected for inclusion in the present study. Ethnic composition of the sample was 57% European ancestry and 35% Maori ancestry². For the purposes of brevity and simplicity, from this point onwards persons of Maori ancestry will be referred to as Maori, and persons of European ancestry will be referred to as Europeans. Participants' ages ranged from 19 to 90 years, with the vast majority (81%) aged between 19 and 60 years.

Interviewer Selection

Given the nature of the present study, involving sensitive issues about experiences of domestic violence, participants were interviewed in their homes by trained NRB staff on

behalf of the researchers. All NRB staff were professional interviewers who had extensive experience with population interviews and surveys. After pilot testing, all interviewers spent 7 hours practicing for this project, with the help of a one-hour structured interview designed specifically for this study³.

Measures

Characteristics of Domestic Violence - The interviewer first asked participants to indicate whether they had experienced domestic violence at some point in their lives. Specifically, participants were asked "Have you ever been seriously beaten or attacked by a member of your family? (such as a spouse or partner, parent, or child)". For those participants indicating experience of non-sexual domestic violence, the interviewer then asked the participant whether this happened more than once, and if so, how many times they had experienced domestic violence of this sort. The interviewer then progressed with a series of seven additional questions in relation to the last time they had experienced domestic violence: (a) to rate the extent to which they felt that they were in control during the domestic violence on a scale ranging from 1 (*I had complete control*) to 5 (*I had no control*); (b) to rate the extent to which they believed that their life was in danger during the domestic violence on a scale from 1 (*I did not think that I would die*) to 5 (*I really believed that I would die*); (c) to rate the extent to which the event was distressing at the time that it occurred on a scale ranging from 1 (*not at all distressing*) to 5 (*extremely distressing*); (d) to rate the extent to which the event had effected their lives on a scale that ranged from 1 (*only negative effects*) to 5 (*only positive effects*); (e) to rate the extent to which the experience was unexpected on a scale ranging from 1 (*completely expected*) to 5 (*completely unexpected*); (f) to rate the degree of physical injury that was suffered as a result of the experience on a scale ranging from 1 (*severe injury, hospitalization for one week or more, and / or some loss of body function – perhaps permanent*) to 4 (*no injury*); and (g) in order to examine the extent to which participants had discussed the impact of their experience of domestic violence, interviewers asked how much of their feelings about the domestic violence they have confided in others on a scale ranging from 1 (*none of my feelings*) to 5 (*all of my feelings*). Except for those participants rating 1 on this last question, interviewers then asked whether participants had confided in mental health professional, medical professional, partner or spouse, family members, friends, or any other people.

Psychological Distress and Physical Illness - For assessment of overall psychological distress, an interview version of the Mental Health Inventory (MHI; Veit & Ware, 1983) was administered. The MHI measures 38 conditions over the past month on two subscales; psychological well-being (14 items) and psychological distress (24 items). For the present study, only the psychological distress items were administered. The psychological distress subscale has a 7-point response format, presented to participants on standardized showcards that range from 1 (*all of the time, always, extremely*) to 7 (*none of the time, never, not at all*). The psychological distress subscale assesses a discrete

factor with high internal consistency, while scores on the entire scale demonstrate high one-year stability (Veit & Ware, 1983). In the present study, the item-total correlations for the psychological distress subscale ranged from 0.32 to 0.76 and the standardized item alpha was 0.93.

For assessment of physical health, an interview version of the Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982) was administered. The PILL is a measure of current physical symptoms that has strong criterion-related validity with health-related work absences and more physician and health care center visits. Despite this, previous studies have demonstrated that a number of list items on the full 54-item version of the PILL are highly correlated and do not contribute independently to the physical symptom total (MacDonald, Chamberlain, & Long, 1996). Highly correlated items were combined to form the 28-item version for use in the present study. For example, the original items "acne and pimples on face" and "acne and pimples other than face" were combined as a single item "acne or pimples". In this way, participants were asked to indicate the experience of 28 physical symptoms and complaints over the past month, using a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*).

