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Partner Violence and Mental Health Outcomes in a New Zealand Birth Cohort

This study examines the prevalence and extent of domestic violence and the consequences of domestic violence for mental health outcomes in a birth cohort of New Zealand young adults studied at age 25 years. A total of 828 young people (437 women and 391 men) were interviewed about the domestic violence victimization and violence perpetration in their current or most recent partner relationship. Key findings of the study were (a) domestic conflict was present in 70% of relationships, with this conflict ranging from minor psychological abuse to severe assault; (b) men and women reported similar experiences of victimization and perpetration of domestic violence; and (c) exposure to domestic violence was significantly related to increased risks of major depression ($p < .05$*) and suicidal ideation (*$p < .005$*) even after extensive control for covariates.*

There have been ongoing public and professional concerns about the issue of domestic violence in developed Western countries. This interest has resulted in a growing body of research evidence that has examined the prevalence and correlates of this type of violence (for reviews, see Archer, 2002; Fagan & Browne, 1994; Johnson & Ferraro, 2000). Broadly speaking, this research has established that domestic violence is relatively common, that both men and women are perpetrators and victims of such violence, and that domestic violence tends to be more common among individuals from socially disadvantaged backgrounds, living in dysfunctional family circumstances, and among those who are subject to a range of personal problems including criminality, substance abuse, mental health problems, and related conditions (e.g., Hastings & Hamberger, 1997; Magdol, Moffitt, Caspi, & Silva, 1998; Straus & Gelles, 1986; White & Widom, 2003).

An issue that has been highly controversial in this area concerns gender differences in domestic violence perpetration and victimization. The discovery of domestic violence in the context of the concerns of the women's movement has meant that domestic violence has been presented as a gender issue and used as an exemplar of patriarchy and male dominance over women (Dobash & Dobash, 1979; Johnson, 1995; Walker, 2000). These claims appear to be supported by homicide, hospitalization, arrest, and refuge attendance data (Archer, 2002; Leibrich, Paulin, & Ransom, 1995), and in crime studies where women have high rates of domestic violence victimization (Tjaden & Thoennes, 2000). For example, in a New Zealand study, Leibrich et al. argued that domestic violence by men was a significant social problem, citing national data which showed that approximately half of female homicide victims were

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Key Words: domestic violence, gender differences, mental health, perpetration, victimization.

killed by either a former or current male partner, and one third of females hospitalized for assault were victims of domestic violence.

In contrast, population-based surveys have led to a different perspective on this issue. These surveys have made it clear that domestic violence is not exclusively perpetrated by men and that women are not exclusively victims. Indeed, in a growing number of studies, there has been evidence to suggest that rates of domestic violence victimization and perpetration are similar among men and women (e.g., Coker et al., 2002; Magdol et al., 1997; Straus & Gelles, 1986). For example, in another New Zealand study, Magdol et al. interviewed a large representative sample of young men and women about their domestic violence experiences. They found that 21.8% of men reported at least one act of physical violence perpetration, a result closely resembling the findings of Leibrich et al. (1995). They also found, however, that 37.2% of women reported some form of physical violence perpetration.

A recent meta-analysis by Archer (2002) examined gender differences in survey data using the Conflict Tactics Scale (CTS; Straus, 1979). The major findings of this study were that men were more likely to engage in more severe acts such as choke/strangle and beat up, which may account for the high rates of death and hospitalization for female victims. Women were more likely to engage in minor acts of violence. The analysis also suggested that gender differences in the direction of increased female perpetration were more evident in younger (student) samples than in general community samples. This may suggest either age or cohort differences in gender violence. The overall conclusions from this study were that perpetrators of physical aggression can be men or women and that a substantial number of endorsements for both minor and severe CTS items are made by women perpetrators.

The dissonance between expectations that domestic violence is predominantly perpetrated by men on female victims and the research evidence has led to a number of criticisms of the methodology used to assess domestic violence. It has been variously suggested that measures such as the CTS (a) do not assess the full range of coercive tactics and abuse to which women may be exposed, (b) fail to take into account incidents after separation and divorce, (c) fail to take into account the context in which violence takes place, and (d) do not fully assess the consequences of domestic violence in terms of psychological threat and injury (Fagan & Browne, 1994; Saunders, 2002; Taft, Hegarty, & Flood, 2001).

A closely related issue concerns the need to cross-validate estimates of the gender ratio in violence victimization. One useful methodology is to gain estimates of the extent to which individuals of each gender group report (a) being a victim of violence and (b) being a perpetrator of violence. This design has the advantage of obtaining estimates of victimization and perpetration from the standpoint of men and women. Specifically, female reports of victimization and male reports of perpetration lead to independent estimates of the fraction of couples within which violence against women occurs. Similarly, male reports of victimization and female reports of perpetration lead to two independent estimates of the fraction of couples within which violence against men occurs. Using this type of methodology, Magdol et al. (1997) noted that the rates of violence victimization were similar among men and women but if anything, men were more likely to be victims. It may be argued, however, that even though reports of victimization are similar for men and women, women and men may have differing victimization experiences so that violence by men against women proves to be more threatening and more physically and emotionally damaging than violence by women against men (Archer, 2002; Fagan & Browne, 1994; Taft et al., 2001). Such arguments would imply that exposure to domestic violence should provoke a greater reaction in women than in men.

Although it is widely held that exposure to domestic violence (and particularly extreme violence) may have a range of adverse psychological consequences (see, e.g., Campbell, 2002; Golding, 1999; Hines & Malley-Morrison, 2001), the empirical evidence establishing the linkages between exposure to domestic violence and adverse psychological outcomes proves to be relatively limited. In particular, although a number of studies have reported elevated rates of psychiatric disorders among victims of domestic violence (Cascardi, O'Leary, & Schlee, 1999; Coker et al., 2002; Stets & Straus, 1990), these studies have been subject to at least one of a number of methodological limitations. These limitations include the use of highly selected

samples of women from women's refuges and hospital emergency clinics, the use of small samples, and the lack of standardized measurement of outcomes. Moreover, very few studies have investigated the influence of domestic violence on the mental health of men (Hines & Malley-Morrison).

