Original contribution

Intimate partner violence and health outcomes in mid-life women: a population-based cohort study

B. Schei[1], **J. R. Guthrie**[2], **L. Dennerstein**[2], and **S. Alford**[2]

[1] Department of Community Medicine, Norwegian University of Science and Technology, Trondheim, Norway
[2] Office for Gender and Health, Department of Psychiatry, The University of Melbourne, Melbourne, Australia

Summary

Aim: To investigate the association between experience of intimate partner violence (IPV) and health outcomes measured prospectively.

Method: Eleven-year prospective study of a population-based cohort of 438 Australian-born women aged 45–55 years at baseline (in 1991). Annual face-to-face interviews measured health status and quality of life; questionnaires on intimate partner physical, emotional and sexual violence and on experiences of childhood abuse completed in year 6 of follow-up.

Results: In year 11 of follow-up 233 women (mean age 59.9 SD 2.5 years) were interviewed of whom 62 (27%) reported experiencing physical and/or emotional and/or sexual IPV prior to the 6th year of follow-up. In bi-variate analysis a history of IPV was significantly associated with mental and sexual health variables and marital status at baseline and follow-up. Multivariate analysis found that at follow-up after allowing for baseline measures and other co-variates: Frequency of Sexual Activities was lower in women who had experienced IPV ($p < 0.05$); and negative mood was higher in women with the experience of IPV during the 12 months prior to completing the violence questionnaire ($p < 0.05$).

Conclusion: IPV was a significant contributor to mental and sexual health status measured prospectively in this cohort of mid-aged Australian-born women.

Keywords: Intimate partner violence; mid-aged women; mood; sexuality.

Introduction

Violence against women by their intimate partner is increasingly being recognised as a hidden health burden (McCauley et al, 1998; Campbell, 2002). Women subjected to intimate partner violence (IPV) are at risk of multiple injuries leading to disability or even death. In some parts of the world, for example in the Nordic countries, to be murdered by an intimate partner is a more common cause of death than dying from pregnancy and delivery related causes (Heiskanen & Piispa, 1998). Even when women are treated for injuries the true cause is often hidden from health care workers (McLeer & Anwar, 1989).

Several studies have demonstrated that women with various types of chronic diseases report IPV when questioned. A recent study of patients attending gynaecology departments in the five Nordic countries showed that a high proportion of women reported abuse – physical, sexual and emotional, but that the gynaecologists had not identified this as a problem (Wijtma et al, 2003). Yet IPV is shown to be related to gynaecological problems in general (Schei, 1991; Schei & Bakketeig, 1989) and also more specifically to chronic pelvic pain (Collet et al, 1998).

The mental health consequences of IPV are documented in several studies (Bergman & Brismar, 1991; Jacobsen & Richardson, 1987). Victims of IPV are more likely to be depressed, have higher rates of suicide and also more likely to suffer from post-traumatic stress disorder (Fischback & Herbert, 1997; Golding, 1999; Hathaway et al, 2000; Plichta & Falik, 2001). However, most of these studies are conducted among patient

groups. Recently several population based studies have addressed the health consequences of IPV. These add to the understanding of the prevalence and consequences of abuse among non-clinical samples (Krantz & Ostergren, 2000; Hathaway et al, 2000; Coker et al, 2002). The cross-sectional design of most studies limits the potential for inferences as to the temporal relationship between exposure to IPV and long term outcomes.

The Melbourne Women's Midlife Health Project commenced in 1991 as a prospective observational study of a population-based sample of Australian-born women aged 45–55 years at baseline. The aim of the project was to describe the natural history of the menopause and investigate how hormonal and other factors affected various health outcomes during this phase of the women's lives. At the request of the Project's Community Advisory Committee information on domestic violence and sexual abuse was obtained. We have previously reported on the prevalence of childhood sexual and physical abuse in the Melbourne Women's Health Project cohort (Mazza et al, 2001); 36% reporting contact sexual abuse, 7% penetrative sexual abuse and 9% physical abuse. This experience of childhood abuse had an impact on the quality of partner relationships in mid-life (Dennerstein et al, 2004a).

