Home is Where the Hurt is: An Econometric Analysis of Injuries Caused By Spousal Assault[+]

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Abstract

Using data on injuries presenting at the Emergency Departments of participating hospitals in the Australian state of Queensland we examine the nature of injuries resulting from spousal assault and compare them to injuries from non-spousal assault and accidental injuries. We ask: who are the persons most vulnerable to spousal assault? Are spousal assault injuries more (or less) severe than injuries from non-spousal assault and accidental injuries? Do the recorded figures for assault injuries on women understate the true number of assault injuries and, if so, by how much?

Key words: Spousal Assault, Injuries, Triage, Logit, Ordered Logit, Bayes' Theorem

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"But for my bonny Kate, she must with me. I will be master of what is mine own. She is my goods, my chattels" (Taming of the Shrew).

1. Introduction

There is no place like home – at least not as far as getting injured is concerned. The Queensland Injuries Surveillance Unit (QISU), which records details of injuries presenting at the Emergency Departments of participating hospitals in the Australian state of Queensland[1] (hereafter simply "injuries"), reported that of the 84,583 injuries recorded between 1 January 2003 and 31 December 2005, 48 percent (40,656 injuries), occurred in the home; and only 9 percent (7,951 injuries), occurred in the workplace.[2]

Yet, the vast bulk of the literature which analyses personal injuries is concerned with injuries which occur in the workplace (or in the course of performing one's work) [3] There is very little analysis of injuries which occur in the home even though, as noted above, such injuries comprise a large proportion of the total. The purpose of this paper is to provide a partial remedy for this neglect by analyzing, using the injuries recorded on the QISU data base between 1 January 2003 and 31 December 2005, injuries which are the result of spousal abuse and which occurs mainly – though not exclusively – in the home. [4]

[1] For details of the QISU data see http://www.qisu.qld.gov.au

[2] 10 percent of all injuries occurred at school or other public institutions; 13 percent occurred in recreation or sports areas; 8 percent occurred in the street; and 12 percent occurred at "other places".

[3] Research into workplace injuries has been mainly concerned with issues relating to severity and recovery time, for example, see Johnson and Fry (2002) and Borooah and Mangan, J. (1998) or attempts to quantify the economic and social costs of work place injuries such as Andrioni, (1986).

[4] Casualty ward data has been used to study spousal abuse in many studies including: the US Centre for Disease Control and Prevention (1993); Roberts *et.al.* (1994); and Roberts (1995). Lawler (1996) has indicated the value of casualty ward screening as a means of identifying "hidden" incidents

Studies of spousal abuse have, in the main, been concerned with three aspects (*inter alia* Day, 1995, Hankivsky and Kingston-Riechers ,1995, Kingston-Riechers 1997, and Bowlus and Seitz 1998, 2000):

1. The psychology of spousal abuse and the characteristics of the abuser(s)

2. The incidence and gender distribution of abuse

3. The economic and social cost of abuse.

In this context, this paper is concerned with: identifying persons who are most at risk of suffering spousal assault; the incidence of spousal assault; and the severity of injuries resulting from spousal assault. It asks: who are the persons most vulnerable to being assaulted by their spouse? Are spousal assault injuries more (or less) severe than injuries from non-spousal assault and accidental injuries? Do the recorded figures for assault injuries on women understate the true number of assault injuries and, if so, by how much?

McCauley *et al* (1995), Eisenstat and Bancroft (1999), Mollon (2004) and Woods (2005) have reported on the profiles of females most likely to suffer spousal abuse.[5] These were based on clinical observations of abused women. In this paper we take an alternative approach to identifying vulnerable women: after separating the injuries in the QISU data into those which are result of spousal assault and those which are not, we use econometric methods to establish the probabilities of women with different characteristics from being injured through spousal assault.

[5] Those less than 40 years of age, with a past history of abuse, who have undergone recent separation or divorce, and who have a partner who is over-attentive.

While the frequency of spousal assault has attracted academic attention, the severity of injuries resulting from spousal assault has attracted much less attention. [6] The QISU data contain information on the severity of injuries – through a triage assessment of the urgency of the injury – and this study was able to exploit this data to compare the relative severity of injuries from different causes.