Perhaps the most pervasive difficulty with this literature relates to the failure to adequately control selection and confounding. In particular, it has been well documented that both the perpetrators and victims of domestic violence tend to come from high-risk populations characterized by social disadvantage (e.g., Hastings & Hamberger, 1997; Straus & Gelles, 1986), family dysfunction (e.g., Hotaling & Sugarman, 1986; Rosenbaum & O'Leary, 1981; White & Widom, 2003), and high rates of individual pathology (e.g., Magdol, Moffitt, & Caspi, 1998; Stets & Straus, 1990; Walker, 2000). It may therefore be proposed that any association between exposure to domestic violence and psychological outcomes does not reflect a direct cause and effect association but rather reflects the social, family, and individual context within which domestic violence tends to occur. These considerations suggest that to establish a causal link between exposure to domestic violence and mental health requires that the associations between the variables are adjusted for confounding factors.

Against this background, this paper reports on a study of the linkages between reports of exposure to domestic violence and mental health outcomes in a birth cohort of young adults studied at age 25 years. The aims of the study were

1. To estimate the prevalence of various forms of domestic violence on the basis of both victim and perpetrator reports.
2. To examine the linkages between reports of victimization and a range of mental health outcomes including depression, anxiety, and suicidal ideation.
3. To adjust the associations between reports of domestic violence and mental health outcomes for prospectively assessed covariate factors assessing child and adolescent social, family, and individual factors. As explained in the Method section, the covariates used in the analysis spanned a number of domains of variables known to be associated with domestic violence or mental health problems, or both. These domains included sociodemographic background, family functioning in childhood, individual characteristics, and characteristics of the partnership. The selection of the covariates described was guided by existing literature, previous research into this cohort, and inspection of the associations of a wide range of measures with domestic violence and mental health outcomes.
4. To examine gender differences in the prevalence of domestic violence and mental health responses to this violence.

METHOD

The data reported here were gathered during the course of the Christchurch Health and Development Study. The Christchurch Health and Development Study is a longitudinal study of an unselected birth cohort of 1,265 children born in the Christchurch (New Zealand) urban region during a 4-month period in mid-1977. This cohort has been studied at birth, 4 months, 1 year, annual intervals to age 16 years, and at ages 18, 21, and 25 years. A more detailed description of the study and an overview of study findings have been provided by Fergusson and Horwood (2001) and Fergusson, Horwood, Shannon, and Lawton (1989).

At age 25 years, 1,003 sample members were assessed. This sample represented 79% of the original cohort. The present analysis is based upon the 828 sample members (437 women and 391 men) who were assessed at age 25 years and who reported that they were currently or had been involved in a close or intimate partner relationship in the past 12 months that had lasted for at least a month or longer. The following measures were used in the analysis.

Domestic Violence (24–25 Years)

At age 25 years, sample members in partnerships of over 1-month duration in the past year were asked about the occurrence of domestic violence using a 22-item scale that incorporated selected items from the Revised Conflict Tactics Scale (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). The selected items spanned the domains of minor psychological aggression, severe psychological aggression, minor physical assault, severe physical assault, and sexual coercion as described by Straus et al. Questioning

about sexual coercion was limited to two items (using threats to make partner have sex and using physical force to make partner have sex). Items from this questionnaire are shown in the Appendix. All the items were scored as described in the original scale, and questioning was conducted in terms of both domestic violence victimization and the perpetration of domestic violence.

Sample members who reported domestic violence (either as victims or as perpetrators) were further questioned about the consequences of violence using the injury subscale items from the CTS2 supplemented by three additional items to assess fearfulness in response to partner violence (needing to hide from partner for fear of being seriously harmed, being seriously afraid of partner and their tendency to violence, and feeling seriously threatened or intimidated by partner). Those who reported episodes of physical assault were questioned about the initiation of assault and whether the assaults were in self-defense as a result of the partner initiating the violence.

Finally, to assess the extent of domestic violence resulting in extreme outcomes, an inspection was made of the medical history and mortality data held on this cohort. This showed that only one cohort member (male) and two partners (one woman and one man) received medical attention for injuries resulting from domestic violence. By age 25 years, a total of 31 cohort members had died. None of the deaths recorded resulted from domestic violence. These findings suggest that the range of domestic violence studied within this cohort was confined to relatively mild or moderate incidents of violence and that extreme violence involving severe injury or death was not present with sufficient frequency for analysis. This limitation on the range of domestic violence studied should be borne in mind when interpreting the results.

Mental Health Outcomes (24–25 Years)

As part of the assessment at age 25 years, sample members were questioned about mental health problems over the past 12 months including problems with depression, anxiety, and suicidal behaviors.

Major depression (24–25 years). Questioning about depressive symptoms over the past year was conducted using items from the Composite International Diagnostic Interview (World Health Organization, 1993) to assess Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) (American Psychiatric Association, 1994) symptom criteria for major depression. Sample members who met DSM-IV diagnostic criteria for a major depressive episode at any time in the interval from 24 to 25 years were classified as having major depression.

Anxiety disorder (24–25 years). Composite International Diagnostic Interview items were also used to assess DSM-IV symptom criteria for a range of anxiety disorders in the past year, including generalized anxiety disorder, panic disorder, agoraphobia, social phobia, and specific phobia. Sample members who met diagnostic criteria for any of these disorders in the interval 24–25 years were classified as having an anxiety disorder.

Suicidal ideation (24–25 years). As part of the questioning about suicidal behaviors, sample members were asked whether they had ever thought about killing themselves in the past 12 months and the frequency of such thoughts. Those individuals who reported having any suicidal thoughts in the interval 24–25 years were classified as having suicidal ideation.

Covariates

To control the associations between domestic violence and adult mental health outcomes for the correlated effects of other family and individual factors, a range of prospectively assessed covariate factors were selected from the study database. These factors spanned measures of family functioning, individual characteristics, and history of mental health problems up to the age of 21 years. In addition, a number of measures of the individual's partnership and partner characteristics were also assessed. In all cases, the inclusion of covariate factors was determined by inspection of the correlation between these factors and measures of domestic violence.

