CRIME AND JUSTICE
Bulletin

Predicting Violence Against Women: The 1996 Women's Safety Survey

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INTRODUCTION

Historically, most societies have been patriarchal and in such societies violence against women by their spouses has tended to be regarded as neither abhorrent nor unjustified.[1] It was not until the Women's Movement in the second half of the present century that substantial changes in social attitudes toward domestic violence against women began to occur in many countries including Australia.[2] This reform process has usually involved a growth of political interest in women's issues, changes to the law and to police and court procedures designed to further protect women from violence, and improved services for women victims of violence.

In Australia, recent reforms in the political arena have included the establishment of National and State government bodies concerned specifically with women's issues, including the issue of violence against women. For example, the National Committee on Violence Against Women was established in 1990 to develop a national strategy on violence against women which would guide research, policy, legislation, law enforcement, community services and community education. Recent legislative reforms in Australia have included revising the sexual assault laws in order to 'protect the victims … from victimization under the legal process … [and] to facilitate … the conviction of guilty offenders';[3] and offering legal protection

for persons who fear future violence, such as domestic violence, in the form of court orders, such as *Apprehended Violence Orders.* Reforms to victim services have included the establishment of rape crisis centres, sexual assault centres and support services such as temporary housing services; the improvement of services provided by the police and the courts; and the development of written guidelines for the response of health professionals, the police and the courts to victims.[4] Finally, the reform process in Australia has involved community awareness programs such as media campaigns aimed at reducing the tolerance of violence against women and educating the public about the availability of services for victims.

Within this climate of political and social reform, the importance of understanding the nature of (both domestic and non-domestic) violence against Australian women has become paramount. Up until recently, only relatively limited information on the nature and prevalence of violence against Australian women was available from crime victim surveys periodically conducted by the Australian Bureau of Statistics (ABS), from police and court statistics, and from small, non-representative studies undertaken by researchers in the field. By the early 1990s it had become clear that to understand the nature, extent and causes of violence against women in Australia it would be necessary to collect comprehensive national data on the issue.

Such comprehensive national data would be extremely useful not only in measuring the extent of violence against women in Australia, but also in targeting prevention programs at women most at risk of violence, assessing the adequacy of the recent reforms in meeting the needs of women victims of violence, and determining the extent to which further reforms were warranted.

Nationally representative surveys to determine the prevalence of violence against women have been conducted in both the United States (US) and Canada over the last few decades. In the US, large-scale representative sample surveys were conducted in 1975 and 1985 involving, respectively, 2,143 and 3,520 households that included married or cohabiting persons. These surveys found that about 11 or 12 per cent of women who were married or co-habiting had experienced some form of violence from their partner in the previous 12 months.[5]

In Canada, the first large-scale survey examining violence against women was conducted in 1993.[6] The survey involved telephone interviews with 12,300 randomly selected women who were married or living in a common-law relationship. Three per cent of these women had experienced some form or physical or sexual violence from their partner in the previous 12 months, and over one-quarter had experienced some form of physical or sexual violence during the relationship.[7]

THE ABS WOMEN'S SAFETY SURVEY

In 1992, the National Committee on Violence Against Women recommended that a similar survey be developed to measure the levels and types of violence against women in Australia, and to 'assist in the development and evaluation of policies and programs related to women's experience of violence and to the prevention of violence against women'.[8] In 1996, following extensive consultation with interest groups from around Australia, the ABS conducted the Women's Safety Survey, the first nationally representative sample survey which specifically focused on violence against women. The results of the Survey were published in an ABS report in December 1996.[9]

The Women's Safety Survey was cross-sectional in nature, measuring, on the one occasion, different types of violence. It was conducted, throughout Australia, during February to April 1996 in the form of personal or telephone interview by trained interviewers. The Survey was not compulsory and was conducted in private to ensure confidentiality.

A representative sample of women in private dwellings was selected from both urban and rural areas throughout Australia. Approximately 6,300 women aged 18 years or over were interviewed in total, representing a response rate of 78 per cent.

The instrument

Types of violence

The Survey focused on the measurement of physical and sexual violence. The term 'physical violence' refers both to actual physical assaults and to attempted or threatened physical assaults. Similarly, 'sexual violence' incorporates both sexual assaults and threatened sexual assaults. 'Physical assault' was defined as the use of physical force with the intent to harm or frighten. 'Sexual assault' was defined as an act of a sexual nature carried out against the woman's will through the use of physical force, intimidation or coercion. Physical and sexual violence were examined both over the 12 months prior to the Survey and from the age of 15 years.

Other types of violence or abuse measured included emotional abuse. 'Emotional abuse' measured whether the woman had experienced manipulation, isolation or intimidation by a current male partner. For example, this variable examined whether the current male partner had insulted the woman with the intent to shame, belittle or humiliate; or had persistently tried to prevent contact with family or friends, prevent knowledge about or access to family money, or prevent use of the telephone or family car.

Potential predictors of violence

A number of demographic variables were examined, including the victim's age, birthplace, educational attainment, labour force status, income and marital status. Whether the victim had been physically or sexually abused as a child (before the age of 15 years) was also examined.

Responses to violence

The Survey examined, for both physical and sexual violence, whether the last incident of violence in the 12 months prior to the Survey (a) had been reported by the victim to the police, and (b) resulted in the victim using any of a number of services (such as health, legal or financial services).

The effects on a woman's life as a result of the last incident of physical or sexual violence in the previous 12 months were also examined.

Prevalence of violence: ABS report

Appropriate weights were applied to the Survey data to enable estimates of the prevalence of violence against all Australian women aged 18 years or over to be calculated.[10]

During the 12 months prior to the Survey, it was estimated that 7.1 per cent of Australian women aged 18 years or over had experienced an incident of violence, that is, an actual or attempted/threatened assault of either a physical or sexual nature. Physical violence over the previous 12 months was experienced by an estimated 5.9 per cent of women, with 5.0 per cent of all women experiencing an

actual physical assault and 4.1 per cent experiencing an attempted or threatened physical assault. Sexual violence over the previous 12 months was experienced by an estimated 1.9 per cent of women, with 1.5 per cent of all women experiencing a sexual assault and 0.7 per cent experiencing a threatened sexual assault.

As the above percentages indicate, a substantial proportion of women experienced repeat victimization.[11] Of those women who had experienced either physical or sexual violence since the age of 15 years, it was estimated that over half (51.6%) had experienced more than one incident of violence. Almost one-third (32.8%) of the women who had experienced physical violence since the age of 15 years had experienced more than one incident of physical violence. Nearly half (44.5%) of the women who had experienced sexual violence since the age of 15 years had experienced more than one incident of sexual violence.

As with its overseas counterparts, the Women's Safety Survey found that a significant proportion of the violence against Australian women was perpetrated by current male partners. The Survey found that an estimated 2.6 per cent of women who were married or in a de facto relationship had experienced an incident of physical or sexual violence by their partner in the previous 12 months, while 8.0 per cent had experienced an incident of physical or sexual violence at some time during their current relationship.[12]

Furthermore, it was estimated that 8.8 per cent of women with a current male partner had suffered emotional abuse from their partner during their current relationship.

Predictors of violence: ABS report

The ABS report also showed that violence against women is related to a number of variables, when each variable is considered on its own.

According to the ABS report, a woman's age, birthplace, educational attainment, labour force status and marital status were all apparently related to whether or not she experienced physical or sexual violence in the 12 months prior to the

Survey. The risk of experiencing both types of violence was found to be higher for younger women, for those born in Australia (rather than overseas), for those with a diploma or vocational training, for those who were unemployed and for those who were single.

It was also found that women who had experienced abuse as a child were more likely than those who had not experienced such abuse to experience both physical violence and sexual violence after the age of 15 years.

THE PRESENT STUDY

AIMS

The ABS findings on the predictors of violent victimization are extremely interesting. However, one of the most significant limitations of the ABS Survey report is that it does not examine the question of whether each of the risk factors associated with violence against women continues to predict violence when the influence of other variables is considered. Thus, it is not clear whether the relationship of each predictor variable with violence can be explained by the relationship of this predictor variable with some other variable or variables.

Consider an example. The ABS report shows that violence is related to both age and marital status, with the prevalence of violence over the 12 months prior to the Survey being apparently higher for younger women compared with older women and for unmarried women compared with married women. These bivariate relationships may reflect the possibility that a woman's age and marital status are *both* important in *determining* the likelihood of the woman experiencing violence. However, there are other possibilities. One alternative, for example, is that only age is important, and that marital status showed a relationship to violence simply because of its relationship to age. That is, unmarried women may have been more likely to experience violence *only* because a substantial proportion of unmarried women are young, and it is being young that increases women's risk of violence.[13]

The practical implications of the two alternatives presented above are different. If the first alternative is correct, prevention programs aimed at high-risk women would be advised to target both young women and unmarried women. If the second alternative is correct, it would be particularly important to target young women.

