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ORIGINAL RESEARCH

Risk factors for recent domestic physical assault in patients presenting to the emergency department

Peter Stuart
Department of Emergency Medicine, Lyell McEwin Health Service, Elizabeth Vale, South Australia, Australia

Abstract

Objective: To identify risk factors for physical or sexual assault as a result of domestic violence in patients presenting to the ED.

Methods: Backward prevalence study of two urban teaching hospital emergency departments measuring the 1-year period prevalence, acute incidence of ED presentation and risk factors of domestic physical assault.

Results: Of the 1326 patients (62% female) completing the study, 115 (9% CI 7%, 10%) reported assault by a partner or ex-partner within the preceding 12 months and 31 (2% CI 1.6%, 2.3%) reported domestic physical assault as the cause of their presentation. Risk factors for recent domestic physical assault included female gender (prevalence rate ratio, (PRR) 1.5 CI 1.0 2.2), age 17 to < 25 years (PRR 6.8 CI 1.7 27.7) or 25 to < 35 years (PRR 5.7 CI 1.4 23.0), past presentation to an ED for assault (PRR 2.5 CI 1.7 3.7) and a past history of child abuse (PRR 2.2 CI 1.5 3.1). There was no association between health service utilization or mental illness and the reporting of recent domestic physical assault.

Conclusion: The study characterizes ED patients at high risk of injury from domestic violence.

Key words: *assault, domestic violence, emergency department, risk factors.*

Introduction

Domestic violence is a significant cause of morbidity in Australia.[1–3] Most common in women,[4,5] domestic violence accounts for a quarter of serious physical assaults on women and nearly a third of all female homicides.[3,6] Domestic violence (also referred to as domestic abuse) arises when one partner in a relationship seeks to physically or psychologically dominate or control the other.[1,2] This results in a spectrum of abusive behaviours ranging from non-physical types of abuse such as repeated demeaning or derogatory remarks, restriction on access to family or friends and destruction of property through to physical abuse involving physical or sexual assault with a high likelihood of causing physical injury or death.

Correspondence: Dr Peter Stuart, Director, Department of Emergency Medicine, Lyell McEwin Health Service, Haydown Road, Elizabeth Vale, SA 5112, Australia. Email: Peter.Stuart@nwahs.sa.gov.au

Peter Stuart, MBBS, DipRACOG, FACEM, MPH, Director.

Conflicts of interests: None

The ED has the potential to play a significant role in the early recognition of domestic violence and to assist in preventing the morbidity and mortality resulting from domestic violence. In a recent overseas study of homicides resulting from domestic violence, 14 (40%) of 34 victims had presented to the ED with assault related injuries within the 2 years preceding the homicide.[7] Estimates of the proportion of patients attending the ED who have a history of domestic violence vary considerably and reflect the lack of a uniform definition of domestic violence, variety of measuring instruments, selection bias and a failure to distinguish current from past exposure.[5,8,9]

Although Australian and overseas studies have reported that a history of domestic violence is rarely detected in the ED,[10–13] many of these studies do not differentiate between patients reporting solely non-physical abuse from those experiencing domestic physical assault and neither do they distinguish past from current abuse experience. Utilizing a risk stratification approach, the present study aims to identify risk factors for a subgroup of patients presenting to the ED who are at high risk of physical injury from domestic violence as a result of recent (within the past 12 months) physical or sexual assault by a partner. It is anticipated that an understanding of the risk factors for patients with a history of recent domestic physical assault will improve the identification of these patients in the ED and assist with the development of clinical tools for the improved detection of these patients in the future.

Methods

The study was undertaken, between May and July 1997 in two Adelaide urban teaching hospitals, the Lyell McEwin Health Service and the Modbury Public Hospital. Of similar size (200 beds), the hospitals have mixed adult and paediatric EDs with an annual census of 42 000 and 36 000, respectively. The Lyell McEwin Health Service, in contrast to the Modbury Public Hospital, services a population noted for its low income, < $21 000/annum (38% vs 20%), high proportion of single parent families (18% vs 10%) and high levels of unemployment (23% vs 9%).[14] The study followed the principles of the Helsinki declaration and was approved by the Ethics of Human Research committees at, North-western Adelaide Health Service (Lyell McEwin), and Modbury Public Hospital.