Results

Prevalence of Domestic Violence

Of the total sample of women, 17% reported the experience of domestic violence at least once in their lives, whereas 5% reported violence within the last 12 months. Among those women reporting violence, 37% experienced physical abuse from partners or spouses, 15% from father or step-father, 4% from mother or step-mother, 11% from brother or step-brother, and 3% from other family members. However, 30% chose not to specify their assailant. Of those women reporting violence, 131 women reported multiple occurrences of abuse: 27% reported two incidents, 10% reported three incidents, 22% reported four incidents, 30% reported five to ten incidents, and the remaining 11% reporting fifteen incidents or more.

A description of the 961 women interviewed is presented in Table 1. The characteristics of the women with regard to age groups, ethnicity, and education, were highly consistent with national figures (Statistics New Zealand, 1997, 1998). The women who reported having experienced domestic violence ($n = 190$) were significantly younger than those who had not been involved in domestic violence ($t(956) = 5.40, p < .001$). Non-married women living in urban areas were more likely to experience domestic violence compared with married women (odds ratio [OR] = 0.8; $0.6 < OR < 0.9$) as were those living in rural areas (odds ratio [OR] = 1.7; $1.2 < OR < 2.6$). In comparisons of women according to the experience of domestic abuse, Maori women were 1.6 times more likely to experience domestic violence than European women (see Figure 1).

Of the whole sample of women aged between 19 and 90 years of age, 10% scored above the cut-off point (MHI score of 95) for psychological distress and 11% scored above the cut-off point (PILL score of 54) for severe physical

illness. When comparing those having experienced domestic abuse to the "no violence" subgroup, the prevalence of psychological distress was 25% and 8% ($t(959) = 6.99, p < .001$), and the prevalence of physical illness was 23% and 8% ($t(959) = 5.89, p < .001$), respectively.

Characteristics of Domestic Violence

The vast majority of abused women reported loss of control during their most recent experience of domestic violence, where 58% reported a sense of no control, and 37% reported a sense of very little control. Thirty percent of women reported that they really believed they would die during their last experience of abuse, 64% stated the experience was extremely distressing. A cumulative proportion of 71% stated that the abuse had mostly or only negative effects on their life, and just under half of abused women 49% stated that the abuse was completed unexpected. Abuse caused "severe injury" in 8% of women (i.e., hospitalization for one week or more, and / or loss of body function – perhaps permanent), caused "moderate injury" in 11% (i.e., hospitalization for less than one week, and / or some loss of body function – not permanent), and "mild injury" in 45.9% (i.e., emergency treatment not requiring overnight hospital treatment, no loss of function).

Discussion of Domestic Violence

Among abused women, 27% reported only sometimes discussing their experiences, 37% reported rarely discussing their experiences, and 15% reported never having discussed their experiences of domestic violence. Similarly, 25% of abused women reported only having discussed some of their feelings about their abusive experiences, 27% reported having discussed very few of their feelings, and 18% reported not having discussed any of their feelings. Of those having discussed their feelings about their experiences, 69% reported having confided in their family, 68% reported having confided in friends, 50% reported having confided in their spouse/partner, 33% reported having confided in a health professional, and only 19% reported having confided in a mental health professional.