Multivariate statistical techniques can be used to test such alternative explanations. That is, such techniques can determine whether variables which show a bivariate association with violence continue to predict violence in the presence of other variables. The major aim of the present bulletin is to examine whether variables showing bivariate associations with violence in the ABS report predict violence when the influence of other variables is also taken into account. Although the relationship of income to violence is not presented in the ABS report, level of income and main source of income are included as potential predictor variables in the present study because previous research has shown a relationship between socioeconomic disadvantage and crime.[14]

More specifically, the present bulletin uses multivariate techniques to examine the relationship of violence to each of the following potential *predictor variables*, controlling for the remaining variables:

- the victim's age in years,
- the victim's birthplace (i.e. country of birth),
- the victim's educational attainment,
- the victim's labour force status,
- the victim's marital status,
- the victim's income level,
- the victim's main source of income,
- the victim's experience of childhood physical abuse,
- the victim's experience of childhood sexual abuse, and
- the victim's experience of violence since the age of 15 years.

The ability of the above-listed variables to predict each of the following *types of violence* is considered:

- physical violence in the last 12 months,
- sexual violence in the last 12 months,
- emotional abuse by current male partner in the last 12 months, and
- multiple (i.e. two or more) incidents of violence since the age of 15 years.[15]

It should be noted that the ABS report does not present the bivariate relationships of each potential predictor variable with either emotional abuse or multiple incidents of violence.

DATA ANALYSIS

Measurement of variables

Data from the Survey were obtained from the ABS in the form of a confidentialized unit record file.[16] With the exception of educational attainment, level of income and main source of income, all predictor variables and violence variables used in the present bulletin are in the original form provided by the ABS, and are described in the ABS report. As a result, only brief descriptions of the variables are provided below.

Types of violence

The measurement of 'physical violence', 'sexual violence' and 'emotional abuse' was as described earlier. 'Multiple incidents of violence since the age of 15 years' measured the number of incidents of violence, whether physical violence or sexual violence, experienced since the age of 15 years, including any incidents of violence experienced in the last 12 months. (For further details on the multiple incidents of violence variable, see the *Data analysis* section of the *Appendix*.) Note that physical violence, sexual violence and multiple incidents of violence included both male and female perpetrated violence whereas emotional abuse was restricted to abuse by the current male partner.

Potential predictors of violence

Any variations to the predictor variables from those provided by the ABS are noted below.

'Age' was the age in years of the woman at the time of the Survey, and was grouped into 18 to 24 years, 25 to 29 years, 30 to 34 years, 35 to 44 years, 45 to 54 years, 55 to 59 years and 60 years or over.

'Birthplace' categorized the country of birth of the woman as either 'Australia', 'other English speaking country' or 'other non-English speaking country'.

'Educational attainment' measured the highest level of educational qualification completed. The original ABS variable was collapsed into four categories: 'degree' (which included undergraduate degree and higher degree), 'diploma' (which included diploma and associate diploma), 'vocational training' (which included basic and skilled vocational training) and 'no post-school education'.

'Labour force status' examined whether the woman was 'employed', 'unemployed' or 'not in the labour force'.

'Marital status' examined whether the woman was 'married', in a 'de facto relationship', 'separated', 'divorced', 'widowed' or 'never married'.

The woman's 'level of income' was derived from two variables provided by the ABS, one measuring the woman's personal income and the other measuring the joint income of the woman and her married or de facto partner. The 'level of income' variable used in the present analysis had six levels and took on either the value for the woman's personal income if she was not currently married or in a de facto relationship, or the value of the joint income if she was currently married or in a de facto relationship. (For further details of the level of income variable, see the *Data analysis* section of the *Appendix*.)

'Main source of income' in the present analysis combined the ABS 'wage' and 'salary' categories into a single 'wage or salary' category and included the other ABS categories in their original forms: 'own business', 'family payment', 'other government benefit', 'other source' and 'not applicable'. (For further details, see the *Appendix*.)

'Childhood physical abuse' and 'childhood sexual abuse' referred to abuse experienced before the age of 15 years from any adult (male or female), including a parent. 'Childhood physical abuse' was defined as any deliberate physical injury inflicted by an adult. 'Childhood sexual abuse' was defined as involving a child in sexual processes beyond their understanding or contrary to currently accepted community standards.

'Prior adult violence' included both physical and sexual violence (as already described) experienced since the age of 15 years but not in the last 12 months.

Multivariate technique

Logistic regression models were fitted to the data using the backward regression technique to determine the best fit.[17] A separate model was fitted for each type of violence with each model initially including all potential predictors simultaneously. This technique determines the association of each potential predictor to each violence type when the effects of other potential predictors are taken into account. Potential predictors which fail to predict violence in the presence of other predictors can be ruled out as likely independent causes of violence. However, the causal status of predictors of violence cannot be determined from the present study due to its cross-sectional nature.

Age and level of income were treated as ordinal variables by the analysis. All other potential predictors were categorical (i.e. had discrete, non-ordinal categories).

The association of each categorical predictor to each violence type was examined through one or more comparisons, depending on the number of categories. (See the *Multivariate technique* section of the *Appendix* for the derivation of these comparisons.) To give an example, two comparisons were examined for the birthplace predictor. The first comparison examined whether victimization was associated more with being born in Australia rather than with being born in another English speaking country (or vice versa). The second comparison examined whether victimization was associated more with being born in Australia rather than with being born in a non-English speaking country (or vice versa). The comparisons used for all significant categorical predictors are listed in the tables for each

model in the *Results* section. For each comparison, these tables present the odds ratio and its associated 95 per cent confidence interval.

The odds ratio is a ratio of two sets of odds. For example, for the first comparison described above, the odds ratio compares the odds of becoming a victim for women born in Australia with those for women born in another English speaking country.[18] An odds ratio that is not significantly different from the value of one would suggest that there is no real difference between these two sets of odds. An odds ratio that is significantly greater than one would suggest that the first set of odds (for Australian-born women) is higher than the second set of odds (for women born in another English speaking country). Conversely, an odds ratio that is significantly less than one would suggest that the first set of odds is lower than the second.

The statistical significance of the odds ratios is examined at the 0.05 level. The 95 per cent confidence interval associated with each odds ratio provides, with 95 per cent certainty, the range of values the odds ratio could take.

The association of the ordinal variables, age and level of income, with each violence type was not examined through a number of comparisons. Rather, the multivariate analysis simply examined whether a woman's risk of becoming a victim of violence tended to increase or decrease with each increasing level of the variable. For the ordinal variables, a statistic equivalent to an odds ratio is calculated. This statistic is calculated in the same way that an odds ratio is calculated for categorical predictors.[19] However, given that this statistic summarizes the relationship among three or more levels of a predictor, it does not represent a ratio of two sets of odds. If this odds ratio equivalent is greater than one, risk increases as the level of the variable increases (e.g. with increasing age). If this odds ratio equivalent is less than one, risk decreases as the level of the variable increases. The significance of the relationship between each ordinal variable and each violence type was examined at the 0.05 level. Further details of the multivariate technique are provided in the *Appendix*.

Once the variables which predict violence independently of other variables have been identified, it is useful to examine the percentages of certain categories of women who experienced violence. Thus, in addition to the multivariate results, the *Results* section below presents the bivariate cross-tabulations of each violence type with each significant predictor.[20]

Finally, for physical and sexual violence in the last 12 months, the *Results* section presents the estimated probability of victimization given different combinations of significant predictors (i.e. significant risk factors). For each of these violence types, the probability of victimization is simply calculated by substituting the obtained parameter estimates (βs) for the significant predictors of interest back into the multivariate model for that violence type.

RESULTS

The *Results* section of the *Appendix* presents more detailed statistics for each multivariate model than are presented below.

Physical violence in the last 12 months

Table 1 presents the odds ratios for the multivariate model examining physical violence in the last 12 months. Only significant predictors are included in the table.[21] Thus, in the presence of all the potential predictors examined, age, educational attainment, marital status, childhood physical abuse, prior adult violence and main source of income all predicted whether or not women had experienced physical violence in the last 12 months. Controlling for other variables, birthplace, labour force status, childhood sexual abuse and level of income did not predict physical violence in the last 12 months.

For a given categorical predictor, the odds ratios for different comparisons reveal which comparisons were significant, and the direction and magnitude of these relationships. For a given comparison, if the odds ratio is greater than one, the odds for the first-listed category are greater than the odds for the second-

listed category. If the odds ratio is less than one, the odds for the first category are lower than those for the second category. For example, the odds of a woman who is separated being a victim of physical violence in the last 12 months were 2.6 times greater than the odds of a married woman being such a victim. The odds of a widowed woman being a victim of physical violence in the last 12 months were about one-third (0.3) those of a married woman being such a victim.

Similarly, the odds of being a victim of physical violence in the last 12 months were 1.5 times greater for women with a diploma than for women with school education; 2.3 times greater for women who had experienced childhood physical abuse than for those who had not; and 1.6 times greater for women who had experienced prior adult violence than for those who had not. Women whose main source of income was family payment, women whose main source of income was a wage or salary, and women whose main source of income was their own business all had lower odds of being a

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Table 1: Predictors of physical violence in the last 12 months

Predictor	Comparison	Odds ratio[a]	95% confidence interval
Increasing age	-	0.7[b]	0.7 - 0.8
Educational attainment	degree versus school education	ns	
	diploma versus school education	1.5	1.1 - 2.1
	vocational training versus school education	ns	
Marital status	de facto relationship versus married	1.6	1.1 - 2.3
	separated versus married	2.6	1.7 - 4.0
	divorced versus married	ns	
	widowed versus married	0.3	0.1 - 0.9
	never married versus married	1.7	1.3 - 2.4
Childhood physical abuse	childhood physical abuse versus no childhood physical abuse	2.3	1.7 - 3.0
Prior adult violence	prior adult violence versus no prior adult violence	1.6	1.2 - 2.0
Main source of income	family payment versus other government benefit	0.5	0.3 - 0.8
	wage or salary versus other government benefit	0.6	0.5 - 0.9
	own business versus other government benefit	0.4	0.2 - 0.8
	other source versus other government benefit	ns	
	not applicable versus other government benefit	ns	

a 'ns' indicates the odds ratio was not statistically significant (i.e. not statistically different from 1.0).

b This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally decrease to only 70 per cent those of the previous age group.