Measures of family sociodemographic background. (a) *Maternal age*: This was assessed in whole years at the time of the survey child's birth. (b) *Maternal education*: Maternal education levels were assessed at the time of the survey child's birth using a three-level scale reflecting the highest educational qualification

attained. This scale was mother had no formal educational qualifications, mother had high school qualifications, mother had tertiary-level qualifications. (c) *Family socioeconomic status (SES)*: This was assessed at the time of the survey child's birth using the Elley-Irving (Elley & Irving, 1976) scale of SES for New Zealand. This scale classifies SES into six levels on the basis of paternal occupation ranging from 1 = *professional occupations* to 6 = *unskilled occupations*. (d) *Family type*: Family type was classified as either single parent or two parent depending on the family situation that the child entered at birth. (e) *Standard of living (0–10 years)*: At each assessment from age 1 to 10 years, interviewer ratings of the family's standard of living were obtained using a five-point scale that ranged from *obviously affluent* to *obviously poor/very poor*. For the purposes of the present analysis, these ratings were averaged to provide an overall assessment of the quality of the family's living standards over the period from birth to age 10 years.

Measures of family functioning. (a) *Changes of parents (0–15 years)*: At each assessment from birth to age 15 years, comprehensive information was gathered on changes in the child's family situation since the previous assessment. Using this information, an overall measure of family instability was constructed on the basis of a count of the number of changes of parents experienced by the child up to age 15 years. Changes of parents included all the changes resulting from parental separation/divorce, reconciliation, remarriage, death of a parent, fostering, and other changes of custodial parents. (b) *Interparental violence*: At age 18 years, sample members were questioned using items from the CTS (Straus, 1979) to assess the extent to which they had witnessed incidents of physical violence or serious threats of physical violence between their parents during childhood (Fergusson & Horwood, 1998). For the purposes of the present analysis, sample members were classified as experiencing interparental violence if they reported witnessing any episode of violence between their parents prior to age 16 years. (c) *Parental illicit drug use*: When sample members were 11 years of age, information was obtained from parents as to whether any parent had a history of illicit drug use. (d) *Parental attachment (15 years)*: The quality of parental attachments was assessed at age 15 years using the Parent Attachment Scale devised by Armsden and Greenberg (1987). The full scale score was used in the present analysis. The coefficient alpha for this scale was .87. (e) *Childhood sexual abuse (0–16 years)*: At age 18 and 21 years, sample members were questioned about their experience of sexual abuse during childhood (<16 years) (Fergusson, Lynskey, & Horwood, 1996). Questioning spanned an array of abusive experiences from episodes involving noncontact abuse (e.g., indecent exposure) to episodes involving attempted or completed intercourse. Sample members who reported an abusive episode were then questioned further about the nature and context of the abuse. Using this information, a four-level scale was devised reflecting the most severe form of sexual abuse reported by the young person at either age. This classification was no sexual abuse, noncontact abuse only, contact sexual abuse not involving attempted or completed intercourse, attempted/completed oral, anal, or vaginal intercourse. (f) *Parental use of physical punishment (0–16 years)*: At ages 18 and 21 years, young people were asked to describe the extent to which their parents used physical punishment during childhood (Fergusson & Lynskey, 1997). Separate questioning was conducted for mothers and fathers. This information was used to construct a four-level scale reflecting the most severe form of physical punishment reported for either parent: parents never used physical punishment; parents rarely used physical punishment; at least one parent used physical punishment on a regular basis; at least one parent used physical punishment too often or too severely, or treated the respondent in a harsh and abusive manner.

Measures of individual characteristics. (a) *Self-esteem (15 years)*: Child self-esteem was assessed at age 15 years using the Coopersmith Self-Esteem Inventory (Coopersmith, 1981). The full scale score was used in the present analysis. The reliability of this scale, assessed using coefficient alpha, was .76. (b) *Novelty seeking (16 years)*: Child novelty seeking was assessed at age 16 years using the novelty seeking scale of the Tridimensional Personality Inventory (Cloninger, 1987). The reliability of this scale, assessed using coefficient alpha, was .76.

Prior mental health problems (14–21 years). At age 15 and 16 years, sample members were interviewed on a comprehensive mental health

interview designed to examine aspects of mental health and adjustment over the previous 12 months. This interview combined an array of standardized assessment instruments including components of the Diagnostic Interview Schedule for Children (Costello, Edelbrock, Kalas, Kessler, & Klaric, 1982), the Rutgers Alcohol Problems Index (White & Labouvie, 1989), and the Self-Report Early Delinquency Scale (Moffitt & Silva, 1988) with custom written survey items. This information was used to assess standardized DSM-III-R symptom criteria for the following disorders over the intervals 14–15 years and 15–16 years: major depression, anxiety disorders (generalized anxiety disorder, overanxious disorder, simple phobia, and social phobia), alcohol abuse, illicit drug abuse, and conduct disorder. At age 18 and 21 years, a similar mental health interview was conducted. This interview combined components of the Composite International Diagnostic Interview with the Self-Report Delinquency Inventory (Elliott & Huizinga, 1989) and custom written survey items to assess DSM-IV symptom criteria for major depression, anxiety disorders (generalized anxiety, panic disorder, agoraphobia, specific phobia, and social phobia), alcohol abuse and dependence, illicit drug abuse and dependence, and conduct and antisocial personality disorders. In addition, at all assessments, sample members were questioned about their history of suicidal thoughts and behaviors since the previous assessment.

Characteristics of the partnership. In addition to questioning about domestic violence, sample members who, at age 25 years, reported a partner relationship in the past 12 months were questioned about the following aspects of their partnership: (a) *cohabitation*, (b) *duration of relationship*, (c) *dependent children*, (d) *partner's age*, (e) *partner's education*, and (f) *partner deviance*. Partner deviance was assessed using custom written survey items about the extent to which their partner used alcohol or illicit drugs, had problems associated with alcohol or illicit drug use, was involved in criminal and antisocial behavior, or was in trouble with the law.