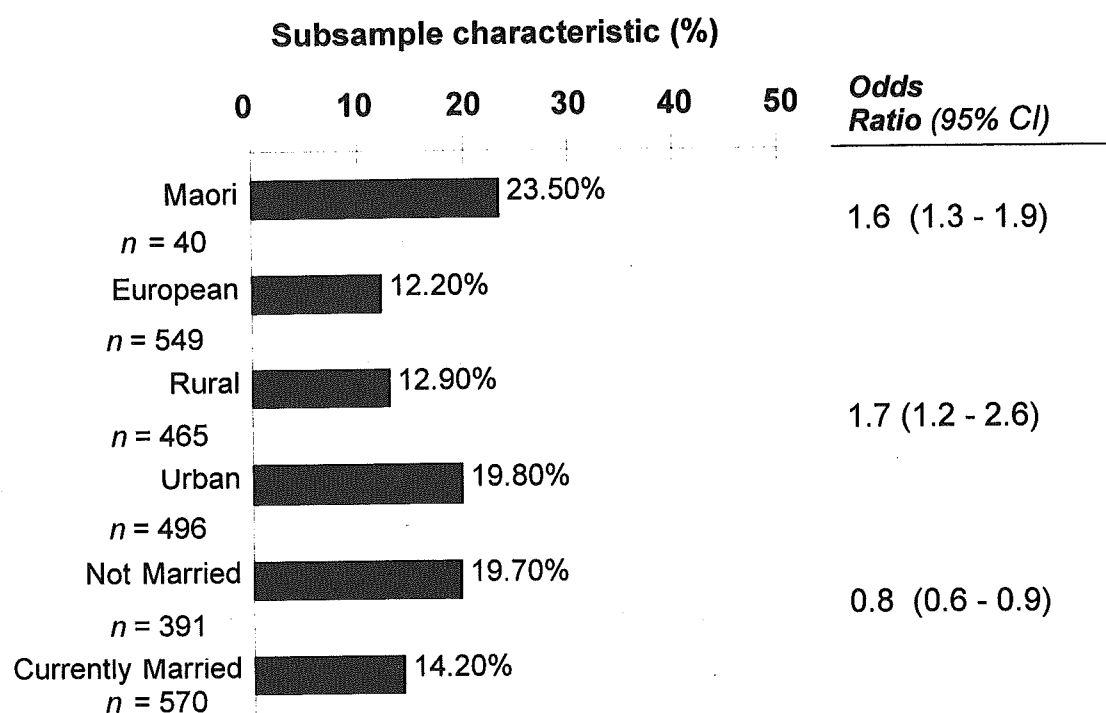
Risk of Psychological Distress and Physical Illness

Two separate three-step hierarchical regression equations were computed to predict (a) risk of psychological distress and (b) physical illness among all women interviewed ($N = 961$). The contribution of domestic violence, characteristics of the violence, and social support in discussing the abuse towards explaining the extent of psychological distress and physical illness were estimated after controlling for sample

Table 1. Description of the Total Sample Characteristics

Variable	Experienced Domestic Violence		No Violence	
	<i>n</i>	%	<i>n</i>	%
Age				
18-19	0	0	7	1
20-29	33	20.9	149	18.6
30-39	69	43.7	223	27.9
40-49	35	22.2	125	15.6
50-59	15	9.5	103	12.9
60-69	6	3.8	111	13.9
70-79	0	0	59	7.4
80-89	0	0	21	2.6
90-99	0	0	2	0.3
Ethnicity				
European	67	45.6	482	65.0
Maori	80	54.4	260	35.0
Marital Status				
Currently Married	81	51.3	489	60.9
Not Married	77	48.7	314	39.1
Education				
No School Qualification	82	52.9	323	41.9
School Certificate	35	22.6	179	23.2
University Entrance	15	9.7	96	12.5
University Scholarship	0	0	9	1.2
Professional Qualifications	18	11.6	114	14.8
University Undergraduate Degree	2	1.3	40	5.2
University Postgraduate Degree	3	1.9	10	1.3
Area of Residence				
Urban	98	62.0	398	49.6
Rural	60	38.0	405	50.4
Psychological Distress	40	25.3	60	7.5
Serious Physical Illness	37	23.4	64	8.0

Figure 1. Associations between prevalence of domestic violence and subgroup characteristics.



Note. The proportion of women experiencing domestic violence is presented, according to relative subgroups of the sample. Additionally, odds ratios with the corresponding 95% confidence intervals indicate the risk of experiencing domestic violence for the different subgroups of women, compared with women in the no violence subgroup (*n* = 771). The 95% confidence interval for marital status is less than or includes 1.0, and is therefore non-significant.