Table 2a: Cross-tabulation of physical violence in the last 12 months by age group

Victim of physical violence in the last 12 months	Age (years)									
	18 to 24		25 to 34		35 to 44		45 to 54		55 or over	
	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes	16.1	(112)	8.4	(124)	5.3	(78)	3.7	(40)	1.1	(18)
No	83.9	(583)	91.6	(1,352)	94.7	(1,389)	96.3	(1,034)	98.9	(1,603)
Total	100.0	(695)	100.0	(1,476)	100.0	(1,467)	100.0	(1,074)	100.0	(1,621)

Table 2b: Cross-tabulation of physical violence in the last 12 months by educational attainment

Victim of physical violence in the last 12 months	Educational attainment							
	Degree		Diploma		Vocational training		School education	
	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes	5.1	(42)	8.4	(51)	6.1	(79)	5.5	(200)
No	94.9	(787)	91.6	(559)	93.9	(1,208)	94.5	(3,407)
Total	100.0	(829)	100.0	(610)	100.0	(1,287)	100.0	(3,607)

victim of physical violence than did women whose main source of income was 'other government benefit'.

For the ordinal variable of age, the odds of being a victim of physical violence in the last 12 months decreased with age. The odds ratio equivalent reveals that, generally, the odds of victimization for the oldest age group (60 years or over) were only 70 per cent those of the next age group (55 to 59 years), which in turn were only 70 per cent those of the next age group (45 to 54 years), and so on.

Tables 2a to 2f present the cross-tabulations of physical violence in the last 12 months with each of its significant predictors. It should be noted that these cross-tabulations do not take into account the effects of the other significant predictors on physical violence in the last 12 months. Nonetheless, it is useful to examine the number and percentage of respondents in each category of each significant predictor who experienced physical violence in the last 12 months.

Table 2a shows that 16.1 per cent of women aged 18 to 24 years were victims

of physical violence in the last 12 months compared with no more than 8.4 per cent of every other age group. Table 2b shows that 8.4 per cent of women with a diploma were victims of physical violence in the last 12 months compared with no more than 6.1 per cent of women with any other level of educational attainment. Less than four per cent of married women experienced violence in the last 12 months compared with over 11 per cent of women who were in a de facto relationship, were separated or had never married (see Table 2c).

Table 2c: Cross-tabulation of physical violence in the last 12 months by marital status

Victim of physical violence in the last 12 months	Marital status											
	De facto		Separated		Divorced		Widowed		Never married		Married	
	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes	11.4	(46)	14.2	(34)	5.8	(22)	0.7	(4)	13.3	(127)	3.7	(139)
No	88.6	(357)	85.8	(206)	94.2	(358)	99.3	(566)	86.7	(828)	96.3	(3,646)
Total	100.0	(403)	100.0	(240)	100.0	(380)	100.0	(570)	100.0	(955)	100.0	(3,785)

Table 2d: Cross-tabulation of physical violence in the last 12 months by childhood physical abuse

| | Childhood physical abuse | | | |
| | Yes | | No | |
Victim of physical violence in the last 12 months	%	(No.)	%	(No.)
Yes	15.1	(86)	5.0	(286)
No	84.9	(485)	95.0	(5,476)
Total	100.0	(571)	100.0	(5,762)

Table 2e: Cross-tabulation of physical violence in the last 12 months by prior adult violence

| | Prior adult violence | | | |
| | Yes | | No | |
Victim of physical violence in the last 12 months	%	(No.)	%	(No.)
Yes	9.0	(212)	4.0	(160)
No	91.0	(2,157)	96.0	(3,804)
Total	100.0	(2,369)	100.0	(3,964)

Physical violence in the last 12 months was experienced by 15.1 per cent of women who had experienced physical abuse as a child but only 5.0 per cent of women who had not (see Table 2d), and by 9.0 per cent of women who had experienced prior adult violence compared with 4.0 per cent of women who had not (see Table 2e).

Although, according to the multivariate analysis, main source of income was a significant predictor of being a victim of

physical violence in the last 12 months, the bivariate percentages (presented in Table 2f) were not always in the expected direction. Specifically, while the odds of being such a victim were lower for women whose main source of income was a wage or salary than for those whose main source of income was 'other government benefit', the percentage of such victims from the former group was slightly higher (6.8%) than that from the latter group (6.4%). These findings for

main source of income show the importance of conducting multivariate analyses that control for other variables given that solely relying on the bivariate results for this variable would have been misleading.[22]

Sexual violence in the last 12 months

Table 3 presents the odds ratios for the significant multivariate predictors of experiencing sexual violence in the last 12 months.[23] Tables 4a to 4d present the bivariate cross-tabulations of sexual violence in the last 12 months with each of its significant predictors.[24]

Table 3 reveals that age, marital status, childhood sexual abuse and prior adult violence each predicted sexual violence in the last 12 months, controlling for the remaining potential predictors. Birthplace, educational attainment, labour force status, level of income, main source of income and childhood physical abuse did not predict sexual violence in the last 12 months in the presence of the other variables.

As with physical violence in the last 12 months, the odds of victimization for sexual violence in the last 12 months decreased with age such that the odds for each age group were generally only 70 per cent those of the next youngest age group (see Table 3). Over four per cent of 18 to 24 year old respondents had experienced sexual violence in the last 12 months compared with no more than one per cent of respondents aged 45 years or over (see Table 4a).

Table 2f: Cross-tabulation of physical violence in the last 12 months by main source of income

| | Main source of income | | | | | | | | | | | |
| | Family payment | | Other government benefit | | Wage or salary | | Own business | | Other source | | Not applicable | |
Victim of physical violence in the last 12 months	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes	5.2	(28)	6.4	(110)	6.8	(198)	2.8	(11)	3.0	(14)	3.4	(11)
No	94.8	(507)	93.6	(1,607)	93.2	(2,708)	97.2	(376)	97.0	(447)	96.6	(316)
Total	100.0	(535)	100.0	(1,717)	100.0	(2,906)	100.0	(387)	100.0	(461)	100.0	(327)

Table 3: Predictors of sexual violence in the last 12 months

Predictor	Comparison	Odds ratio[a]	95% confidence interval
Increasing age	-	0.7[b]	0.6 - 0.8
Marital status	de facto relationship versus married	ns	
	separated versus married	4.7	2.4 - 8.9
	divorced versus married	3.2	1.6 - 6.2
	widowed versus married	ns	
	never married versus married	2.9	1.7 - 4.8
Childhood sexual abuse	childhood sexual abuse versus no childhood sexual abuse	2.0	1.3 - 3.1
Prior adult violence	prior adult violence versus no prior adult violence	2.6	1.7 - 4.0

a   'ns' indicates the odds ratio was not statistically significant (i.e. not statistically different from 1.0).

b   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally decrease to only 70 per cent those of the previous age group.

Compared with married women, the odds of being a victim of sexual violence in the last 12 months were 4.7 times greater for women who were separated, 3.2 times greater for women who were divorced and 2.9 times greater for women who had never married (see Table 3). Less than one per cent of married respondents had experienced sexual violence in the last 12 months compared with at least 3.4 per cent of separated, divorced and never married women (see Table 4b).

Sexual violence in the last 12 months was more prevalent among women who had experienced childhood sexual abuse compared with those who had not, and among those who had experienced prior adult violence compared with those who had not (see Tables 3, 4c and 4d).

Emotional abuse by current male partner in the last 12 months

Table 5 presents the multivariate model for experiencing emotional abuse by a

Table 4a: Cross-tabulation of sexual violence in the last 12 months by age group

	Age (years)									
	18 to 24		25 to 34		35 to 44		45 to 54		55 or over	
Victim of sexual violence in the last 12 months	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes	4.3	(30)	2.6	(39)	2.1	(31)	1.0	(11)	0.2	(4)
No	95.7	(665)	97.4	(1,437)	97.9	(1,436)	99.0	(1,063)	99.8	(1,617)
Total	100.0	(695)	100.0	(1,476)	100.0	(1,467)	100.0	(1,074)	100.0	(1,621)

Table 4b: Cross-tabulation of sexual violence in the last 12 months by marital status

	Marital status											
	De facto		Separated		Divorced		Widowed		Never married		Married	
Victim of sexual violence in the last 12 months	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes	2.0	(8)	5.8	(14)	3.4	(13)	0.7	(4)	4.6	(44)	0.9	(32)
No	98.0	(395)	94.2	(226)	96.6	(367)	99.3	(566)	95.4	(911)	99.2	(3,753)
Total	100.0	(403)	100.0	(240)	100.0	(380)	100.0	(570)	100.0	(955)	100.0	(3,785)

Table 4c: Cross-tabulation of sexual violence in the last 12 months by childhood sexual abuse

| Victim of sexual violence in the last 12 months | Childhood sexual abuse | | | |
| | Yes | | No | |
	%	(No.)	%	(No.)
Yes	4.5	(32)	1.5	(83)
No	95.5	(678)	98.5	(5,540)
Total	100.0	(710)	100.0	(5,623)

Table 4d: Cross-tabulation of sexual violence in the last 12 months by prior adult violence

| Victim of sexual violence in the last 12 months | Prior adult violence | | | |
| | Yes | | No | |
	%	(No.)	%	(No.)
Yes	3.3	(79)	0.9	(36)
No	96.7	(2,290)	99.1	(3,928)
Total	100.0	(2,369)	100.0	(3,964)

current male partner in the last 12 months.[25] Tables 6a to 6d present the bivariate cross-tabulations of emotional abuse by current male partner in the last 12 months with each predictor that was significant in the multivariate model.[26]

In the multivariate model, educational attainment, labour force status, marital status, income level, main source of income and childhood sexual abuse did not predict emotional abuse by current male partner in the last 12 months.