Utilizing a cross-sectional design known as a backward prevalence study, a written questionnaire was administered to medically stable (triage categories 3, 4 and 5) adult patients who attended the ED and could be interviewed alone. The backward prevalence study is a hybrid design that utilizes a cross-sectional study to retrospectively identify previous case occurrences (incident events) for a given period before selection. The measure of domestic physical assault estimated in the study is the prevalence even though case occurrences reflect incident events.[15] Recall bias was minimized by examining recent exposures to domestic physical assault (in contrast to lifetime exposure) and by asking specific questions related to these exposures. To avoid the possibility of misclassification, the study utilized a three-part process to identify the outcome variable (physical/sexual assault, partner/ex-partner, within past 12 months).

Medically stable patients aged 17 years and over who presented to the ED during the time a research assistant was undertaking an allocated shift were eligible for inclusion in the study. Patients were excluded if they were too ill or confused (as determined by the nursing staff) to complete the questionnaire, could not speak English, could not be interviewed alone or had previously completed the study.

Two research assistants, one an experienced nurse from the ED and the other a social worker from the local community health service, were employed at each hospital to administer the questionnaire. Following two days of formal training and a two-day pilot study, the research assistants were assigned to cover 40 shifts at each hospital comprising 20 early (08.00–16.00) and 20 evening (16.00–24.00) shifts and spread evenly over a 7-day roster for an 8-week period between May and July 1997. A total of 80 shifts (40 at each site) were completed over the period of the study. Nights were not covered as a pilot study identified that there was a very low proportion of subjects eligible for inclusion in the study presenting after midnight at both hospitals.

Utilizing the triage 'log' and assisted by the triage nurse, the research assistant identified eligible patients. After explaining the nature of the study and responding to any questions, the written consent form, information sheet and study questionnaire were handed to each participant for self-completion. Where literacy was identified as a barrier to the completion of the questionnaire, the research assistant was authorized to administer the questionnaire verbally.

Participants were provided with written information on domestic violence and offered referral for counselling. Where immediate assistance was requested, this was provided by the ED staff according to the protocol established at the commencement of the project.

The outcome variable was measured in the study questionnaire using three questions on domestic physical assault, taken from the Conflicts Tactics Scale (using one of the two dimensions known to correlate with abuse)[11,16,17] and a fourth question concerning sexual assault was taken from the validated abuse screening tool developed by McFarlane.[18] Participants were identified as having a history of recent domestic physical assault where they answered yes to any of the four questions relating to physical or sexual assault and identified the perpetrator of the assault as a current partner or ex-partner and where they reported at least one episode of assault within the past 12 months.

The questionnaire assessed a range of possible predictor variables (Table 1). Mental health was assessed using the Symptom Checklist-22 (SCL-22), a 22-question tool derived from the 58-item Hopkins Symptom Checklist by McCauley.[19] The index assesses symptoms of anxiety, depression, somatization and self esteem. Internal consistency measures for the SCL-22 are 0.8 for anxiety, 0.9 for depression, 0.8 for somatization, 0.8 for self-esteem and 0.9 for the total tool.[20]

There were four questions on domestic non-physical violence derived from validated questionnaires on domestic abuse.[11,16–18,21] The questions asked the participant whether a partner or ex-partner had made them feel afraid (fear), prevented them from seeing family or friends or getting out of the house (social abuse), repeatedly put them down or blamed them or threatened them verbally (verbal abuse) or deliberately damaged property or threw objects at them (damage to property).