The objective of this paper was to investigate the association between the experience of intimate partner violence (IPV) and health outcomes measured prospectively, five years later.

Materials and methods

The study was approved by the Human Research Ethics Committee of the University of Melbourne and the procedures followed were in accordance with the ethical standards of the National Health and Medical Research Council. All subjects provided written informed consent for their participation in the study. The women were told that completion of the violence questionnaire was voluntary. They were also given a resource list of contacts should they want to discuss further any prior experiences.

Design

An 11-year prospective study of a population-based cohort of 438 Australian-born women aged 45–55 years at baseline. The years from which data has been used in this paper include: baseline (1991); year 6 of follow-up (1997); year 11 of follow-up (2002).

Subjects

The Melbourne Women's Midlife Health Project (MWMHP) began in 1991 with population sampling by random tele-

phone digital dialling and baseline interview of 2001 Australian born women aged between 45 and 55 years and resident in Melbourne (71% response rate) (Smith et al, 1992; Dennerstein et al, 1993). All those women at baseline who had experienced menses in the prior 3 months, and who were not taking the oral contraceptive pill or hormone therapy ($n = 779$), were invited to participate in a longitudinal study. Of those eligible, 56% accepted ($n = 438$). Volunteers for the longitudinal study were more likely than non-participants to report: better self-rated health, paid employment, more than 12 years of education, having ever had a Papanicolaou smear, exercising at least once a week, and having undergone dilatation and curettage (Burger et al, 1995). The retention rate at the 6th year of follow-up, when the violence data was collected, was 90% ($n = 395$). The women who dropped out were significantly different with respect to two variables – they were less likely to be married or live with a partner, or to exercise at least once per week.

We waited until year 6 of follow-up as by then rapport was well established with the participants, who were being interviewed in their own homes, before including the questions on violence and sexual abuse. The field workers were trained in the collection of this sensitive data and were also supplied with a list of referral centres if the women requested help.

Of the 395 participants at the 6th year of follow-up, 23 had experienced a surgical menopause and had a telephone interview and were not given the violence questionnaire. The questionnaire was returned by 362 women (92% of the available cohort), but there was missing data on 8 women who did not complete the questions on adult abuse, leaving a cohort of 354.

Five years after the violence questionnaire was administered, women were invited to attend the Office for Gender and Health to participate in cognitive function tests and information on current health status was collected – 257 women attended. Of those who did not attend the Office, 25% had reported IPV, of whom 50% had experienced childhood abuse. Of the non-attendees who did not report IPV, 41% had experienced childhood abuse. This difference was not significant.

Data collection

Violence questionnaire

The violence questionnaire (Strauss, 1979; Mazza et al, 1996), completed in the 6th year of follow-up only, incorporated the Conflicts Tactics Scale, with the modification that respondents were asked whether the tactic had occurred never, once or more than once in the past year or at any time other than the last year, and with the addition of 7 questions on emotional abuse, including threats of violence and to life, control of movements and attacks on personal integrity. Questions on physical violence were divided into minor and severe, the former included pushing and slapping, the latter included being beaten, choked and hit with an implement.

For the purposes of our study we defined a 'child' as a person under 16 years of age. Participants were asked whether as a child they had ever been severely beaten by their parents or step-parents. Questions on childhood sexual abuse asked about their sexual experience with an adult or someone older than themselves (Dennerstein et al, 2004a). Childhood sexual abuse

was classified as 'contact' abuse or 'non-contact' abuse. Contact sexual abuse includes all sexual behaviour where there is physical contact between the perpetrator and the victim such as fondling, rubbing of genitals against the victim's body, attempted or completed vaginal intercourse, oral sex and anal sex. Non-contact sexual abuse includes sexual behaviour where there is no physical contact between the perpetrator and victim such as exposure of the genitals, pornography, and solicitations to engage in sexual activity.