Again, as with physical violence and sexual violence in the last 12 months, the odds of emotional abuse by a current male partner in the last 12 months decreased with age (see Table 5). For example, 9.1 per cent of 18 to 24 year old respondents had experienced emotional abuse by their current male partner compared with only 2.5 per cent of respondents aged 55 years or over (see Table 6a).

Birthplace was also significant in the multivariate model. The odds of women

born in an English speaking country other than Australia experiencing emotional abuse by their current male partner in the last 12 months were half those of women born in Australia, controlling for other variables (see Table 5). Over five per cent of Australian-born respondents had experienced such abuse compared with 2.8 per cent of respondents born in another English speaking country (see Table 6b).

Finally, both childhood physical abuse and prior adult violence were associated with increased risk of emotional abuse by current male partner in the last 12 months (see Tables 5, 6c and 6d).

Multiple incidents of violence since 15 years of age

While the multivariate analyses for the violence types examined thus far were based on the entire sample, those for multiple incidents of violence were restricted to the women in the sample who had experienced at least one incident of violence since the age of 15 years. Table 7 presents the multivariate model for experiencing multiple (i.e. two or more) incidents of violence since the age of 15 years compared with one such incident.[27] Tables 8a to 8d present, for victims, the bivariate cross-tabulations of multiple incidents of violence since the age of 15 years with each predictor that was significant in the multivariate model.[28]

Table 7 shows that age, marital status, childhood physical abuse and childhood sexual abuse were all significant multivariate predictors of multiple incidents

Table 5: Predictors of emotional abuse by current male partner in the last 12 months

Predictor	Comparison	Odds ratio[a]	95% confidence interval
Increasing age	-	0.9[b]	0.8 - 1.0
Birthplace	other English speaking country versus Australia	0.5	0.2 - 0.8
	non-English speaking country versus Australia	ns	
Childhood physical abuse	childhood physical abuse versus no childhood physical abuse	2.5	1.7 - 3.7
Prior adult violence	prior adult violence versus no prior adult violence	3.8	2.7 - 5.3

a   'ns' indicates the odds ratio was not statistically significant (i.e. not statistically different from 1.0).

b   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally decrease to only 90 per cent those of the previous age group.

Table 6a: Cross-tabulation of emotional abuse by current male partner in the last 12 months by age group

	Age (years)								
	18 to 24		25 to 34		35 to 44		45 to 54		55 or over	
Victim of emotional abuse by current male partner in the last 12 months	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes	9.1	(20)	5.2	(54)	5.6	(61)	3.8	(30)	2.5	(21)
No	91.9	(201)	94.8	(993)	94.4	(1,020)	96.2	(767)	97.5	(829)
Total	100.0	(221)	100.0	(1,047)	100.0	(1,081)	100.0	(797)	100.0	(850)

Table 6b: Cross-tabulation of emotional abuse by current male partner in the last 12 months by birthplace

	Birthplace					
	Other English speaking country		Non-English speaking country		Australia	
Victim of emotional abuse by current male partner in the last 12 months	%	(No.)	%	(No.)	%	(No.)
Yes	2.8	(14)	3.6	(26)	5.3	(146)
No	97.2	(486)	96.4	(691)	94.8	(2,633)
Total	100.0	(500)	100.0	(717)	100.0	(2,779)

Table 6c: Cross-tabulation of emotional abuse in the last 12 months by childhood physical abuse

	Childhood physical abuse			
	Yes		No	
Victim of emotional abuse by current male partner in the last 12 months	%	(No.)	%	(No.)
Yes	14.1	(43)	3.9	(143)
No	86.0	(264)	96.1	(3,546)
Total	100.0	(307)	100.0	(3,689)

Table 6d: Cross-tabulation of emotional abuse in the last 12 months by prior adult violence

	Prior adult violence			
	Yes		No	
Victim of emotional abuse by current male partner in the last 12 months	%	(No.)	%	(No.)
Yes	9.6	(125)	2.3	(61)
No	90.4	(1,179)	97.7	(2,631)
Total	100.0	(1,304)	100.0	(2,692)

of violence since the age of 15 years, whereas birthplace, educational attainment, labour force status, income level and main source of income were not.[29]

The odds ratio equivalent suggests that the odds of multiple incidents of violence since the age of 15 years generally increase as age increases (see Table 7). Table 8a shows that 59.6 per cent of victims aged 18 to 24 years had experienced multiple incidents of violence since the age of 15 years compared with at least 65.0 per cent of victims aged 25 to 54 years.

It should be noted that, while experiencing multiple incidents of violence *since the age of 15 years* increased with age, experiencing physical violence, sexual violence and emotional abuse *in the last 12 months* decreased with age. However, it should be stressed that these results are not incongruous. Firstly, the analysis for multiple incidents was restricted to victims whereas the analyses for the other violence types were based on all respondents. Furthermore, regardless of the risk of victimization according to age

Table 7: Predictors of multiple incidents of violence since 15 years

Predictor	Comparison	Odds ratio[a]	95% confidence interval
Increasing age	-	1.1[b]	1.0 - 1.1
Marital status	de facto relationship versus married	2.1	1.5 - 2.9
	separated versus married	2.1	1.5 - 3.1
	divorced versus married	2.8	2.0 - 3.8
	widowed versus married	ns	
	never married versus married	1.5	1.2 - 1.9
Childhood physical abuse	childhood physical abuse versus no childhood physical abuse	1.8	1.4 - 2.3
Childhood sexual abuse	childhood sexual abuse versus no childhood sexual abuse	1.7	1.4 - 2.2

a   'ns' indicates the odds ratio was not statistically significant (i.e. not statistically different from 1.0).

b   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally increase to 110 per cent those of the previous age group.

Table 8a: Cross-tabulation of multiple incidents of violence since 15 years by age group

Victim of multiple incidents of violence since 15 years	Age (years)									
	18 to 24		25 to 34		35 to 44		45 to 54		55 or over	
	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes (2+ incidents)	59.6	(205)	65.0	(456)	66.1	(444)	66.9	(307)	63.2	(237)
No (1 incident)	40.4	(139)	35.0	(246)	33.9	(228)	33.1	(152)	36.8	(138)
Total	100.0	(344)	100.0	(702)	100.0	(672)	100.0	(459)	100.0	(375)

over a fixed period of time such as the last 12 months, it would be expected that the risk of multiple incidents since the age of 15 years would generally increase with age simply because the time period over which such incidents could occur has increased.[30]

Compared with married women, the odds of multiple incidents of violence since 15 years were greater for women in a de facto relationship, separated women, divorced women and women who had never married (see Table 7). Fifty-eight per cent of married victims had

experienced such multiple incidents of violence compared with at least 64.8 per cent for each of these other marital status groups (see Table 8b).

Multiple incidents of violence since the age of 15 years were also more prevalent among women victims who had

Table 8b: Cross-tabulation of multiple incidents of violence since 15 years by marital status

Victim of multiple incidents of violence since 15 years	Marital status											
	De facto		Separated		Divorced		Widowed		Never married		Married	
	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)
Yes (2+ incidents)	72.8	(190)	75.5	(120)	80.2	(215)	65.8	(79)	64.8	(307)	58.1	(738)
No (1 incident)	27.2	(71)	24.5	(39)	19.8	(53)	34.2	(41)	35.2	(167)	41.9	(532)
Total	100.0	(261)	100.0	(159)	100.0	(268)	100.0	(120)	100.0	(474)	100.0	(1,270)

Table 8c: Cross-tabulation of multiple incidents of violence since 15 years by childhood physical abuse

| | Childhood physical abuse | | | |
| | Yes | | No | |
Victim of multiple incidents of violence since 15 years	%	(No.)	%	(No.)
Yes (2+ incidents)	77.5	(338)	62.0	(1,311)
No (1 incident)	22.5	(98)	38.0	(805)
Total	100.0	(436)	100.0	(2,116)

Table 8d: Cross-tabulation of multiple incidents of violence since 15 years by childhood sexual abuse

| | Childhood sexual abuse | | | |
| | Yes | | No | |
Victim of multiple incidents of violence since 15 years	%	(No.)	%	(No.)
Yes (2+ incidents)	76.5	(396)	61.6	(1,253)
No (1 incident)	23.6	(122)	38.4	(781)
Total	100.0	(518)	100.0	(2,034)

experienced physical abuse as a child (before 15 years) compared with those who had not, and among those who had experienced sexual abuse as a child compared with those who had not (see Tables 7, 8c and 8d).