Descriptive analysis documented the prevalence rate for recent domestic physical assault and calculated the prevalence rate ratio (PRR), prevalence rate difference and 95% confidence intervals (95% CI) for the range of predictor variables. The prevalence rate ratio was preferred to the odds ratio as the latter can produce slightly inflated estimates.[22] The acute incidence of domestic physical assault presentation was determined by examining the responses of the subjects with recent domestic physical assault to the question on whether the assault was the reason for their current presentation. The sensitivity, specificity, negative and positive predictive value of the four non-physical abuse questions for the reporting of recent domestic physical assault was determined. One or more 'yes' responses to any of the four questions was considered a positive predictor and a 'no' response to all questions a negative predictor for recent domestic physical assault. Statistical analysis utilized STATA 8.0 statistical package.[23]

Table 1. Major predictor variables examined in the study and categorized by group

Demographic and presentation variables
1. Hospital
2. Gender
3. Age group
4. Cultural background
5. Employment status
6. Day of presentation

Utilization of health services
7. Number of ED attendances in past 12 months
8. Number of general practitioner (GP) visits in past 12 months
9. Number of specialist attendances in past 12 months
10. Number of hospital admissions in past 12 months
11. Past attendances to the ED for injuries due to assault
12. Past hospital admission for a mental health condition

Medications
13. Use of analgesics on a daily basis
14. Use of sedatives on a daily basis
15. Use of antidepressants on a daily basis

Mental health assessment (Hopkins Symptom Checklist-22)[19,20]
16. Depression (six questions)
17. Anxiety scale (five questions)
18. Somatic symptom scale (seven questions)
19. Self esteem scale (four questions)

Domestic violence
20. History of child abuse
21. Non-physical abuse by their partner
    a. Repeatedly put down, blamed or threatened verbally (verbal abuse)
    b. Made you feel frightened (fear)
    c. Difficult to contact with family or friends or hard to get out of the house (social abuse)
    d. Thrown objects or damage property (damage to property)
22. Identifies as a victim of domestic violence
23. Ever sought help for domestic violence
24. Ever been asked by a doctor about domestic violence
25. Presentation due to domestic violence

Table 2. Comparison of the demographics of the participants with and without recent domestic physical assault

	Domestic physical assault *n* (%)	No assault reported *n* (%)	Prevalence rate ratio	95%	CI
Total	115 (9)	1211 (91)			
Gender					
Male	33 (7)	463 (93)	1.0		
Female	82 (10)	729 (90)	1.5	1.0	2.2
Age					
65 years and over	2 (2)	95 (98)	1.0		
45 to < 65 years	5 (3)	190 (97)	1.2	0.2	6.3
35 to < 45 years	17 (6)	281 (94)	2.8	0.7	11.8
25 to < 35 years	56 (12)	419 (88)	5.7	1.4	23.0
17 to < 25 years	35 (14)	215 (86)	6.8	1.7	27.7
Cultural background					
Non-English apeaking	3 (4)	64 (96)	1.0		
English speaking	96 (9)	978 (91)	2.0	0.7	6.1
Indigenous	2 (20)	8 (80)	4.5	0.8	23.5
Employment status					
Full time employed	25 (7)	348 (93)	1.0		
Part time employed	36 (11)	286 (89)	1.7	1.0	2.7
Unemployed	20 (7)	268 (93)	1.0	0.6	1.8
Home duties	33 (11)	266 (89)	1.6	1.0	2.7
Day of presentation					
Weekend	39 (8)	427 (92)	1.0		
Weekday	76 (9)	783 (91)	1.1	0.7	1.5

Total numbers in categories may vary slightly due to incomplete data.

Results

Demographics of study sample

A total of 2024 adult patients attended the two EDs during the 80 shifts research officers were rostered to the departments. There were 486 exclusions comprising 257 patients who were medically unstable or confused, 155 who could not be interviewed alone (due to refusal of the partner to leave the room), 49 unable to speak English and 25 who had participated in the study at an earlier presentation.

Of the 1538 patients eligible for inclusion, 1326 (86%) returned a completed questionnaire (681 Modbury, 645 Lyell McEwin). Of the remaining 212 (14%) eligible patients who did not complete the study: 157 (10%) patients declined involvement, 30 (2%) did not return the questionnaire and 25 (2%) left the department before the research assistant could interview them. No demographic data were collected on these subjects.

The study sample comprised 1326 subjects, of whom 62% were women and 77% were below the age of 45 years (Table 2). The majority were from English speaking backgrounds (93%) with the non-English speaking background (NESB) group comprising 6% and indigenous persons 1% of the study sample. There was a relatively even distribution of participants across the occupational categories and 35% of the participants attended on the weekend.