Other measures

In the MWMHP study (Guthrie et al, 2004) women were interviewed annually over 8 years face-to-face in their own homes by trained interviewers. A core questionnaire collected information on a range of variables, including sociodemographic factors, health status, lifestyle behaviours, medication use, history of psychiatric illness, menopausal status, hormone therapy use and wellbeing (including positive and negative mood scores). The negative and positive mood scores are subscales of the Affectometer-2 (Kammann & Flett, 1983). Each scale contains 10 adjectives, with the score being the mean of the responses, the women being asked if they felt a certain way most of the time, often, sometimes, or hardly ever. The annual core questionnaire also contained a checklist of 22 symptoms, and women were asked whether they had been bothered by any of these symptoms in the last 2 weeks. The symptoms were grouped by factor analysis into 7 domains – dysphoric, vasomotor, cardiopulmonary, skeletal, digestive, respiratory, general somatic symptoms (Dennerstein et al, 1993). Women were then asked to complete by themselves a written questionnaire on daily hassles which records the frequency and severity of daily hassles and has a high test-retest reliability ($r = 0.79$) (Kanner et al, 1981; Dennerstein et al, 1999), and sexual functioning (Short Personal Experiences Questionnaire (SPEQ)) (Dennerstein et al, 2002). Questionnaires had ID numbers rather than participant's names to protect confidentiality. The SPEQ focuses on current sexual experience over the previous 2 weeks and uses a 5-point Likert scale. Women are asked to indicate their sexual preference and whether or not they have a sexual partner. Items are averaged within each SPEQ factor and a total sex score is calculated as the sum of Sexual Responsivity (arousal, orgasm, enjoyment of sex), Frequency of Sexual Activities and Libido (frequency of sexual thoughts).

In 2002 (11th year of follow-up) women again completed the core general health questionnaire, the SPEQ and Hassles questionnaires, and in addition the short form (10-item) of the Centre for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977; Andresen et al, 1994; Dennerstein et al, 2004b) to measure depressed mood. The CES-D is a self-complete scale derived from the 20-item version of the CES-D which was originally developed for the National Institute of Mental Health (Radloff, 1977) and has been judged among the best screening instruments for symptoms of depressed mood in older adults. It has high levels of reliability ($\alpha = 0.85$) and validity (Himmelfarb & Murrell, 1983) to detect both clinical and non-clinical symptoms of depressed mood. The 10-item CES-D has been shown to have good predictive accuracy when compared to the full-length 20-item version ($\kappa = 0.97$) (Andresen et al, 1994). Cut-off scores for depressive symptoms for the 10-item version were greater than 10.

Statistical analysis

For the analysis the sample was divided into groups on the basis of the adult violence questionnaire (administered in 1997, year 6 of follow-up) as to whether they had or had not reported any form of intimate partner violence (physical and/or emotional and/or sexual) at any time in their adult life or had experienced IPV during the 12 months prior to completing the violence questionnaire. Comparisons of women by IPV status were performed using chi-squared analysis and t-tests. Variables selected for the bi-variate analysis were identified as important by review of the literature or were related to health status. Multiple regression analysis was used to identify the effect of IPV status on mental and sexual health variables after adjustment was made for baseline values and potentially confounding covariates. All statistical tests were two-tailed and a 0.05 level of significance adopted for retention in the model. SPSS software was used for the analyses (SPPS for Windows, 2003).