Probability of victimization given a combination of risk factors

By substitution back into the multivariate model for a particular type of violence, it is possible to calculate the estimated probability of victimization for a woman given her status on each of the significant predictors or risk factors. For example, for a particular violence type, the probability of victimization for women who have all of the significant risk factors in the present multivariate analyses can be compared with that of women who have none.

Figures 1 and 2 present the estimated probabilities of victimization for women with several different combinations of characteristics. Figure 1 presents some estimated probabilities for experiencing physical violence in a 12-month period while Figure 2 presents some estimated probabilities for experiencing sexual violence in a 12-month period.

Each Figure compares 18 to 24 year old women who had never married with 45 to 54 year old married women. The age and marital status of the former group, compared with those of the latter group, were associated with higher victimization rates. Each Figure examines the probability of victimization for these groups of women when they (A) do not have any of the additional risk factors identified in the present analyses; (B) have one of the additional risk factors identified in the present analyses, namely, prior adult violence; and (C) have all the risk factors identified in the present analyses (see A, B and C in Figures 1 and 2). For both physical and sexual violence in the last 12 months, these risk factors included prior adult violence and childhood abuse. For physical violence, educational attainment and main source of income were also risk factors. The figure for each violence type also presents, for comparison purposes, the estimated rate of the violence in a 12-month period in the population of Australian women aged 18 years or over; 0.06 for physical violence and 0.02 for sexual violence.

Figure 1 shows that the probability of experiencing physical violence in a 12-month period can vary dramatically according to the number of risk factors. For a woman who has none of the risk factors identified in the present study, namely, a 45 to 54 year old married woman who has a degree, earns a wage or salary and has not experienced violence as an adult nor physical abuse as a child, the estimated probability is 0.02. This probability was three times lower than the population rate.
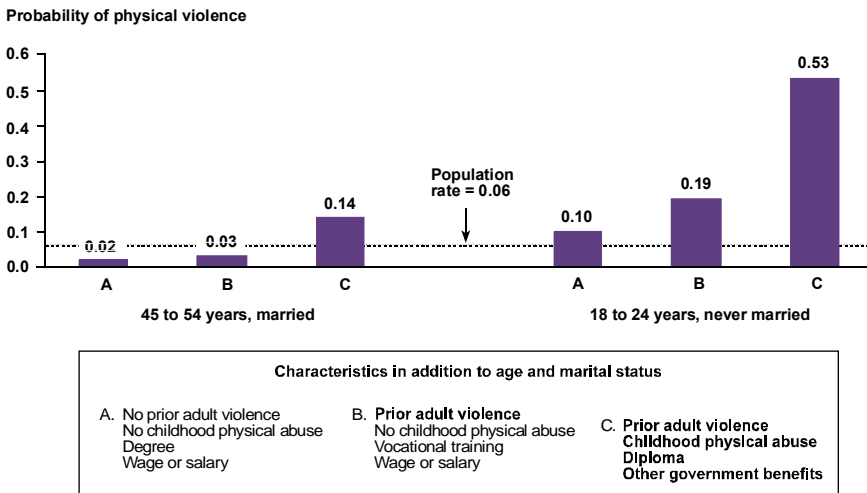
For a woman who has all of the risk factors identified in the present study, namely, an 18 to 24 year old woman who has never married, has experienced both prior adult violence and childhood physical abuse, has a diploma and receives a government benefit other than family payment, the estimated probability is 0.53. This probability was about nine times higher than the population rate.

It is also worth noting that the probabilities of physical violence for all three groups of 18 to 24 year old women were higher than the population rate, whereas, of the older groups, only the group who had all of the identified risk factors (C) had a probability that was higher than the population rate.
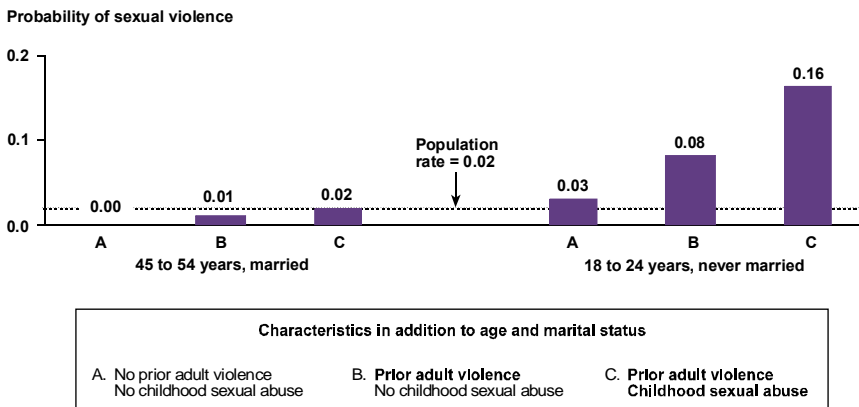
Figure 2 shows that the probability of experiencing sexual violence in a 12-month period also varies according to the combination of risk factors present. The probability of 45 to 54 year old women experiencing sexual violence remained at or below the population rate (0.02), regardless of whether or not they had experienced prior adult violence or childhood sexual abuse. The highest probability presented, 0.16, was for the group who had all of the risk factors identified in the present study, that is, 18 to 24 year old women who had never married and had experienced both prior adult violence and childhood sexual abuse. This probability was eight times higher than the estimated population rate.

In interpreting the probabilities of victimization presented in Figures 1 and 2, it should be remembered that both the physical and sexual violence variables included not only actual assaults, but

Figure 1: Probability of experiencing physical violence in a 12-month period given different charateristics

Figure 2: Probability of experiencing sexual violence in a 12-month period given different charateristics

abuse predicted physical violence in the last 12 months, emotional abuse in the last 12 months and multiple incidents of violence since the age of 15 years. Childhood sexual abuse predicted sexual violence in the last 12 months and multiple incidents of violence since the age of 15 years.

There is considerable research showing that there is a 'cycle of violence' whereby persons who experience physical or sexual abuse as children have increased risk as adults of abusing their own children.[31] The present findings add another dimension to this 'cycle of violence' in that victims of childhood abuse are more likely to experience violence or abuse as adults.

Another consistent finding in the present study was that, controlling for other factors, younger women had a higher risk of victimization than did older women. In the 12 months prior to the Survey, physical violence, sexual violence and emotional abuse were all more prevalent for younger women than for older women.[32] There are a number of possible explanations for why younger women have increased risk of victimization. One possibility is that younger women may be more likely than older women to encounter potentially violent situations by virtue of their lifestyle. For example, compared with older women, younger women may interact more with persons who are more likely to be violent, such as young men.[33] Another possibility is that younger women have had less experience at identifying and successfully avoiding potentially violent situations that they do encounter.

Finally, marital status also tended to be a consistent multivariate predictor of experiencing violence as an adult. Married women were generally less likely than other women to experience physical violence in the last 12 months, sexual violence in the last 12 months and multiple incidents of violence from the age of 15 years. In particular, women who were separated or who had never married were more likely than married women to experience these three types of violence. Women who have never married may be similar to young women in that they may be more likely to encounter potentially violent situations by

also attempted/threatened assaults. Thus, for example, the estimated probability of 0.53 for experiencing physical violence reflects the risk of experiencing either an actual physical assault or an attempted physical assault or the threat of a physical assault in a 12-month period.

DISCUSSION

A summary of the present multivariate results is provided in Table 14 in the *Results* section of the *Appendix.*

The most striking set of findings from the present multivariate analyses is that a

history of violent victimization, whether as a child or as an adult, predicts future victimization, controlling for a wide range of demographic factors such as age, birthplace, educational attainment, labour force status, marital status and income. For example, compared with women who had not experienced either physical or sexual violence since the age of 15, those who had were more likely to experience physical violence, sexual violence and emotional abuse in the last 12 months. Furthermore, women who had experienced abuse in childhood were also more likely to experience violence as an adult. Childhood physical

virtue of their lifestyle. One possible explanation for the finding that separated women are more likely to experience violence compared with married women is that separation is a time of considerable tension in a relationship, and hence, a time when risk of victimization is increased. Another possibility is that women may decide to separate from their current partners precisely because their partners are violent.

The remaining demographic variables examined did not consistently predict different types of violence in the multivariate models. Controlling for other variables, women's labour force status and level of income did not predict any of the four types of violence examined. Birthplace, educational attainment and main source of income each predicted only one type of violence. Birthplace only predicted emotional abuse in the last 12 months, while educational attainment and main source of income only predicted physical violence in the last 12 months.

Birthplace was included in the present multivariate analyses mainly because of its bivariate relationship with victimization in the ABS report rather than because of an established relationship with victimization in the literature. However, it is well established in the literature that indicators of socioeconomic disadvantage such as poverty, unemployment and poor education are correlated with crime.[34] Thus, it is somewhat surprising that labour force status, educational attainment, level of income and main source of income did not consistently predict criminal victimization in the present multivariate analyses. Particularly surprising was that the level of income variable was neither a multivariate nor a bivariate predictor of any of the four types of violence examined.[35]

There are at least two non-mutually exclusive reasons why the present study failed to find a consistent association between socioeconomic indicators and violence. Firstly, particularly for the two income variables, it is possible that the variables used in the present study were not sensitive enough measures of socioeconomic disadvantage to predict violent victimization in the multivariate models. (See the *Data analysis* section of the *Appendix* for further explanation.)