Recent domestic physical assault

Recent domestic physical assault was reported by 115 (9% CI 7%, 10%) of participants of which 82 were women (representing 10% of female subjects) and 33 were men (representing 7% of male subjects). In comparison to participants not reporting domestic physical assault, the 115 participants with recent domestic physical assault were more likely to be female and of ages 17 to < 25 years or 25 to < 35 years. There was no difference between the groups with respect to

employment status, cultural background or day of presentation. A total of 31 subjects (2.3% CI 1.6%, 3.3%) reported that their presenting symptoms were the result of domestic physical assault.

The 115 participants disclosing recent domestic physical assault were neither more likely than those without the experience of domestic physical assault to have attended the ED, visited their GP or a specialist or be admitted to hospital in the 12 months prior to the survey nor to have ever required admission in the past for a mental health illness (Table 3). They were however, more likely to have attended the ED for assault in the past.

There was no association between reporting of recent domestic physical assault and the use of regular analgesic agents, sedatives or antidepressants. Although depressive symptoms, anxiety or somatization were no more common in the group with recent domestic physical assault, there was a trend toward lowered self esteem in this group when compared with those without recent domestic physical assault (Table 3).

Child abuse and non-physical abuse

Child abuse was reported by 39 (34%) of the subjects with recent domestic physical assault and 214 (18%) of those without recent domestic physical assault (Table 4). Non-physical domestic abuse was reported by 101 (89%) of the 115 subjects with recent domestic physical assault and 406 (34%) of the 1211 subjects without recent domestic physical assault. Subjects with recent domestic physical assault were more likely than those without recent domestic physical assault to report verbal abuse, fear, social abuse and damage to property.

Of the 115 participants reporting domestic physical assault, 101 (89%, CI 81%, 94%) answered yes to at least one of the four questions on non-physical abuse (sensitivity), whilst 785 (66% CI 63%, 69%) of the 1211 participants without domestic physical assault answered no to all four questions (specificity). A 'yes' response to one or more of the four questions had positive predictive value of 20% (CI 17%, 24%) for domestic physical assault whilst a 'no' response to all four questions had negative predictive value of 98% (CI 97%, 99%).

Discussion

Although the ED has been identified as having a central role in the prevention of the morbidity and mortality from domestic violence, the low rate of detection remains a major concern.[10–13] It is difficult to estimate the number of patients presenting to the ED who are at risk of physical injury from domestic violence as many of the published studies report the lifetime (cumulative) prevalence of domestic violence and utilize a broad definition for abuse.[11,13] Whilst documenting how common a past history of domestic violence is in patients attending the ED, these studies offer little assistance in identifying risk factors to improve the detection of patients who are at high risk of physical injury or death from domestic violence.

The present study addresses this issue by identifying patients with a current experience of domestic violence and measuring the proportion of patients at risk of physical injury. Of the 1326 patients who completed the questionnaire, 115 (9%) reported experiencing physical or sexual assault by an intimate partner within the preceding 12 months (a measure for recent domestic physical assault) and 31 (2%) attended the ED because of symptoms due to domestic physical assault (a measure of the acute incidence of domestic physical assault presentation). These findings are consistent with reported estimates for the 12-month period prevalence and acute incidence of domestic violence presentation for patients attending the ED.[5,8]

A number of studies have sought to identify risk factors that could be used to determine patients at most risk of domestic violence.[19,24] The present study adds an additional perspective to this research by examining a wide range of potential risk factors with the aim of characterizing patients at high risk of physical injury from domestic violence. Risk factors for recent domestic physical assault identified in the study included female gender, age 17 to < 25 years or 25 to < 35 years, past presentation to the ED for assault and a past history of child abuse.