characteristics. In computing the regression, multivariate outliers were identified using Mahalanobis distance with the use of a $p < .001$ criterion. After step one of the first regression, R was significantly different from zero ($F(6, 954) = 13.71, p < .001$), with sample characteristics accounting for 8% of the total variance in psychological distress. After step two, however, an additional significant increase in R^2 was obtained ($F(10, 944) = 9.10, p < .001$) with domestic violence and characteristics of the violence explaining 6% of the variance when controlling for the effects of sample characteristics. After step three, an additional increase in R^2 was obtained from adding social support to the equation, but this increment was not significant ($F(7, 937) = 6.62, p > .05$). Taken together, this model was associated with a final adjusted R^2 of 12%. Location of residence remained significantly associated with psychological distress ($b = .13, p < .001$). In addition, women who had a greater perception that there was an impending danger to their lives during the abuse ($b = .07, p < .05$) and those who rated the abuse as having a more significant impact on their life ($b = .09, p < .001$) had higher psychological distress. However, when domestic violence was entered into the model, marital status and ethnicity were no longer significantly associated with psychological distress.

After step one of the second regression for physical health, R was significantly different from zero ($F(6, 954) = 4.00, p < .01$), with sample characteristics accounting for 3% of the total variance in physical illness. After step two, a further significant increase in R^2 was obtained ($F(10, 944)$

$= 4.77, p < .001$) with characteristics of the violence explaining 5% of the variance when controlling for the effects of sample characteristics. After step three, an additional significant increase in R^2 was obtained from adding social support to the equation ($F(7, 937) = 4.08, p < .05$). Taken together, this model was associated with a final adjusted R^2 of 7%. When the variables were analyzed together using multiple regression, only the association between domestic violence and physical illness remained highly significant ($b = .18, p < .0001$, whereas all other associations became nonsignificant.

Trauma Severity

A final three-step hierarchical regression was computed to examine the features of the trauma that were severe enough to cause distress. As in the previous regression equations, characteristics of the violence and social support in discussing the abuse towards explaining the extent of psychological distress were estimated after controlling for sample characteristics. Since this analysis was focused on examining the relative severity of different attributes of the trauma, only data from women who had experienced the trauma was included in the analysis.

After step one of the first regression, R was significantly different from zero ($F(6, 183) = 1.92, p < .01$), with sample characteristics accounting for 6% of the total variance in psychological distress. After step two, however, a significant increase in R^2 was obtained ($F(9, 174) = 2.40, p < .001$) with domestic violence and characteristics of the violence explaining 11% of the

variance when controlling for the effects of sample characteristics. After step three, an additional increase in R^2 was obtained from adding social support to the equation, but this increment was not significant ($F(7, 167) = 2.01$, $p > .05$). Once again, women who had perceived that there was an impending danger to their lives during the abuse ($b = .16$, $p < .05$) and those who rated the abuse as having a more significant impact on their life ($b = .16$, $p < .001$) experienced higher psychological distress, and this model was associated with a final adjusted R^2 of 22%.

Discussion

The findings of the present study indicate that domestic violence significantly increased the risk of psychological distress and physical illness among the women participating in the study. Furthermore, domestic violence was found to be the single most important risk factor in predicting psychological distress and physical illness. Because the study population is similar to women greater than 18 years of age throughout New Zealand, it seems likely that domestic violence may account for as much as 12% of the total psychological distress and 7% of the physical illness among adult women in New Zealand. Geographic location was also a significant predictor of physical illness in the sample, a finding consistent with international research regarding health effects of domestic violence among women (McGrath et al., 1990). Ethnicity and marital status were also identified as sources of psychological distress and physical illness, but when combined in a multivariate model with domestic abuse these associations were no longer significant. Additionally, the lack of social support through family, friends, and mental health professional networks were significant predictors of psychological distress.

The association between domestic abuse and psychological distress and physical illness indicates that the effects of domestic violence may persevere for a long time after the abuse has ended. In this respect, perceived threat to life and overall effect of abuse appear to produce a significant risk of psychological distress, a finding consistent with traumatic victimization (Walker, 1994). In addition, perceptions of impending danger to life and impact on life significantly increased the health risk among women, and were identified as the two significant predictors of psychological distress in the subsample of women involved in domestic violence.

The present study had a number of limitations that should be acknowledged. Due to the cross-sectional nature of the study, it is not possible to infer causality in the relation between domestic violence and psychological distress and physical illness. One interpretation of the findings could be that abused women are more likely to have psychological and health problems that proceed the abuse. However, this interpretation seems unlikely when one considers the evidence that self-destructive behavior and clinical conditions among abused women tends to follow the first reported incident of abuse (Stark & Flitcraft, 1996).