Secondly, it is possible that any bivariate associations of socioeconomic indicators with adult victimization can be explained by the other significant predictors in the present multivariate models, such as age, marital status, childhood abuse and prior adult violence. In particular, there is reason to believe that childhood abuse may mediate the effect between socioeconomic disadvantage and adult victimization. There is good evidence that poverty, unemployment and poor education are risk factors for childhood abuse and neglect.[36] Thus, socioeconomic disadvantage may increase the risk of childhood abuse which may in turn increase the risk of adult victimization. In this instance, compared with social disadvantage, childhood abuse would be a more proximal cause of adult victimization. The present multivariate results are consistent with such an explanation where the more proximal effect of childhood abuse on adult victimization masks the effect of more distal causes such as socioeconomic disadvantage.

Lastly, it is worth reiterating that some groups of women who have a combination of risk factors have a high risk of violent victimisation. For example, women who have all six of the identified risk factors for physical violence have a one in two chance of experiencing an actual or threatened physical assault in a 12-month period, a rate that is nine times higher than the population rate. Women who have all four of the identified risk factors for sexual violence have a rate of experiencing an actual or threatened sexual assault in a 12-month period that is eight times higher than the population rate.

Implications of the multivariate results

The present multivariate findings provide a useful guide to identifying groups of women with an increased risk of violent victimization. Indeed, the multivariate findings are more useful in this regard than are the original bivariate findings given that some of the bivariate associations with violence disappeared in the presence of other predictors. According to the present multivariate results, women who have already experienced violence or abuse, either as a child or an adult, who are young or who

are not married (e.g. never married or separated) are particularly at risk of experiencing future violence.

Identifying women who are particularly at risk of violence is important from the point of view of prevention. Given that the risk of victimization can vary considerably for different women, prevention of violence may be better achieved by concentrating resources on prevention programs that target high-risk groups of women rather than by spreading resources more thinly across prevention programs that target all women.

The consistent finding that prior victimization is a predictor of future victimization suggests that prevention programs should target victims of violence. The present results suggest that both childhood abuse victims and women who have experienced violence as adults may benefit from programs aimed at preventing future violence.

One method of targeting women who have experienced violence either as children or adults is through the existing network of services available to help victims deal with violence they have experienced. For example, evaluating the extent to which existing victim services meet victims' needs for education or training on the prevention of future violence may well be worthwhile. Such education/ training could help women identify and, where possible, avoid potentially dangerous situations, and could equip women with skills for dealing with potentially violent situations when they do encounter them.

Furthermore, given that a large proportion of women victims do not report violence and do not use victim services,[37] it is clearly important that women victims are encouraged to report violence, use victim services and receive training on the prevention of future violence. Community awareness programs such as media campaigns may well be useful in increasing the rate of reporting and the use of victim services.

In the case of childhood abuse victims, however, it would make sense to intervene as early as possible after they become victims (during childhood) rather than merely to rely on them contacting victim services as adults. The present results

suggest that such early intervention may well reduce the extent of victimization experienced by such victims as adults. Furthermore, given the link between abuse as a child and abuse of one's own children, early intervention of childhood abuse victims may also be useful in reducing childhood abuse of the next generation. It should also be noted that such early intervention may be useful in reducing the prevalence of criminal offending since there is considerable evidence that maltreatment as a child is associated with both juvenile and adult criminal offending.[38]

Of course, the nature of any such early intervention with childhood abuse victims would need to take both practical and ethical considerations into account. From a purely practical viewpoint, one way of ensuring that all childhood abuse victims undergo some type of early intervention is through a more comprehensive and longer-term follow-up of childhood abuse victims than is currently undertaken. More extensive follow-up could be used not only to monitor the health and safety of the child in terms of further childhood abuse, but also to provide the child with appropriate skills in order to reduce the possibilities of further abuse as a child, victimization as an adult, the perpetration of child abuse as an adult and criminal behaviour as either a juvenile or an adult.

Finally, the evidence that childhood abuse predicts not only adult victimization but also abuse of one's own children and criminal offending underlines the importance and potential benefits of preventing childhood abuse. It is likely that allocating more resources to the prevention of childhood abuse would, in the long term, produce considerable savings in all the health and law enforcement costs associated with adult victimization, abuse of the next generation of children, and juvenile and adult criminal offending. Suggestions for the prevention of childhood abuse in the literature include programs that advocate intolerance of the use of physical force not only in domestic situations but also in the community as a whole; programs that provide training on non-violent conflict resolution, problem-solving and child-rearing techniques; and programs that aim to increase factors which protect

against childhood abuse such as social supports for parents at risk of abusing their children.[39]

The finding that young women are more at risk of violence than older women suggests that education or training programs on the prevention of violence may also be useful for young women. One possible method of targeting young women is through high schools.

Finally, the present results suggest that it may also be useful to target prevention programs at women who have never married and women who are separated.

APPENDIX

DATA ANALYSES

Measurement of variables

Level of income

There were two variables measuring level of income in the original ABS data. For all women, personal income was measured. For women who were currently married or in a de facto relationship, the joint income of the couple was also measured. Each of these ABS variables had income grouped into six income brackets, and each bracket had a numeric code of 0, 1, 2, 3, 4 or 5. The income brackets corresponding to each code are presented in Table 9 for both the woman's personal income and the couple's income variables. It can be seen that each code for the couple's income represented an income level that was roughly twice that represented by the identical code for the woman's personal income.

It was decided that taking either of these measures on its own would not give an

accurate picture of the income available to all women. Firstly, use of the woman's own personal income was problematic for women whose main occupation involved home duties because a substantial proportion of these women would have a low personal income but access to a considerably higher household income. Secondly, use of the joint couple income was not measured (and would be inappropriate) for women who did not have a current partner.

Consequently, a new variable for level of income was created where the code for the couple's income (0-5) was used for women with a current married or de facto partner and the code for personal income (0-5) was used for women without a current partner.

Main source of income

Due to the possible lack of sensitivity of the level of income variable, the main source of income was also used as a potential predictor of violence in the present analyses. However, it should be noted that the sensitivity of the main source of income variable is also somewhat dubious because one of its six categories, the wage or salary category, covered a very wide range of income levels and accounted for almost half the women surveyed (46%).

Multiple incidents of violence

The analyses examining multiple incidents of violence were undertaken to determine whether a number of variables could predict whether women victims of violence had been victimized once or more than once. Thus, these analyses, unlike the analyses for the other violence variables in the bulletin,

Table 9: Codes for ABS income variables

ABS code	Woman's personal income ($/week)	Couple's income ($/week)
0	0	0
1	1 - 99	1 - 199
2	100 - 199	200 - 299
3	200 - 299	300 - 699
4	300 - 499	700 - 999
5	500 +	1000 +

were necessarily restricted to the relatively small group of women in the sample who had experienced violence. In order to maximise the data for victims for the analysis on multiple incidents of violence, physical violence and sexual violence were combined into a single violence variable. Furthermore, this single violence variable was not restricted to measuring the number of incidents of violence for victims over the last 12 months, but rather, measured the number of incidents of violence for victims over their entire adult life (i.e. since the age of 15 years).

Multivariate technique

The present analyses involved dichotomous response variables, that is:

- physical violence over the last 12 months versus no physical violence over the last 12 months,

- sexual violence over the last 12 months versus no sexual violence over the last 12 months,

- emotional abuse by current male partner over the last 12 months versus no such emotional abuse over the last 12 months, and

- two or more incidents of violence since the age of 15 years versus one incident of violence since the age of 15 years.

The present analyses also involved both ordinal predictor variables (i.e. age and level of income) and categorical predict or variables. Logistic regression is an appropriate multivariate technique for describing the relationship between a dichotomous response variable and a set of ordinal and/or categorical predictor variables.[40]

To fit the regression models, each categorical predictor was translated into a number of comparisons. Each comparison involved two categories of the predictor. For predictors with three or more categories, one chosen category of the predictor was compared against each other category in turn. As a result, for any given categorical predictor, the number of comparisons was one less than the number of categories of the predictor.

For example, the birthplace predictor had three categories (i.e. Australia, other English speaking country and non-English speaking country) and two comparisons (i.e. Australia versus other English speaking country and Australia versus non-English speaking country).

Generally, for each categorical predictor, the choice of category for comparison with all other categories was based on the prevalence estimates reported in the ABS report. For birthplace, given that Australian-born women had the higher prevalence estimates, Australia was compared against each other category. For educational attainment, given that the higher prevalence estimates were found for women with some types of post-school education, school education was compared with each category of post-school education. For labour force status, given that employed women had different prevalence estimates compared with other women, employment was compared against each other category. (Employed women had lower estimates compared with unemployed women who were seeking work, but somewhat higher estimates compared with women who were not working and were not seeking work.) For marital status, the ABS report showed that women who were married or in a de facto relationship had lower prevalence estimates than did all other women (i.e. never married, separated, divorced or widowed). It was decided to compare being married with each other category. For main source of income, the ABS report did not provide bivariate relationships with violence. Given that previous research has found that violence is elevated in socio-economically disadvantaged areas, it was decided to compare the category thought to be most associated with socioeconomic disadvantage, namely 'other government benefit', with each other category.