The study did not identify an association between domestic physical assault and either the symptoms of mental illness or utilization of mental health services. Neither did the study find that subjects reporting recent domestic physical assault utilized mainstream medical services any more commonly than subjects not reporting domestic physical assault. These results contrast with a study of patients in a primary care setting[19] that utilized a similar tool but found victims of recent domestic violence utilize health services more frequently and more commonly report symptoms of mental illness than subjects not reporting recent domestic violence. Possible explanations for this difference relate to the underlying study populations

Table 3. Comparison of the utilization of health services, mental health symptomatology and use of medications by participants with and without recent domestic physical assault

Variable	Domestic physical assault *n* (%)	No assault reported *n* (%)	Prevalence rate ratio	95%	CI
Total	115 (9)	1211 (91)			
Utilization of medical services					
ED attendances: past 12 months					
Nil	28 (12)	212 (88)	1.0		
One	50 (9)	508 (91)	0.8	0.5	1.2
Two	21 (8)	241 (91)	0.7	0.4	1.1
More than two	14 (7)	197 (93)	0.6	0.3	1.1
GP visits: past 12 months					
Nil	12 (11)	98 (89)	1.0		
One or two	27 (9)	271 (91)	0.8	0.4	1.6
Three or four	17 (9)	174 (91)	0.8	0.4	1.6
Five or six	10 (7)	135 (93)	0.6	0.3	1.4
More than six	24 (10)	213 (90)	0.9	0.5	1.8
Specialist visits: past 12 months					
Nil	45 (8)	496 (92)	1.0		
One	21 (12)	150 (88)	1.5	0.9	2.4
Two	7 (7)	91 (93)	0.9	0.4	1.8
More than two	8 (5)	145 (95)	0.6	0.3	1.3
Hospital admissions: past 12 months					
Nil	56 (8)	626 (92)	1.0		
One	22 (11)	172 (89)	1.4	0.9	2.2
Two	2 (3)	59 (97)	0.4	0.1	1.6
More than two	5 (11)	41 (89)	1.3	0.6	3.0
Past attendance to ED for assault					
No	85 (7)	1057 (93)			
Yes	30 (19)	131 (81)	2.5	1.7	3.7
Past hospital admission for mental illness					
No	103 (8)	1122 (92)			
Yes	10 (14)	60 (86)	1.7	0.9	3.1
Use of medications					
Daily use of analgesic drugs					
No	100 (9)	1048 (91)	1.0		
Yes	15 (9)	159 (91)	0.99	0.6	1.7
Daily use of sedatives agents					
No	111 (9)	1136 (91)	1.0		
Yes	4 (5)	71 (95)	0.6	0.2	1.6
Daily use of anti-depressant drugs					
No	105 (9)	1116 (91)	1.0		
Yes	10 (10)	91 (90)	1.2	0.6	2.1

Table 3. *Continued*

Variable	Domestic physical assault *n* (%)	No assault reported *n* (%)	Prevalence rate ratio	95%	CI
Mental health index					
Depression					
Nil	28 (9)	286 (91)	1.0		
Mild	62 (8)	710 (92)	0.9	0.6	1.4
Moderate	15 (8)	164 (92)	0.9	0.5	1.7
Severe	8 (15)	46 (85)	1.7	0.8	3.4
Anxiety					
Nil	36 (8)	397 (92)	1.0		
Mild	55 (8)	659 (92)	0.9	0.6	1.3
Moderate	17 (14)	105 (86)	1.7	1.0	2.9
Severe	4 (8)	45 (92)	1.0	0.4	2.6
Somatization					
Nil	7 (9)	71 (91)	1.0		
Mild	72 (8)	800 (92)	0.9	0.4	1.9
Moderate	24 (8)	264 (92)	0.9	0.4	2.1
Severe	2 (4)	43 (96)	0.5	0.1	2.2
Self esteem					
Nil	34 (7)	450 (93)	1.0		
Mild	51 (8)	567 (92)	1.2	0.8	1.8
Moderate	11 (8)	125 (92)	1.2	0.6	2.2
Severe	7 (17)	35 (83)	2.4	1.1	5.0

Total numbers in categories may vary slightly due to incomplete data.

(ED vs primary care), variation between health systems (Australia vs USA) and local patterns for the utilization of domestic violence services.

Whilst confirming that domestic physical assault is common in patients attending the ED and that women less than 35 years are at most risk, the study also identifies that recent domestic physical assault is not isolated to this group of patients but is also relatively common in men and all age, employment and cultural groups. This finding, reported in other studies[5,19] confirms the ubiquitous nature of domestic violence (and domestic assault) and highlights the difficulty in establishing a risk factor profile based on personal characteristics that would enable the selective screening of patients for domestic violence.