Results

Overall, 25.7% (91/354) of the women had experienced some form of IPV (physical and/or emotional and/or sexual violence) from 16 years of age until the day of their interview in 1997 (year 6 of follow-up). Sixty-six percent (233/354) of the women who had completed the violence questionnaire subsequently attended the office for testing in the 11th year of follow-up (ie. in 2002), of whom 26.6% (62/233) had experienced IPV. That is 68% of the women who reported experiencing IPV by year 6 of follow-up attended the office in the 11th year of follow-up. In 2002 the women had a mean age of 59.9 years (range 56–67), 69% were postmenopausal (amenorrhea for at least 12 months), 5% were in the late menopausal transition (at least 3 months but less than

Table 1. Lifetime prevalence of intimate partner violence and childhood abuse in 233 participants in the Melbourne Women's Midlife Health Project in 2002

Type of abuse	n (% of cohort)
Intimate partner violence (IPV)	
Physical	
Minor	41 (17.6%)
Severe	15 (6.4%)
Sexual	3 (1.3%)
Emotional	53 (22.4%)
Physical/emotional/sexual (Total)	62 (26.6%)
Total in 12 months prior to questionnaire	26 (11.2%)
Childhood abuse	
Contact sexual abuse	78 (33.5%)
Non-contact sexual abuse	87 (37.8%)
Physical abuse	17 (7.3%)

Table 2. Mental health variables at baseline (in 1991) and after 11 years of follow-up (in 2002) significantly associated with a past history of intimate partner violence (IPV). Results from bi-variate analysis expressed as mean (standard deviation)

History of IPV	n	Positive mood		Negative mood		CES-D score	CES-D score ≥ 10	Psychiatric med.
		Baseline	Follow-up	Baseline	Follow-up	Follow-up	Follow-up	Follow-up
Yes	62	2.07 (0.57)	2.07 (0.58)	0.77 (0.34)	0.39 (0.31)	8.0 (4.4)	38%	13%
No	171	2.30 (0.57)	2.28 (0.61)	0.65 (0.36)	0.31 (0.30)	6.3 (4.0)	15%	3%
p-value		0.01	0.02	0.03	0.08	0.009	0.001	0.006

Table 3. Sexual health variables and martial status at baseline (in 1992) and after 10 years of follow-up (in 2002) significantly associated with a past history of intimate partner violence (IPV). Results from bi-variate analysis expressed as mean (standard deviation) or percentage

History of IPV	n	Total sex score		Sexual responsivity		Frequency of sexual activities		Current sexual partner		Separated/divorced	
		Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up
Yes	52	6.9 (2.4)	4.3 (2.5)	3.23 (1.14)	2.27 (1.12)	1.71 (1.10)	0.86 (1.00)	69%	56%	21%	31%
No	152	7.3 (2.3)	5.3 (2.3)	3.66 (0.99)	2.86 (1.11)	1.85 (1.07)	1.28 (0.86)	89%	81%	5%	4%
p-value		0.4	0.006	0.01	0.001	0.4	0.002	0.001	0.001	0.002	0.0011

Table 4. Lifestyle and general health variables (in 2002) significantly associated with a past history of intimate partner violence (IPV). Results from bi-variate analysis

History of IPV	n	Exercise ≥ 4 times/week	Education ≥ 12 years	Current smoker	Pack years[a]	Respiratory symptoms	Number symptoms	Hassles score
Yes	62	55%	53%	9.7%	9.1 (15.0)	0.61 (0.45)	6.1 (3.2)	10 (12)
No	171	38%	45%	8.2%	4.7 (10.4)	0.25 (0.57)	5.1 (2.9)	5 (7)
p-value		0.02	0.2	0.7	0.04	0.001	0.03	0.003

[a] Pack years = equivalent to number of years that a subject smoked one pack (20 cigarettes) per day.

12 months of amenorrhea) (Soules et al, 2001) 22% were taking hormone therapy and 5% had experienced a surgical menopause since the 6th year of follow-up and were not taking hormone therapy. Table 1 shows the number of women and the type of violence they experienced and the prevalence of childhood abuse in this cohort. The majority of the IPV group reported a violent act that could be classified as minor. Some women experienced several types of violence and so are represented more than once in Table 1.