Missing Data

As noted previously, the analysis was based on the 828 sample members who reported a partnership out of a total of 1,003 participants assessed at age 25 years. To assess the possible effects of sample selection bias, tests were conducted to examine the extent to which the obtained sample of 1,003 was representative of the original cohort of 1,265 participants enrolled in the study. This analysis showed that there were slight but statistically significant ($p < .05$) tendencies for the obtained sample to underrepresent individuals from more socially disadvantaged backgrounds (low parental education, low SES, single-parent family). To take these biases into account, the sample was poststratified into a series of groups on the basis of these characteristics, and the probability of study participation was estimated for each group using the methods described by Carlin, Wolfe, Coffey, and Patton (1999). All the analyses were then repeated with the data for the analysis sample of 828 participants weighted by the inverse of the probability of study participation. In addition, there were small amounts of missing data for some covariate factors. To examine the implications of missing values, regression imputation of missing data was conducted and the analyses repeated with the missing values on each covariate replaced by the imputed values. In all the cases, these reanalyses produced essentially the same pattern of results to those reported here, suggesting that the conclusions of this study were unlikely to have been influenced by missing data and selection bias.

RESULTS

Exposure to Domestic Violence

The assessment of violence victimization was based upon the 22-item version of the CTS2 that incorporated all CTS2 items relating to psychological aggression and physical assault plus two items reflecting sexual violence (see Method). To devise a measure of the overall exposure to violence in the cohort, each item was scored in dichotomous (absent/present) form and a scale score created from the sum of these items. This scale was found to have adequate reliability ($\alpha = .85$). To explicate the meaning of scale scores, Table 1 shows the scale score divided into a series of class intervals ranging from those with no reports of violence to those reporting seven or more types of violence victimization. For each class interval, the table reports the group profile on a series of measures of the prevalence and

TABLE 1. RATES (%) OF VIOLENCE AND MEAN NUMBER OF INCIDENTS OF VIOLENCE BY DOMESTIC VIOLENCE VICTIMIZATION SCORE (24–25 YEARS)

	Violence Victimization Score (24–25 Years)					
Measure	0 ($n = 279$)	1–2 ($n = 258$)	3–4 ($n = 195$)	5–6 ($n = 49$)	7+ ($n = 47$)	Overall ($N = 828$)
CTS2 subscales						
Minor psychological aggression						
% victim of aggression	0.0	99.2	100.0	98.0	100.0	65.9
Mean number of incidents	—	6.2	18.5	39.3	53.1	11.6
Severe psychological aggression						
% victim of aggression	0.0	0.8	7.2	79.6	95.7	12.1
Mean number of incidents	—	0.03	0.3	4.4	16.8	1.3
Minor physical assault						
% victim of assault	0.0	0.8	3.6	40.8	100.0	9.2
Mean number of incidents	—	0.01	0.04	2.3	18.2	1.2
Severe physical assault						
% victim of assault	0.0	0.0	2.1	10.2	76.6	5.4
Mean number of incidents	—	0.0	0.2	1.1	7.9	0.6
Concurrent validation measures						
% injured by partner	0.0	0.4	0.0	6.1	55.3	3.6
% fearful of partner or feeling seriously intimidated	0.0	0.0	0.0	0.0	25.5	1.5

frequency of violent or aggressive behaviors including minor psychological aggression, major psychological aggression, minor physical assault, and major physical assault in the past 12 months. The table also reports concurrent assessments of exposure to severe domestic violence including injury as a result of violence, feeling afraid of partner, or feeling intimidated as a result of partner violence. The table shows that

1. Only a third (33.7%) reported no victimization in their relationship (i.e., scored 0 on the scale).
2. Those reporting 1–2 types of violence comprised 31.2% of those in couples and were predominantly a group of individuals reporting occasional exposure to minor psychological aggression. Only two individuals in this group reported physical assault (both minor), and only one of these reported a slight injury consequent of assault.
3. Those scoring 3–4 comprised 23.6% of those in couples and were predominantly a group of individuals reporting frequent minor psychological aggression and occasionally severe psychological aggression. Only a small minority of this group reported exposure to physical assault and none reported any of the signs of severe domestic violence (injury or fearfulness).
4. Those scoring 5–6 comprised 5.9% of those in couples. This group reported a high frequency of minor psychological aggression, the great majority (79.6%) had experienced severe psychological aggression, over 40% reported incidents of minor physical assault, and just over 10% reported at least one incident of severe physical assault. A small minority of this group (6.1%) reported injury as a result of violence.
5. Those scoring 7+ on the scale comprised 5.7% of all those in couples. This group was characterized by nearly universal experience of minor/severe psychological aggression and minor physical assault, and frequent episodes of these types of violence. Over three quarters reported at least one severe physical assault. The majority (55%) reported injury as a result of domestic violence, and in over a quarter of cases, the respondent reported fearfulness or feeling intimidated as a consequence of partner violence.

The above results summarize reports of domestic violence victimization. A parallel analysis was also conducted using measures of perpetration of violence by respondents against partners. In the same way that the violence diversity score was constructed for victimization,

a similar violence perpetration diversity score was constructed using a count of the number of different types of violence perpetrated by the respondent against the partner. The reliability of this score, assessed using coefficient alpha, was .79. The properties of this scale were similar to the results reported in Table 1.

These conclusions were not altered when the data were subdivided by gender and separate scales fitted for men and women. For both victimization and perpetration, the profiles of the severity and chronicity of violent behavior were very similar for women and men.

The correlation between the scale scores for domestic violence victimization and domestic violence perpetration was .81. This strong correlation reflected the facts that (a) the majority (90%) of those reporting domestic violence victimization also reported perpetrating acts of domestic violence and (b) the majority (94%) of those reporting perpetration of domestic violence also reported domestic violence victimization.