A second possible interpretation of the findings could be that the findings do not reflect the impact of domestic abuse, but rather a self-report bias. That is, women who

were distressed with more symptoms of physical and mental illness may have been more likely to disclose either severity or frequency of domestic violence than the non-violence group. However, this also seems unlikely when one considers the strength of the associations found between psychological distress and physical illness and domestic violence, and the recent evidence supporting the reliability of this methodology to survey trauma impact (Meston, Heiman, Trapnell, & Carlin, 1999).

In the number of years since the passing of classification of domestic violence as a criminal act in New Zealand, it has become evident that modifying the legal system in only one step towards change, and changing beliefs, attitudes, and practices of those involved in enforcing the law and providing health care is essential. Given the low proportion of women in the present study who confided in medical or mental health professionals about their experience of domestic violence, it seems that the next step is to clarify the law for those working in legal and community organizations so that women can benefit from the changes in the legal system, and the mental and physical services offered by the government. This is compelling evidence that heightened attention towards screening for domestic violence within the health system and an increased emphasis on those attending mental health services is required.

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Berton, M. W., & Stabb, S. D. (1996). Exposure to violence and post-traumatic stress disorder in urban adolescents. *Adolescence*, 31, 489-498.
- Bullock, L., & McFarlane, J. (1989). The battering low-birthweight connection. *American Journal of Nursing*, 89, 1154-1155.
- Campbell, J. C., & Lewandowski, L. A. (1997). Mental and physical health effects of intimate partner violence on women and children. *Psychiatric Clinics of North America*, 20, 353-374.
- Clark, D. B., Lesnick, L., & Hegedus, A. M. (1997). Traumas and other adverse life events in adolescents with alcohol abuse and dependence. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36, 1744-1751.
- Cuffe, S. P., Addy, C. L., Garrison, C. Z., Waller, J. L., Jackson, K. L., McKeown, R. E., & Chilappagari, S. (1998). Prevalence of PTSD in a community sample of older adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37, 147-154.
- Culbertson, F. (1997). Depression and gender: An international review. *American Psychologist*, 52, 25-31.
- Deykin, E. Y., & Buka, S. L. (1997). Prevalence and risk factors for posttraumatic stress disorder among chemically dependent adolescents. *American Journal of Psychiatry*, 154, 752-757.
- Ellsberg, M. (1997). *Candies in hell: Domestic violence against women in Nicaragua*. Unpublished licentiate thesis, Department of Epidemiology and Public Health, Umea University, Umea, Sweden.
- Fischbach, R. L., & Herbert, B. (1997). Domestic violence and mental health: Correlates and conundrums within and across cultures. *Social Science & Medicine*, 45, 1161-1176.
- Flett R. A., Millar, M. A., Long, N. R., & MacDonald, C. (1996). *Community Survey of Trauma*. Report to the Accident Rehabilitation and Compensation Insurance Corporation, New Zealand.