Tables 2, 3 and 4 show the results of bi-variate analysis. Table 2 shows mental health related variables and Table 3 variables associated with sexual functioning both at baseline and at the 11th year of follow-up. Table 4 shows lifestyle and general health variables at the 11th year of follow-up. Only 204 participants (88% of cohort) provided sufficient information to calculate sexuality scores. Women who reported a history of any IPV were more likely at baseline and in the 11th year of follow-up to have: lower positive mood scores and higher negative mood scores. At the 11th year of follow-up they were

also more likely to have higher CES-D scores; to be classified as being depressed (cut-off score of 10 or greater) and to be taking psychiatric medication. They were more likely in the 11th year of follow-up to have lower SPEQ Total Sex Scores and a lower Frequency of Sexual Activities. Their Sexual Responsivity was lower at both baseline and the 11th year of follow-up and were less likely to have a current sexual partner and more likely to be separated or divorced both at baseline and the 11th year of follow-up.

At the 11th year of follow-up women who reported a history of any IPV were more likely to exercise 4 or more times a week; report more bothersome symptoms and in particular those symptoms grouped by factor analysis (Dennerstein et al, 1993) as "respiratory" symptoms; to have smoked more cigarettes over their lifetime and to have higher daily Hassles Scores. Those symptoms grouped as 'respiratory' included: persistent cough, sore throat and loss of appetite, and the first 2 symptoms were significantly more likely to be present in the women who had experienced domestic abuse ($p < 0.01$).

Women who had experienced IPV during the 12 months prior to completing the violence questionnaire ($n = 26$) had similar associations in bivariate analysis except their negative mood scores were significantly higher at follow-up compared with women who had not experienced IPV during that year ($p = 0.001$) and they tended to have higher mean CES-D scores than those whose experience of IPV was more than 12 months previously (9.2, SD 4.8 versus 7.1, SD 3.9; $p = 0.06$).

Considering the variables which were significantly different between the IPV and non-IPV groups – there was a high positive correlation between CES-D score, number of bothersome symptoms ($r = 0.6$, $p < 0.001$), the number and severity of daily hassles ($r = 0.6$, $p < 0.001$) and a negative correlation with wellbeing ($r = -0.7$, $p < 0.001$) and the SPEQ Total Sex Score ($r = -0.2$, $p = 0.002$). There was also a strong correlation between the number of bothersome symptoms and the number of 'respiratory' symptoms ($r = 0.4$, $p < 0.001$).

Thirty-seven percent of the 'non-IPV' women had reported contact sexual and/or physical abuse during childhood compared with 36% of the 'IPV' women. There was no significant correlation between childhood experiences of contact sexual, non-contact sexual or physical abuse and IPV. Women who had suffered childhood abuse were more likely to be separated or divorced in the 11th year of follow-up (59% versus 41%, $p = 0.02$), and to have higher mean CES-D scores (7.4, SD 4.3 versus 6.1, SD 3.9, $p = 0.03$).

There was no significant difference in the reporting of vasomotor symptoms during the menopausal transition by women who had experienced intimate partner violence and those who had not. There was no difference with respect to: education; parity; the number of chronic or common health conditions; or the rating of their general health. With respect to history of psychiatric problems, 26% of the IPV group reported ever using psychiatric medication and 5% had been hospitalized, compared with 18 and 2%, respectively, for the non-IPV group. The differences were not significant, however, there was a significant difference in psychiatric medication use between the 2 groups at year 11 of follow-up (Table 2). Between the 6th and 11th follow-up years there was no difference in the hysterectomy rates of those who had experienced IPV and others.