Gender Differences in Victimization and Perpetration

Table 2A shows the measure of domestic violence victimization reported in Table 1 subdivided by gender. The table shows that the distribution of responses to the CTS2 was very similar for men and women. Indeed, if anything, there were more men exposed to severe domestic violence (a score of 7+). A χ^2 test, however, showed no significant gender differences in the distribution of scores, $\chi^2(4) = 5.04$, $p = .28$.

Table 2B shows a parallel analysis of reports of perpetration of domestic violence. The results in Table 2B differ from the findings in Table 2A in two respects:

1. First, perpetration reports showed lower rates of the more extreme forms of violence. For example, on the basis of victimization reports, 11.6% of the cohort had scores of 5 or more, whereas the corresponding figure for perpetration reports was 6.4%. These results may suggest that perpetration reports tend to minimize the extent of violence.
2. Second, there was a gender difference, with women reporting greater perpetration of domestic violence than men, $\chi^2(4) = 13.00$, $p = .01$. For example, 39.4% of women reported perpetration scores of 3 or more, and 30.9% of men reported such scores.

Although panels A and B of Table 2 give somewhat different perspectives on violence involving men and women, both show that there was very substantial similarity in the domestic

TABLE 2. DISTRIBUTION OF VIOLENCE SCORES (24–25 YEARS) BY GENDER ($N = 828$)

		Violence Victimization Score (24—25 Years)				
Gender		0	1–2	3–4	5–6	7+
A. Victim reports						
Women	*n*	148	144	104	20	21
	%	33.9	33.0	23.8	4.6	4.8
Men	*n*	131	114	91	29	26
	%	33.5	29.2	23.3	7.4	6.7
Total	*n*	279	258	195	49	47
	%	33.7	31.2	23.6	5.9	5.7
		Violence Perpetration Score (24—25 years)				
		0	1–2	3–4	5–6	7+
B. Perpetrator reports						
Women	*n*	136	129	141	14	17
	%	31.1	29.5	32.3	3.2	3.9
Men	*n*	168	102	99	11	11
	%	43.0	26.1	25.3	2.8	2.8
Total	*n*	304	231	240	25	28
	%	36.7	27.9	29.0	3.0	3.4

violence experiences of men and women from standpoints of reports of both victimization (Table 2A) and perpetration (Table 2B). Certainly, there was no evidence to suggest that men were predominantly the perpetrators of domestic violence and women predominantly the victims of this violence.

To extend the results in Table 2, further gender comparisons were made in terms of (a) injury as a result of domestic violence, (b) fear of partner, and (c) initiation of physical assault. These comparisons showed that men and women reported a similar rate of injury (3.9% of women vs. 3.3% of men) as a result of domestic violence victimization, $\chi^2(1) = 0.19$, $p = .66$. It should be noted that most of the injuries reported were minor, and in only three cases (0.5%) did domestic violence lead to a doctor or hospital attendance. More women, however, than men (2.5% vs. 0.3%) reported being fearful of their partner as a result of partner violence (Fisher's exact test; $p = .01$). Finally, women were more likely to report initiating physical assaults. For victimization reports of physical assault, 34% of women and 12% of men reported initiating physical assault, $\chi^2(1) = 5.7$l, $p < .05$. For perpetration reports, 58% of women and 32% of men reported initiating physical assaults, $\chi^2(1) = 3.47$, $p = .06$.

Domestic Violence Victimization and Psychiatric Disorder

Table 3 shows the associations between the extent of domestic violence victimization and rates of mental health problems (including major depression, anxiety disorder, and suicidal ideation) in the past 12 months. Results are reported separately for women and men. For each outcome, the table also reports the results of fitting a linear logistic regression model to the joint distribution of gender by domestic violence. Three tests of significance are reported: (a) the linear main effect of domestic violence victimization, (b) the main effect for gender, and (c) the Gender × Domestic Violence interaction. Examination of the table shows that

1. For all outcomes, there was a significant ($p < .0001$) main effect for domestic violence victimization, reflecting the tendency for rates of disorder to increase with increasing levels of domestic violence.
2. For two of the three outcomes (depression and anxiety disorder), there was a significant ($p < .0001$) main effect for gender, reflecting the fact that more women than men experienced these disorders.
3. There were no significant Gender × Domestic Violence interactions, suggesting that the responses of men and women to domestic violence victimization were similar in terms of increased risk of mental health problems.

Victimization and Psychiatric Disorders with Controls

It is possible that associations between domestic violence victimization and mental health problems (Table 3) could be explained by the

TABLE 3. RATES (%) OF MENTAL HEALTH PROBLEMS (24–25 YEARS) BY EXTENT OF DOMESTIC VIOLENCE VICTIMIZATION (24–25 YEARS) AND GENDER ($N = 828$)

Outcome (24–25 Years)	Violence Victimization Score (24–25 Years)					Tests of Significance		
	0	1–2	3–4	5–6	7+	Victimization (A)	Gender (B)	Interaction (A × B)
Major depression								
Women	12.2	16.0	21.2	40.0	42.9			
						<.0001	<.0001	.55
Men	4.6	6.1	13.2	6.9	15.4			
Anxiety disorder								
Women	10.8	17.4	24.0	30.0	47.6			
						< .0001	<.0001	.12
Men	5.3	6.1	8.8	10.3	7.7			
Suicidal ideation								
Women	2.0	5.6	4.8	25.0	23.8			
						<.0001	.65	.07
Men	4.6	5.3	4.4	10.3	11.5			

potentially confounding effects of family background and individual adjustment or characteristics of the partnership that are correlated with reports of victimization and that may also be associated with increased risks of mental health problems in adulthood. Analysis of covariate factors showed clear and significant ($p < .05$) tendencies for increasing levels of domestic violence victimization to be associated with younger maternal age, lower maternal education, semiskilled/unskilled SES and single-parent family at the time of the study child's birth, lower standard of living, greater family instability/conflict, more frequent parental illicit drug use, poorer quality of parental attachments, more frequent exposure to child abuse, lower childhood self-esteem, higher novelty seeking, and higher rates of mental health problems in adolescence. In addition, those young people reporting higher levels of domestic violence victimization were significantly ($p < .0001$) more likely to have cohabited with their partner, to have been in a relationship for 12 months or longer, to have dependent children, to have a partner who lacked formal educational qualifications, and to have a partner who had problems with drug use or antisocial behavior.