The term 'significant predictor' used below refers to a predictor which had at least one significant comparison and the term 'non-significant predictor' refers to a predictor whose comparisons were all non-significant.

Three types of models were run for each type of violence, as follows.

1. *Single variable models.*
   A separate model was run for each potential predictor variable. That is, the relationship of each potential predictor to violence was examined on its own (i.e. the bivariate relationship was examined).

2. *Full model.*
   All potential predictor variables were examined simultaneously in one model.

3. *Final model.*
   All significant predictors were examined simultaneously in one model. All potential predictors that were not significant in both the appropriate single variable model and the full model were omitted from the final model. A predictor was included in the final model if (a) it was significant in both its single variable model and the full model; or (b) it was significant in either the single variable model or the full model, and the change in deviance was significant between a 'final' model that included that predictor and a 'final' model that excluded that predictor.

It should be noted that there was one alteration in the above procedure for the prediction of multiple incidents of violence since the age of 15 years. Age was to be retained in the final model for multiple incidents of violence regardless of whether or not it was significant in the single variable model and full model. Retaining age was necessary in order to control for the length of exposure time for potential violence since the age of 15 years.

Only the results for the final model for each type of violence are reported in the present bulletin. Thus, only significant predictor variables are presented for each model. For each final model, the odds ratios and their associated confidence intervals are presented in the main body of the bulletin. In the *Results* section of the *Appendix*, the following statistics are also presented for each comparison: the parameter estimate (β), the standard error of the estimate (s.e.), the obtained Chi-square (χ^2) and the obtained *p* value.

RESULTS

Table 10: Predictors of physical violence in the last 12 months

Predictor	Comparison	β	s.e.	Odds ratio	95% confidence interval	χ²	p value
Increasing age	-	-0.34	0.04	0.7[a]	0.7 - 0.8	73.05	<0.001
Educational attainment	degree versus school education	-0.15	0.18	0.9	0.6 - 1.2	0.71	0.400
	diploma versus school education	0.40	0.17	1.5	1.1 - 2.1	5.32	0.021
	vocational training versus school education	0.11	0.14	1.1	0.8 - 1.5	0.55	0.460
Marital status	de facto relationship versus married	0.47	0.20	1.6	1.1 - 2.3	5.73	0.017
	separated versus married	0.96	0.22	2.6	1.7 - 4.0	19.24	<0.001
	divorced versus married	0.16	0.25	1.2	0.7 - 1.9	0.43	0.510
	widowed versus married	-1.07	0.53	0.3	0.1 - 0.9	4.15	0.042
	never married versus married	0.55	0.16	1.7	1.3 - 2.4	11.92	0.001
Childhood physical abuse	childhood physical abuse versus no childhood physical abuse	0.82	0.14	2.3	1.7 - 3.0	32.62	<0.001
Prior adult violence	prior adult violence versus no prior adult violence	0.46	0.12	1.6	1.2 - 2.0	14.69	<0.001
Main source of income	family payment versus other government benefit	-0.66	0.24	0.5	0.3 - 0.8	7.60	0.006
	wage or salary versus other government benefit	-0.44	0.14	0.6	0.5 - 0.9	9.48	0.002
	own business versus other government benefit	-0.90	0.33	0.4	0.2 - 0.8	7.24	0.007
	other source versus other government benefit	-0.41	0.30	0.7	0.4 - 1.2	1.86	0.172
	not applicable versus other government benefit	-0.65	0.34	0.5	0.3 - 1.0	3.72	0.054

a   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally decrease to only 70 per cent those of the previous age group.

Table 11: Predictors of sexual violence in the last 12 months

Predictor	Comparison	β	s.e.	Odds ratio	95% confidence interval	χ^2	p value
Increasing age	-	-0.31	0.07	0.7[a]	0.6 - 0.8	19.39	<0.001
Marital status	de facto relationship versus married	0.09	0.42	1.1	0.5 - 2.4	0.05	0.829
	separated versus married	1.54	0.34	4.7	2.4 - 8.9	21.13	<0.001
	divorced versus married	1.17	0.34	3.2	1.6 - 6.2	11.54	0.001
	widowed versus married	0.77	0.57	2.2	0.6 - 5.9	1.85	0.174
	never married versus married	1.05	0.27	2.9	1.7 - 4.8	15.08	<0.001
Childhood sexual abuse	childhood sexual abuse versus no childhood sexual abuse	0.71	0.22	2.0	1.3 - 3.1	10.19	0.001
Prior adult violence	prior adult violence versus no prior adult violence	0.94	0.22	2.6	1.7 - 4.0	19.24	<0.001

a   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally decrease to only 70 per cent those of the previous age group.

Table 12: Predictors of emotional abuse by current male partner in the last 12 months

Predictor	Comparison	β	s.e.	Odds ratio	95% confidence interval	χ^2	p value
Increasing age	-	-0.12	0.05	0.9[a]	0.8 - 1.0	5.84	0.016
Birthplace	other English speaking country versus Australia	-0.78	0.29	0.5	0.2 - 0.8	7.33	0.007
	non-English speaking country versus Australia	-0.08	0.22	0.9	0.6 - 1.4	0.14	0.706
Childhood physical abuse	childhood physical abuse versus no childhood physical abuse	0.92	0.20	2.5	1.7 - 3.7	22.18	<0.001
Prior adult violence	prior adult violence versus no prior adult violence	1.33	0.17	3.8	2.7 - 5.3	62.45	<0.001

a   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally decrease to only 90 per cent those of the previous age group.

Table 13: Predictors of multiple incidents of violence since 15 years

Predictor	Comparison	β	s.e.	Odds ratio	95% confidence interval	χ^2	p value
Increasing age	-	0.06	0.03	1.1[a]	1.0 - 1.1	3.91	0.048
Marital status	de facto relationship versus married	0.74	0.16	2.1	1.5 - 2.9	22.00	<0.001
	separated versus married	0.75	0.20	2.1	1.5 - 3.1	14.75	<0.001
	divorced versus married	1.01	0.17	2.8	2.0 - 3.8	37.24	<0.001
	widowed versus married	0.28	0.21	1.3	0.9 - 2.0	1.70	0.192
	never married versus married	0.39	0.13	1.5	1.2 - 1.9	9.61	0.002
Childhood physical abuse	childhood physical abuse versus no childhood physical abuse	0.57	0.13	1.8	1.4 - 2.3	19.35	<0.001
Childhood sexual abuse	childhood sexual abuse versus no childhood sexual abuse	0.54	0.12	1.7	1.4 - 2.2	20.81	<0.001

a   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds generally increase to 110 per cent those of the previous age group.

Table 14: Summary of odds ratios for different types of violence

Predictor	Comparison	Physical violence in the last 12 months	Sexual violence in the last 12 months	Emotional abuse in in the last 12 months	Multiple incidents of of violence since 15 yrs
Increasing age	-	0.7[a]	0.7[a]	0.9[a]	1.1[a]
Birthplace	other English speaking country versus Australia			0.5	
	non-English speaking country versus Australia				
Educational attainment	degree versus school education				
	diploma versus school education	1.5			
	vocational training versus school education				
Marital status	de facto relationship versus married	1.6			2.1
	separated versus married	2.6	4.7		2.1
	divorced versus married		3.2		2.8
	widowed versus married	0.3			
	never married versus married	1.7	2.9		1.5
Childhood physical abuse	childhood physical abuse versus no childhood physical abuse	2.3		2.5	1.8
Childhood sexual abuse	childhood sexual abuse versus no childhood sexual abuse		2.0		1.7
Prior adult violence	prior adult violence versus no prior adult violence	1.6	2.6	3.8	n/a[b]
Main source of income	family payment versus other government benefit	0.5			
	wage or salary versus other government benefit	0.6			
	own business versus other government benefit	0.4			
	other source versus other government benefit				
	not applicable versus other government benefit				

Note: Non-significant odds ratios are omitted from this table.

a   This value is equivalent, but not identical, to an odds ratio because age was treated as an ordinal rather than categorical variable. This value indicates a multiplicative relationship such that for each increase in age group, the odds relative to the previous age group are generally equal to this value.

b   'Prior adult violence' was not used as a predictor in the model for 'multiple incidents of violence since 15 years' because the latter variable was directly derived from the former.

NOTES

1 See, for example: Shapcott, D. 1988, *The Face of the Rapist*, Penguin, Auckland.

2 See, for example: Largen, M. A. 1976, 'History of women's movement in changing attitudes, laws, and treatment toward rape victims', in *Sexual Assault: the Victim and the Rapist*, eds M. J. Walker & S. L. Brodsky, Lexington Books, Lexington.

3 New South Wales Legislative Assembly 1981, *New South Wales Parliamentary Debates, Second Reading, Crimes (Sexual Assault) Amendment Bill*, p.4758.

4 See, for example: NSW Police Service, NSW Department of Health & Office of the Director of Public Prosecutions 1995, *Interagency Guidelines for Responding to Adult Victims of Sexual Assault*, NSW Police Service, NSW Department of Health & Office of the Director of Public Prosecutions, Sydney.

5 Straus, M. A. & Gelles, R. J. 1986, 'Societal change in family violence from 1975 to 1985 as revealed by two national surveys', *Journal of Marriage and the Family*, vol. 48, pp. 465-479.