We examined the association of IPV with mental and sexual health outcomes at the 11th year of follow-up in multivariate analysis including baseline health values, and follow-up exercise, smoking and symptom reporting as co-variables. There were highly significant associations between outcome and baseline variables. Health outcomes at follow-up which were significantly associated with a history of IPV, after allowing for covariates and baseline levels, included negative mood, Frequency of Sexual Activities and being separated or divorced. Negative mood was higher in women who experienced IPV during the 12 months prior to completing the violence questionnaire in year 6 of follow-up ($p = 0.01$). The likelihood of being separated or divorced in the 11th year of follow-up was predicted by the experience of IPV during adult life (Odds Ratio 6.16, 95% confidence interval 1.91, 19.88; $p = 0.002$). Frequency of Sexual Activities was lower in women with a history of IPV during their adult years. ($p = 0.04$) after allowing for baseline activity, co-variates and being separated or divorced at follow-up.

Discussion

In this study of 233 women aged between 56 and 67 years twenty seven percent reported experiencing physical and/or emotional and/or sexual IPV during their adult life. When interviewed 5 years later those women who had experienced IPV were more likely to be separated or divorced and to have a lower Frequency of Sexual Activities. They also reported lower overall wellbeing and more bothersome symptoms, and were more likely to have CES-D scores indicative of depression. In particular negative mood was higher in year 11 in women with the experience of IPV during the 12 months prior to completing the violence questionnaire in year 6. The reporting of childhood sexual abuse was not significantly associated with reporting IPV. The strengths of the study included the fact that the cohort was population-based rather than clinically selected and that health outcomes were measured prospectively.

One limitation of this study is the possible misclassification of women into the non-IPV group and hence the potential association between IPV and ill health could be obscured. The reasons for misclassification include the fact that: older women report IPV less often than younger women (Piispa, 2004). Women in the Melbourne sample had a mean age of 56 years at the time of reporting. As well some women who are exposed to IPV do not report these acts, perhaps in an attempt to diminish their importance. The likelihood that our estimates are conservative is also supported by the fact that in our study the association between childhood and adulthood abuse is not significant. Such an association has been reported in other studies including a random sample of women attending general practice medical clinics

(Mazza et al, 1996), in a population-based cohort (Heiskanen & Piispa, 1998), and among gynecological patients (Hilden et al, 2004).

Another explanation of the lack of association between childhood abuse and IPV might be that the reporting of childhood abuse in the non IPV groups is higher than in other studies or that a selection bias was operating. Support for the first theory is that our study had a higher overall prevalence of contact child sexual abuse than that found in a study of patients visiting general practitioners (Mazza et al, 1996). Alternatively the prior association found in other studies could be based on selective reporting based on women's experience of adult abuse. When women as in our study are given the opportunity to report in a setting in which confidence and trust has been built up over time, more women without adult IPV will also report. A selection bias may have been operating in our study which has selected more women without childhood abuse in the IPV group to participate compared to women with childhood abuse and IPV. We cannot determine this but we can report that the dropout was non-selective as to childhood abuse.

Further limitations include the lack of data on the timing of the IPV and the low rate of participation of those eligible for the study. The questionnaire asked about IPV in the past 12 months and at any time other than in the past 12 months. Length of time since the IPV may have influenced the outcomes as women whose IPV experience had included the past 12 months had higher mean CES-D and negative mood scores. Although the participation rate of those eligible was low, 56% of original eligible sample and 53% of longitudinal sample, there was a wide range in values of the variables measured. The topic of "ongoing" violence was not formally addressed in years of follow-up 7, 8 and 11 when the women were interviewed and this is a limitation of the study. Women who had experienced IPV in year 6 were found to have higher negative mood scores than those who had experienced IPV earlier than year 6. A post-hoc analysis found that the change in the separation rate among the former was very much lower than the latter group (0% versus 40% change between baseline and 11th year of follow-up). It is possible that they were still in unsatisfactory relationships.

In recent literature, there is an increased recognition of emotional abuse as an important contributing factor in the development of ill health among women exposed to IPV (Coker et al, 2000) and that fear of partner is closely linked to the experience of physical abuse (Bradley et al, 2002). In this theory, the detrimental effect of IPV stems not only from the violent act but from the total relational context in which this happens. This has led to the theoretical classification of IPV into "common couple violence" and "patriarchal terrorism" (Johnsen, 1995), the latter being characterized by escalating violence over time and emotional abuse including behavioural control and belittling.