To take these covariate factors into account, the data were analyzed by fitting a series of logistic regression models in which the log odds of each outcome (depression, anxiety disorder, and suicidal ideation) was modeled as a linear function of the extent of domestic violence victimization, gender, and covariate factors. In fitting these models, the covariates were scored as described in the Method section.

The results of this analysis are summarized in Table 4, which shows the estimated rates (%) of disorder for each level of domestic violence victimization after adjustment for all covariates. The adjusted percentages are given separately for women and men. For each comparison, the table reports tests of significance of the main effects of domestic violence and gender and the Gender × Domestic Violence Victimization interaction. In addition, the table also lists the covariates that were found to be significant in the fitted regression models. Examination of the table shows that

1. Adjustment for covariates reduced the extent of association between domestic violence victimization and mental health outcomes. Even after adjustment, variations in domestic violence were significantly related to increased risks of major depression ($p < .05$) and suicidal ideation ($p < .005$).
2. There were significant ($p < .05$) gender main effects for depression and anxiety disorder.

TABLE 4. RATES (%) OF MENTAL HEALTH PROBLEMS (24–25 YEARS) BY EXTENT OF DOMESTIC VIOLENCE VICTIMIZATION (24–25 YEARS) AND GENDER AFTER ADJUSTMENT FOR COVARIATES ($N = 710$)

	Violence Victimization Score (24–25 Years)					Tests of Significance			
Outcome (24–25 Years)	0	1–2	3–4	5–6	7+	Victimization (A)	Gender (B)	Interaction (A × B)	Significant Covariates
Major depression									
Women	14.8	17.6	20.7	24.1	27.9				
						<.05	<.05	.69	2–5, 8
Men	6.0	7.4	9.1	11.1	13.2				
Anxiety disorder									
Women	16.3	17.9	19.6	21.5	23.4				
						.27	<.05	.11	5, 6, 9
Men	5.3	6.0	6.7	7.5	8.4				
Suicidal ideation									
Women	3.1	4.8	7.3	10.7	15.2				
						<.005	.26	.12	1, 7, 10
Men	2.7	4.3	6.8	10.3	15.3				

Note: Significant covariates: 1 = *childhood sexual abuse*, 2 = *childhood physical punishment*, 3 = *self-esteem (15 years)*, 4 = *parental illicit drug use*, 5 = *major depression (14–21 years)*, 6 = *anxiety disorder (14–21 years)*, 7 = *suicide ideation (14–21 years)*, 8 = *partner's educational qualifications*, 9 = *partner deviance*, 10 = *duration of partnership*.

3. There were no significant Gender × Domestic Violence interactions, suggesting that the effect of variations in domestic violence victimization on outcome risk was similar for both genders.
4. A range of covariates was found to make statistically significant contributions in the fitted models including measures of prior mental health problems, measures of child abuse, parental illicit drug use, childhood self-esteem, partner's education, partner deviance, and partnership duration.

DISCUSSION

In this study, we have used data gathered on a birth cohort of 25-year-olds to examine patterns of partner violence and the linkages between partner violence and mental health. The major themes and issues that have emerged from this research are discussed below.

Gender Differences

The data gathered in this survey made it possible to examine the issue of domestic violence from the standpoint of both victimization reports and perpetration reports. The findings from both series of reports suggested that there was considerable similarity in the range of responses and levels of domestic violence reported by men and women. For victimization reports, the findings showed that men and women reported a similar distribution of victimization experiences. Reports of perpetration, however, showed that women reported somewhat greater perpetration of acts of domestic violence than men. Given the gender similarity in victimization reports, it is likely that the lower reported rate of perpetration by men may reflect a tendency for men to underreport their perpetration of domestic violence. This may arise because social sanctions against male domestic violence are far stronger than social sanctions against female domestic violence (Archer, 2002; Magdol et al., 1997). Some authors have argued that the similar rates of male victimization to female victimization and female perpetration to male perpetration of domestic violence are a result of women hitting their partners in self-defense (Saunders, 1986; Straus & Gelles, 1986; Walker, 2000). This conjecture was not supported by the evidence, however. Indeed, it was the male sample members who more often reported that their perpetration of physical assault was in self-defense as a result of their partner assaulting them first.

On the basis of responses to the CTS2, men and women in this cohort showed a very similar pattern of domestic violence victimization and domestic violence perpetration. Furthermore, there was evidence of strong correlations between reports of victimization and perpetration, suggesting that most acts of domestic violence occurred in the context of mutual conflict between partners. These findings are to some extent consistent with conclusions drawn by Johnson and Ferraro (2000), who believe that there are multiple forms of domestic violence. The first type is common couple violence, which takes the form of sporadic episodes of violence between partners and is equally common among men and women. Other important forms of domestic violence include intimate terrorism (or control-motivated violence) perpetrated most often by men who are motivated to dominate and terrorize their partners, and violent resistance, also known as self-defense, perpetrated mostly by women in response to violence initiated by their partner. These latter, and more uncommon, forms of domestic violence possibly account for the gender differences evident in homicide, hospitalization, arrest, and refuge attendance statistics.

The results of the present study suggest that the issue of commonly occurring domestic violence may be better conceptualized as an issue relating to violent partnerships rather than violent individuals. These findings are broadly consistent with the results obtained from studies of other cohorts of young adults, where victimization rates were similar for both men and women and perpetration rates were higher for women than for men (Fagan & Browne, 1994; Magdol et al., 1997). This convergence between studies clearly suggests that among young adult populations, domestic violence victimization and perpetration is similar for both men and women.