- Gerlock, A. A. (1999). Health impact of domestic violence. *Issues in Mental Health Nursing*, 20, 373-385.
- Giaconia, R. M., Reinherz, H. Z., Silverman, A. B., & Pakiz, B. (1995). Traumas and posttraumatic stress disorder in a community population of older adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 34, 1369-1380.
- Gondolf, E. W. (1998). *Assessing woman battering in mental health services*. Thousand Oaks, CA: Sage.
- Grisso, J. A., Schwarz, D. F., Miles, C. G., & Holmes, J. H. (1996). Injuries among inner-city minority women: A population-based longitudinal study. *American Journal of Public Health*, 86, 67-70.
- Handwerker, W. P. (1993). Gender power differences between parents and high-risk sexual behavior by their children: AIDS/STD risk factors extend to prior generation. *Journal of Women's Health*, 2, 310-316.
- Heise, L., Raikes, A., Watts, C., & Zwi, A. (1994). Violence against women: A neglected public health issue in less developed countries. *Social Science and Medicine*, 39, 1165-1179.
- Hill, S. Y. (1995). Mental and physical health consequences of alcohol use in women. In M. Galanter (Ed.), *Recent developments in alcoholism, Vol. 12. Alcoholism and women*. New York: Plenum.
- Hillary, B. E., & Schare, M. L. (1993). Sexually and physically abused adolescents: An empirical search for PTSD. *Journal of Clinical Psychology*, 49, 161-165.
- 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.
- Koss, M. (1990). The women's mental health research agenda: Violence against women. *American Psychologist*, 45, 374-380.
- Lowe, G. C., & Northcott, H. C. (1988). The impact of working conditions, social roles and personal characteristics on gender differences in distress. *Work and Occupations*, 15, 55-57.
- McGrath, E., Keita, G. P., Strickland, B., & Russo, N. F. (1990). *Women and depression: Risk factors and treatment issues*. Washington, DC: American Psychological Association.
- 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.
- Ministry of Health. (1997). *The Health and Wellbeing of Older People and Kaumatua: The Public Health Issues*. Wellington, New Zealand: Author.
- Nolen-Hoeksema, S. (1990). *Sex differences in depression*. Stanford, CA: Stanford University Press.
- 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.
- Norton, I. M., & Manson, S. M. (1995). A silent minority: Battered American Indian women. *Journal of Family Violence*, 10, 307-318.
- Pennebaker, J. W. (1982). *The psychology of physical symptoms*. New York: Springer-Verlag.
- Roberts, G. L., Williams, G. M., Lawrence, J. M., & Raphael, B. (1998). How does domestic violence affect women's mental health? *Women & Health*, 28, 117-129.
- Saigh, P. A., Green, B. L., & Korol, M. (1996). The history and prevalence of posttraumatic stress disorder with special reference to children and adolescents. *Journal of School Psychology*, 34, 107-131.
- Schei, B., & Bakketeig, L. S. (1989). Gynaecological impact of sexual and physical abuse by spouse: A study of random sample Norwegian women. *British Journal of Obstetrics and Gynaecology*, 96, 1379-1383.
- Sorenson, S. B., & Saftlas, A. F. (1994). Violence and women's health: The role of epidemiology. *Annals of Epidemiology*, 4, 140-145.
- Stark, E., & Flitcraft, A. (1996). *Women at risk: Domestic violence and women's health*. Thousand Oaks, CA: Sage.
- Statistics New Zealand. (1997). *1996 census of population and dwellings: National summary*. Wellington, New Zealand: Author.
- Statistics New Zealand. (1998). *1996 census of population and dwellings: Population structure and internal migration*. Wellington, New Zealand: Author.
- Steiner, H., Garcia, I. G., & Matthews, Z. (1997). Posttraumatic stress disorder in incarcerated juvenile delinquents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36, 357-365.
- Stewart, D. E., & Stotland, N. L. (Eds.). (1993). *Psychological aspects of women's health care: The interface between psychiatry and obstetrics and gynecology*. Washington, DC: American Psychiatric Press.
- Stout, C. E. (Ed). (1996). *The integration of psychological principles in policy development*. Westport, CT: Praeger.
- Veit, C. T., & Ware, J. E. (1983). The structure of psychological distress and well-being in general populations. *Journal of Consulting and Clinical Psychology*, 51, 730-742.
- Walker, L. (1994). *Abused women and survivor therapy: A practical guide for the psychotherapist*. Washington, DC: American Psychological Association.
- Weissman, M. M., Bland, R., & Joyce, P. R. (1993). Sex differences in rates of depression: Cross-national perspectives. *Journal of Affective Disorders*, 29, 77-84.

Footnotes

1. Geographic distribution of enumeration districts was 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-Malborough ($n = 2$); West Coast ($n = 2$); Canterbury ($n = 7$); Otago ($n = 4$); Southland ($n = 3$).
2. The remaining 8% represent missing data. These participants were excluded from analyses examining differences among ethnic subgroups of the sample.
3. A complete copy of the interview questions and administration procedure is available upon request from the corresponding author.

Author notes

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