It is likely that women exposed to the most severe type of IPV suffering the most consequences would be over-represented in the non-participating group, thus also reducing the associations found in this study. The finding that the majority of women in our IPV group reported a violent act that could be classified as minor, supports such assumption. This assumption is supported by the fact that the prevalence of severe violence in IPV was lower in our study compared to that of patients visiting general practices (Mazza et al, 2001). There are studies indicating that there is a dose-effect response, as increased levels of violence are associated with increased risk of depression (McCauley et al, 1998).

One might hypothesise that women reporting IPV are more likely to report any negative life or health event. However as health outcomes in this study were reported five years after the establishment of exposure status, it is unlikely that the association is obscured by reporting bias. Even though we have been able to assess health outcomes occurring after the exposure, we have not been able to exclude the possibility that poor mental health might be a risk for forming a relationship in which violence occurs. At baseline in 1991, women in the IPV group were more likely to report lower wellbeing. Given these considerations, the associations shown in this study between IPV and selected health outcomes, are probably conservative estimates of the true associations. This underlines the importance of IPV being a significant contributing factor in the development of ill health, since this is shown in our study among this low risk group of women exposed to IPV. Clinicians should be aware of the contribution of IPV to health outcomes and to investigate whether or not it is present when assessing clients.

The findings that women exposed to IPV were more likely to have a higher number of bothersome symptoms is in accordance with other studies showing women exposed to IPV are more likely to suffer from a range of non-specific disorders (Campless et al, 2002; Diaz-Olavarrieta et al, 1999; Kovac et al, 2003). Interestingly the menopause specific symptoms (vaso-motor symptoms and vaginal dryness) (Dennerstein et al, 2000) were not reported more often by women exposed to IPV.

There are few comparable longitudinal studies. A study from Denmark compared women identified as victims of domestic violence in the Danish National Patient Register, with women with all other reasons for hospital contact the same year. Victims of domestic violence had an 18-fold increased risk for consulting for any mental disorder the following year. Consultations at psychiatric hospitals were not included (Helweg-Larsen & Kruse, 2003) so the degree of difference might have been greater. In a retrospective assessment of abuse and health service use, Scholle et al (1998) found that women abused as adults had more severe depressive symptoms in agreement with our findings. They reported that these depressed women sought general medical rather than mental health care and also highlighted the need for primary care guidelines to detect abuse. A recommendation we are in agreement with.

In the Melbourne cohort, women with a history of IPV were more likely to change status so that they were no longer living with a partner when followed up 5 years later at year 11. Clearly, loss of a partner may impact on women's sexual function (Dennerstein & Lehert, 2004), however, even allowing for this fact the history of IPV still was a predictor of a lower Frequency of Sexual Activities. Post-hoc analysis found that the percentage of women who had experienced IPV and had a partner (in years 1 and 11) – and answered zero to the question 'How many times in the past month have you had any sexual activities?' increased from 15% in year 1 to 27% in year 11, whereas in women who had not experienced IPV there was a decrease from 14 to 11% ($\chi^2 = 5.10$, df $= 1$, $p < 0.05$). Thus even those IPV women who remained with partners were more likely to have reduced sexual activity than those who did not experience IPV.

Conclusion

This prospective population based study of mid-aged women found that major impacts five years later of intimate partner violence were on mental health and sexual relationships, with increased separation/divorce risk. These findings indicate that women presenting for treatment of depression should routinely be assessed for history of violence, so that this can be addressed (where still needed) in ongoing therapy.

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Correspondence: Professor Lorraine Dennerstein, Office for Gender and Health, Department of Psychiatry, The University of Melbourne, Level 1 North, Main Building, Royal Melbourne Hospital, Melbourne, VIC 3050, Australia; e-mail: ldenn@unimelb.edu.au