As we noted earlier, there have been criticisms of findings suggesting similar patterns of domestic violence among men and women (Fagan & Browne, 1994; Saunders, 2002; Taft et al., 2001). In particular, these arguments have suggested that studies using the CTS fail to consider the consequential effects of domestic violence. To address these issues, we have examined three lines of evidence. The first line

of evidence concerned the extent to which men and women experienced physical injury as a result of domestic violence. Although only a minority of the cohort reported injury as a result of violence, the frequency of injury among men and women was similar. The second line of evidence concerned reports of fear of partner. Although fear of partner was a very uncommon response (reported by less than 2% of sample members), it was largely reported by women. These results clearly suggest that there is a gender difference in response to extreme physical violence, with women more often becoming fearful under these circumstances. The third line of evidence concerned the linkages between domestic violence and mental health, which are reviewed below. The weight of this evidence suggests that although there is some evidence to suggest that fearfulness of partner is a more common response in women than in men, in terms of responses to domestic violence including injury and psychological disorders, the outcomes investigated in this study tend to be similar for men and women.

Domestic Violence and Mental Health

There has been increasing interest in the extent to which exposure to domestic violence may contribute to mental ill health (see, e.g., Campbell, 2002; Golding, 1999; Hines & Malley-Morrison, 2001). The present study provided an opportunity to examine the extent to which exposure to domestic violence was associated with increased risks of common mental health problems including depression, anxiety, and suicidality. Analysis of the bivariate associations between domestic violence and these outcomes showed that with increased exposure to domestic violence, there were corresponding increases in rates of disorder: Those with the highest exposure to domestic violence victimization had rates of these disorders that were between 1.5 and 11.9 times higher than the rates of disorders of those with no exposure to domestic violence. Although overall rates of disorder varied with gender, there was no evidence of Gender $\times$ Domestic Violence interactions, suggesting that domestic violence victimization had similar effects on the mental health of men and women.

An important issue raised by the consistent association between mental health and domestic violence concerned the extent to which it reflected a cause and effect association in which exposure to domestic violence had provoked the onset of disorder. In particular, it could be suggested that the correlation between domestic violence and mental health reflected the presence of third or confounding factors that were associated with both domestic violence and mental health outcomes. The present study was well placed to address this issue owing to the availability of a large number of prospectively assessed covariate factors. Examination of this material showed that domestic violence was related to a large number of antecedent factors. These factors spanned (a) exposure to violence in childhood, (b) family dysfunction, (c) adjustment problems in adolescence, and (d) the early onset of psychiatric disorder. As a general rule, those with high exposure to domestic violence tended to have high exposure to many of these factors.

These findings raise the hypothesis that the associations between domestic violence and mental health outcomes were largely or wholly a reflection of the social, family, and related backgrounds of those exposed to this violence rather than being a direct consequence of exposure to domestic violence. To test this hypothesis, the associations between domestic violence victimization and mental health outcomes were adjusted for prospectively assessed covariate factors using regression methods. The results of this analysis showed that even following adjustment for a wide range of prospectively and concurrently assessed covariates, exposure to domestic violence remained significantly associated with increased risks of suicidal ideation and depression.

The weight of the evidence thus suggests that exposure to domestic violence may act as a provoking factor that leads to the onset of depression and suicidality in those exposed to this violence. These conclusions are consistent with a large body of evidence that has identified exposure to adverse life events as making a contribution to the onset of depression (Oakley-Browne, Joyce, Wells, Bushnell, & Hornblow, 1995) and suicidality (Beautrais, Joyce, & Mulder, 1997; Heikkinen, Isometsa, Aro, Sarna, & Lonnqvist, 1995). Furthermore, the evidence suggests that among young people, unsatisfactory or conflictual partner relationships are one of the most common forms of adversity to provoke such responses (Beautrais et al.). A possibility that requires further consideration,

however, is the extent to which there may be a reverse causal association between domestic violence and mental health in which the development of mental health problems leads to increased risks of domestic violence.

The findings of this study broadly support the conclusions of previous investigations suggesting that exposure to domestic violence may be a factor that contributes to mental ill health (Cascardi et al., 1999; Coker et al., 2002; Stets & Straus, 1990). The present study, however, has a number of methodological advantages over previous research in this area. These include the use of a representative sample of young adults, the availability of a moderately large sample, and the availability of a wide range of prospectively and concurrently assessed covariates, including mental health prior to the experience of domestic violence.

Limitations

The present study has a number of limitations. First and foremost, the results apply to a specific cohort studied at a specific time and in a specific societal context. There is some evidence to suggest that age is an important factor in domestic violence statistics. Domestic violence has shown to peak during the mid-20s, and decrease into old age (O'Leary, 1999). The extent to which the findings apply to other populations thus needs to be verified. Second, it is possible that a number of factors omitted from the analysis may explain the associations of domestic violence with mental health outcomes. The most important of these factors is likely to be nonobserved genetic factors that may shape the individual's predispositions to respond to environmental stressors, such as domestic violence. One method of addressing such confounding would be to employ a discordant twins design that compared the outcomes of monozygotic twin pairs discordant for exposure to domestic violence. This design permits the control of common genetic and common family factors (e.g., Kendler, 2003).

Third, despite the moderately large sample size, the study has been unable to examine extreme outcomes associated with domestic violence. These outcomes include death, severe injury, and severe psychological trauma. It is possible that the factors associated with these episodes of domestic violence may be different from the factors associated with the relatively mild incidents studied in this report. The possible role of sample attrition should also be borne in mind. As we report in the Method section, there was a small but detectable bias for the cohort to underrepresent socially disadvantaged individuals, and this may have adversely affected estimates of prevalence and association. At the same time, the application of sample bias correction methods suggested that the effects of any such bias on the major conclusions were likely to be small.

Finally, because the data depend on report data about events that are rarely directly observable, the accuracy of the findings depends on the accuracy with which respondents reported involvement in domestic violence. In previous research into child abuse, we have examined this issue using a test-retest paradigm in which respondents described their childhood experiences on two occasions (Fergusson, Horwood, & Woodward, 2000). Analysis of these data suggested that exposure to violence in childhood was underreported by 50%. The analysis also showed, however, that underreporting was not related to psychosocial factors. The effect of this was that although the prevalence of childhood violence was underestimated very substantially, the associations between exposure to childhood violence and mental health outcomes were not adversely affected by the underreporting. We conjecture that similar findings may apply to the reporting of domestic violence. Moreover, Straus et al. (1996) have shown that the CTS2, the self-report measure of domestic violence used in this study, had a reliability of .79–.95.