In response to the low rates of detection of domestic violence in EDs (and other medical settings), it has been suggested that women attending the ED or general practitioner should be routinely screened for a history of domestic violence.[25,26] Demonstrating that the routine screening for domestic violence results in improved outcomes for women has been problematic due largely to the lack of rigorously validated screening instruments and objections by a significant minority of women (20%) to the routine use of highly confronting questions by doctors.[13,26] Before a screening program can be implemented therefore, careful consideration of the screening tool will be required to ensure it is rigorously validated and the questions less confronting to patients.

The results of the present study suggest a practical and more acceptable approach to screening that does not require the highly confronting questions relating to physical and sexual assault. It was found that subjects with recent domestic physical assault were highly likely to report a domestic relationship characterized by repeated verbal abuse, fear, social abuse and damage to property. With a high negative predictive value, a clinical tool comprising these four questions could be used to 'rule out' cases whilst a positive response could identify 'at risk patients' prompting the clinician to assess for a history of domestic violence.

Table 4. A comparison of reporting of child abuse and non-physical abuse by participants with and without recent domestic physical assault

Variable	Domestic physical assault *n* (%)	No assault reported *n* (%)	Prevalence rate ratio	95%	CI	Prevalence rate difference	95%	CI
Total	115 (9)	1211 (91)						
Past history: Child abuse								
No	76 (7)	997 (93)						
Yes	39 (15)	214 (85)	2.2	1.5	3.1	8%	4%	13%
Past history of non-physical (domestic) abuse								
Verbal abuse								
No	30 (3)	878 (97)						
Yes	84 (21)	311 (79)	6.4	4.3	9.6	18%	14%	22%
Fear								
No	35 (4)	930 (96)						
Yes	78 (23)	259 (77)	6.4	4.4	9.3	20%	15%	24%
Social abuse								
No	48 (5)	993 (95)						
Yes	66 (25)	197 (75)	5.4	3.8	7.7	20%	15%	26%
Damage to property								
No	29 (3)	919 (97)						
Yes	85 (24)	267 (76)	7.9	5.2	11.8	21%	16%	26%
Yes to questions on non-physical abuse								
No	13 (2)	785 (98)						
Yes	101 (20)	406 (80)	12.2	6.9	21.6	18%	14%	21%

Total numbers in categories may vary slightly due to incomplete data

Although the study had a relatively high inclusion rate (86%) there are a number of limitations that need consideration. The data on refusals and exclusions was not collected systematically. It was noted however, by the research assistants that men were more likely to refuse to participate in this study and the elderly comprised a larger proportion of the exclusions. The use of exclusion criteria in the study meant that the study sample is unlikely to be representative of all patients attending the ED in these hospitals. Patients not included in the sample population included patients in the high priority categories and with serious injuries, those attending between 24.00 hours and 08.00 hours, patients who declined to be interviewed and those in whom the partner would not leave the room. As many of these patients are at significantly greater risk for domestic physical assault,[27] the study is likely to underestimate (as opposed to over-estimate) the prevalence for recent domestic physical assault in patients attending the ED.

Although no formal sample size calculation was undertaken prior to study commencement the study size is relatively large and would be expected to have a power of 90% to detect a 0.15 difference even in the setting where the proportion of affected subjects was relatively small ($n = 115$, prevalence in control group = 0.2, $\alpha = 0.05$, two sided).[28] The study was therefore sufficiently powered to have detected differences where these existed. The study was undertaken in 1997 and it is possible that patterns for domestic physical assault presentations may have altered over this period although recent data suggest that this is unlikely.[29]

The study highlights the need for further research into the risk factors for injury or death in patients with a history of domestic violence. Further research is recommended to develop a clinical tool to assist with the identification of domestic physical assault in the ED.

Conclusion

The study characterizes patients presenting to the ED who are at high risk for injury from domestic violence and determines the 12-month period prevalence and acute incidence for domestic physical assault presentation to the ED. The study explores the relationship between recent domestic physical assault and the cumulative lifetime prevalence for non-physical domestic abuse. A clinical screening tool with high sensitivity and high negative predictive value is proposed.

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