6 Rodgers, K. 1994, 'Wife assault: The findings of a national survey', *Statistics Canada*, vol. 14, no. 9, pp. 1-22.

7 It may be misleading to compare the victimisation rates obtained by the US and Canadian surveys because they used different definitions of violence and were conducted in different time periods.

8 Australian Bureau of Statistics 1996, *Women's Safety Australia*, Australian Bureau of Statistics, Canberra, Cat. no. 4128.0, p. 1.

9 Australian Bureau of Statistics 1996, op. cit.

10 It was necessary to apply weights to the data because some sub-groups of women (e.g. those living in rural and remote areas) had a reduced chance of being selected in the samples.

11 If there had been no repeat victimization (i) the percentages for physical violence and sexual violence would add to the total percentage for violence; (ii) the percentages for actual physical assault and attempted/threatened physical assault would add to the percentage for physical violence; and (iii) the percentages for actual sexual assault and threatened sexual assault would add to the percentage for sexual violence.

12 It may be misleading to compare the Women's Safety Survey victimisation rates obtained in Australia with those obtained by overseas surveys because different definitions of violence were used.

13 Other alternatives are that experiencing violence is determined by (i) marital status but not age and (ii) neither marital status nor age, but by a third variable or group of variables.

14 See, for example: Braithwaite, J. 1979, *Inequality, Crime and Public Disorder*, Routledge & Kegan Paul, London; Box, S. 1987, *Recession, Crime and Punishment*, MacMillan Education, London; Chiricos, T. 1987, 'Rates of crime and unemployment: An analysis of aggregate research evidence', *Social Problems*, vol. 34, pp. 187-212; Devery, C. 1991, *Disadvantage and Crime in New South Wales*, NSW Bureau of Crime Statistics and Research, Sydney.

15 Please note that the potential predictor variable 'the victim's experience of violence since the age of 15 years' was not used to predict 'multiple incidents of violence since the age of 15 years' because the latter variable was directly derived from the former variable.

16 The confidentiality of the supplied data was ensured by the exclusion of information such as names and addresses of respondents, and by the categorization of some responses to reduce the level of detail provided.

17 See, for example: Montgomery, D.G. & Peck, E.A. 1992, *Introduction to Linear Regression Analysis, 2nd Edition*, John Wiley & Sons, New York.

18 The value for the odds of being a victim is calculated by dividing the probability of being a victim by the probability of not being a victim.

19 That is, the calculation is e^β, or the exponential of β, where β is the parameter estimate. See, for example: Agresti, A. 1996, *An Introduction to Categorical Data Analysis*, John Wiley & Sons, New York.

20 For the multivariate analyses, age was categorized into seven groups, as outlined under the *Measurement of variables* section. For the sake of simplicity, age was recategorized into five groups for the cross-tabulations.

21 A 'significant' predictor is a predictor with a significant odds ratio for at least one comparison. Additional statistics for the physical violence multivariate model are presented in Table 10 in the *Results* section of the *Appendix*.

22 However, see the *Appendix* for why the main source of income variable may be somewhat unreliable.

23 Additional statistics for the sexual violence multivariate model are presented in Table 11 in the *Results* section of the *Appendix*.

24 Each of these cross-tabulations examines the bivariate association of each significant predictor with sexual violence in the last 12 months and does not take into account the effects of other significant predictors on sexual violence in the last 12 months.

25 Additional statistics for the emotional abuse multivariate model are presented in Table 12 in the *Results* section of the *Appendix*.

26 Each of these cross-tabulations examines the bivariate association of each significant predictor with emotional abuse in the last 12 months, without taking into account the effects of the other significant predictors. It should also be noted that the ABS report does not present the bivariate associations of emotional abuse in the last 12 months with its predictors.

27 Additional statistics for the multiple violence multivariate model are presented in Table 13 in the *Results* section of the *Appendix*.

28 Each of these cross-tabulations examines the bivariate association of each significant predictor with multiple incidents of violence since the age of 15 years, without taking into account the effects of the other significant predictors. It should also be noted that the ABS report does not present the bivariate associations of multiple incidents of violence since 15 years with its predictors.

29 Please note that the potential predictor variable 'prior adult violence' (since the age of 15 years) was not used to predict multiple incidents of violence since the age of 15 years because the latter variable was directly derived from the former variable.

30 For this reason, age would have been retained as a control variable for exposure time in the present multivariate model even if it had not been significant in the single variable and full model (see *Data analysis* section of the *Appendix*).

31 See, for example: Egeland, B. 1993, 'A history of abuse is a major risk factor for abusing the next generation', in *Current Controversies on Family Violence*, eds R. J. Gelles & D. R. Loseke, Sage, CA; Finkelhor, D. 1979, *Sexually Victimized Children*, Free Press, New York; Lewis, M. 1988, 'What can child development tell us about child abuse?' in *Early Prediction and Prevention of Child Abuse*, eds K. Browne, C. Davies & P. Stratton, John Wiley & Sons, Chichester; National Research Council 1993, *Understanding Child Abuse and Neglect*, National Academy Press, Washington, DC; Tomison, A. M. 1996, *Intergenerational Transmission of Maltreatment*, Issues in Child Abuse Prevention No. 6, Australian Institute of Family Studies, Melbourne.

32 As already noted, these results over a fixed period of 12 months are not incongruous with the finding that as age increases, multiple incidents of violence since the age of 15 years increase. The latter finding would be expected simply because the time period of comparison is longer for older women.

33 For example, annual court statistics since 1991 consistently show that men aged 29 years or younger constitute close to half (41% - 53%) of *all* persons found guilty of 'offences against the person' in both the NSW Local and Higher Courts. See the annual report series published by the NSW Bureau of Crime Statistics and Research entitled *NSW Criminal Courts Statistics*.

34 See, for example: Braithwaite, J. 1979, *Inequality, Crime and Public Disorder*, Routledge & Kegan Paul, London; Box, S. 1987, *Recession, Crime and Punishment*, Macmillan Education, London; Chiricos, T. 1987, 'Rates of crime and unemployment: An analysis of aggregate research evidence', *Social Problems*, vol. 34, pp. 187-212; Devery, C. 1991, *Disadvantage and Crime in New South Wales*, NSW Bureau of Crime Statistics and Research, Sydney.

35 Please note that the ABS report did not present the bivariate associations of the income variables with violence. Nonetheless, the bivariate associations of each potential predictor with each violence variable were examined in the present study in 'single variable' logistic regression models. For more details, see the *Data analysis* section of the *Appendix*. The main source of income variable showed at least one bivariate association with three of the four violence types. It did not show a bivariate association with sexual violence in the last 12 months.

36 See, for example: Brayden, R. M., Altemeier, W. A., Tucker, D. D., Dietrich, M. S. & Vietze, P. 1992, 'Antecedents of child neglect in the first two years of life', *Journal of Paediatrics*, vol. 120, pp. 426-429; Cantrell, P. J., Carrico, M. F., Franklin, J. N. & Grubb, H. J. 1990, 'Violent tactics in family conflicts relative to familial and economic factors', *Psychological Reports*, vol. 66, pp. 823-828; Finkelhor, D. 1980, 'Risk factors in the sexual victimization of children', *Child Abuse and Neglect*, vol. 4, pp. 265-273;

Kotch, J. B., Browne, D. C., Stewart, P. W., Ruina, E., Holt, K., Lowman, B. & Jung, J-W. 1995, 'Risk of child abuse or neglect in a cohort of low-income children', *Child Abuse and Neglect*, vol. 19, no. 9, pp. 1115-1130; Main, M. & Goldwyn, R. 1984, 'Predicting rejection of her infant from mother's representation of her own experience: Implication for the abused-abusing intergenerational cycle', *Child Abuse and Neglect*, vol. 8, pp. 203-217; Milner, J. S. & Crouch, J. L. 1993, 'Physical child abuse', in *Family Violence: Prevention and Treatment, Issues in Children's and Families' Lives*, vol. 1, eds R. L. Hampton, T. P. Gullotta, G. R. Adams, E. H. Potter III & R. P. Weissberg, Sage, CA; Newberger, E. H., Hampton, R. L., Marx, T. J. & White, K. M. 1986, 'Child abuse and pediatric social illness: An epidemiological analysis and ecological reformulation', *American Journal of Orthopsychiatry*, vol. 56, pp. 589-601.

37 According to the ABS report, of the women who had experienced physical assault in the last 12 months (i) no more than 20 per cent reported the last incident to police, (ii) no more than 20 per cent used professional help from a doctor, counsellor, minister or priest after the last incident, and (iii) no more than 20 per cent used crisis, legal or financial services after the last incident. Similar percentages were obtained for women who had experienced sexual assault in the last 12 months.

38 See, for example: Garbarino, J. & Plantz, M. C. 1986, 'Child abuse and juvenile delinquency: What are the links?' in *Troubled Youth, Troubled Families*, eds J. Garbarino, C. J. Schellenbach & J. M. Sebes, Aldine, New York; Tomison 1996, op. cit.; Widom, C. S. 1989, 'Does violence beget violence? A critical examination of the literature', *Psychological Bulletin*, vol. 106, no. 1, pp. 3-28.

39 See, for example: Fry, D. P. 1993, 'The intergenerational transmission of disciplinary practices to conflict', *Human Organization*, vol. 52, no. 2, pp. 176-185.

40 See, for example: Agresti 1996, op. cit.

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