Policy Implications

The present study has a number of implications for policies relating to domestic violence. First and foremost, the results provide a further challenge to the dominant view that domestic violence is a "women's issue" and arises predominantly from assaults by male perpetrators on female victims. What the findings suggest is that among young adult populations, men and women are equally violent to intimate partners on the basis of reports of both victimization and perpetration for the range of domestic violence examined within this study. Furthermore, the spectrum of violence committed by men and women seems to be similar, and there is evidence suggesting that both men and women engage in serious acts of physical violence

against their partners. Finally, the consequences of domestic violence in terms of injury and psychological effects were similar for both men and women. The findings of the present study also show that domestic violence victimization was embedded in a wider context of psychosocial adversity that spanned childhood adversity, mental health problems, and related life course difficulties. Those individuals prone to violence victimization (and perpetration) tended to have high exposure to many adversities, and exposure to domestic violence appeared to be one component of a wider psychosocial history of disadvantage and difficulty.

These considerations suggest the need for a broadening of perspective in the field of domestic violence away from the view that domestic violence is usually a gender issue involving male perpetrators and female victims and toward the view that domestic violence most commonly involves violent couples who engage in mutual acts of aggression. There is increasing evidence to suggest that for the range of domestic violence examined within this study, domestic violence most often is an issue that affects couples and is often embedded in a more general context of psychological adversity (Moffitt, Robins, & Caspi, 2001; O'Leary, 2001). This conclusion implies a need for policies that encourage couples to work together to harmonize their relationships and to overcome the collective adversities that they face.

At the same time, there is clearly a need for further research to reconcile findings that suggest (a) the absence of gender differences in domestic violence involving mild or moderate assault and (b) a clear male predominance in incidents involving severe injury and death. As was evident from the present study, even with a moderately large sample, severe outcomes of domestic violence (e.g., hospitalization, death) were too infrequent for study. Such findings clearly suggest the need for studies with large ($N > 10{,}000$) samples or for stratified research designs involving the oversampling of high-risk groups to provide an in-depth analysis of the way in which the gender ratio in the perpetration of domestic violence varies with the severity of violence.

NOTE

This research was funded by grants from the Health Research Council of New Zealand, the National Child Health Research Foundation, the Canterbury Medical Research Foundation, and the New Zealand Lottery Grants Board.

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APPENDIX. CTS2 ITEM RESPONSE PROFILES ON VIOLENCE VICTIMIZATION AND VIOLENCE PERPETRATION REPORTS BY GENDER ($N = 828$)

Victimization Reports			Perpetration Reports		
Item: "Has your partner…"	Women	Men	Item: "Have you…"	Women	Men
Minor psychological aggression (%)			Minor psychological aggression (%)		
Cursed or sworn at you	51.0	56.0	Cursed or sworn at your partner	56.8	49.4
Shouted or yelled at you	46.9	52.4	Shouted or yelled at your partner	56.3	43.7
Stomped off during a disagreement	39.6	37.3	Stomped off during a disagreement	41.4	29.9
Deliberately said something to hurt you	26.1	21.2	Deliberately said something to hurt your partner	26.5	16.1
Any of the above	66.1	65.7	Any of the above	68.7	56.8
Mean number of incidents reported	10.6	12.7	Mean number of incidents reported	11.8	9.2
Severe psychological aggression (%)			Severe psychological aggression (%)		
Called you fat, ugly, or unattractive	5.3	4.6	Called your partner fat, ugly, or unattractive	3.0	4.1
Deliberately destroyed something belonging to you	4.1	4.4	Deliberately destroyed something belonging to your partner	3.9	1.8
Accused you of being a lousy lover	2.8	3.1	Accused your partner of being a lousy lover	2.8	0.5
Threatened to hit or throw something at you	4.6	10.0	Threatened to hit or throw something at your partner	4.1	4.4
Used threats to make you have sex	0.9	0	Used threats to make your partner have sex	0	0
Any of the above	9.2	15.4	Any of the above	9.1	6.9
Mean number of incidents reported	1.3	1.3	Mean number of incidents reported	0.7	0.5
Minor physical assault (%)			Minor physical assault (%)		
Physically twisted your arm or hair	3.0	2.3	Physically twisted your partner's arm or hair	1.1	1.8
Pushed or shoved you	6.2	7.9	Pushed or shoved your partner	4.8	4.9
Slapped you	3.2	7.9	Slapped your partner	4.8	4.9
Grabbed or shaken you	3.7	2.1	Grabbed or shaken your partner	1.6	2.6
Thrown an object at you	3.2	6.1	Thrown an object at your partner	3.2	1.8
Any of the above	7.3	11.3	Any of the above	5.5	6.7
Mean number of incidents reported	1.3	1.1	Mean number of incidents reported	0.8	0.2
Severe physical assault (%)			Severe physical assault (%)		
Choked or strangled you	1.4	0.8	Choked or strangled your partner	0.5	0
Kicked you	1.6	4.1	Kicked your partner	1.4	0.8
Punched or hit you with something	2.5	6.1	Punched or hit your partner with something	2.1	1.0
Slammed you against a wall	2.1	0.3	Slammed your partner against a wall	0.5	1.0
Burned or scalded you on purpose	0	0.3	Burned or scalded your partner on purpose	0	0
Beaten you up	1.1	0.8	Beaten your partner up	0.5	0
Used a knife or gun on you	0	0.3	Used a knife or gun on your partner	0	0
Physically forced sex on you	0.5	0.5	Physically forced sex on your partner	0	0
Any of the above	3.4	7.7	Any of the above	3.2	2.8
Mean number of incidents reported	0.4	0.7	Mean number of incidents reported	0.2	0.1