Lastly, the under-reporting of cases of spousal assault is a problem faced by all studies of spousal abuse. This under-reporting occurs in two distinct ways. First, there is under reporting of the number of cases of spousal abuse. Second there is the under-reporting of the severity of spousal abuse injuries. These two facets of under-reporting are related in that less severe injuries are likely to remain unreported while more severe injuries are often blamed on "accidents". Arriving at the "true", as opposed to the reported, number of injuries due to spousal assault is, therefore, an important aspect of enquiry in this area. We employ Bayes' theorem, in conjunction with information on the external cause of injury contained in the QISU data, to estimate the number of "accidental" injuries that were, in fact, the consequence of spousal assault.

Violence within marriage has obvious implications for the stability of the affected families and the happiness of its members but it also imposes wider social and economic costs. Max *et. al.* (2004) estimated the direct and indirect costs of spousal violence against US adult women.[7] They estimated the total costs of spousal violence to

[6] See, for example, Sherman (1992)

[7] In their study, direct costs of spousal abuse included spending for health care related services such as visits to emergency departments, hospitalization, and payments to health care professionals. Indirect costs included the value of lost productivity from both paid work and household production and was evaluated using data on the mean daily value of work and household production from the 1996 US Bureau of Labor Statistics.

be at least $5.8 billion per year. Studies for Australia, using similar methods, have also estimated the costs associated with spousal abuse as substantial.[8]

In terms of the theoretical literature, an obvious question is why domestic violence occurs. Tauchen *et. al.* (1991) "explain" domestic violence by a non-cooperative model of the family in which violence is used as a source of gratification and as an instrument for controlling behaviour. They consider domestic violence as an activity that alters the distribution of welfare within the family and their analysis provides a counterpoint to: Samuelson's (1956) family consensus model; Becker's (1974) altruism model; and the Manser and Brown (1980) and McElroy and Horney (1981) co-operative game theoretic models.

Farmer and Tiefenthaler (1997) also model marriage as a strategic relationship in which each partner maximizes utility subject to the constraint that the other remains in the marriage. They emphasise that, despite the strategic nature of the model, love and altruism are not ruled out; one's utility can be increasing in that of the other, and this impact alters the decision to act in a manner that may harm one's spouse. However, although altruism affects the magnitude of the choice variables, it will leave the qualitative results unchanged provided that each person values his or her own consumption more highly than the spouse's consumption.

2. The Nature of Injuries Due To Spousal Assault

The QISU reports the *intention* underlying an injury: 93 percent of the total number of injuries was accidental; 3 percent was the result of (non-parental/non-spousal) assault; 2 percent was due to "other intentions"; 1 percent was the result of self-harm; and

[8] See, Australian Bureau of Statistics (1996).

the remainder was due to parental or spousal abuse. In total, over the three year period 2003-05, the QISU identified 313 cases where the injury was due to an alleged assault by a spouse or a partner.[9]

By way of comparison, Hegarty *et. al.* (2000) for Australia, report that 1.3 percent of females and 0.14 percent of males *admitted* to emergency departments on any one day are there as a result of partner-inflicted injury. The QISU data also show that of the female with injuries admitted to hospital, or who were advised admission but refused, 1.3 percent had injuries caused by spousal assault; the corresponding figure for men was 0.21 percent.[10]

Table 1 sets out the salient features of injuries due to three intentions: spousal assault; non-spousal assault; and accidents. Injuries resulting from spousal assault are mainly - though not exclusively - to women. Table 1 show that four out of five injuries due to spousal assault were to women and one in five such injuries were to men. By contrast, three out of four injuries resulting from non-spousal assault, and nearly two out of three accidental injuries, were to men. The gender bias in spousal assault is well documented. For example, Australian police records show that women were eight times more likely to be victims of spousal assault than men while Statistics Canada (1993, 1999) estimates suggest that, compared to men, women are six times as likely to suffer spousal abuse as males.

[9] Needless to say, many cases of domestic assault do not lead to injuries which are treated at a hospital and hence will not appear on the QISU data; at the same time, injuries from spousal assault could be misreported on the QISU data as being accidental.

[10] Statistics Canada's (1993, 1999) Violence Against Women surveys of 12.000 Canadian Women found that 29% of ever married and 50% of divorced women in the survey had been victims of domestic abuse of varying degrees of severity.

The average age of the injured parties in cases of spousal assault was, at 32 years, four years greater than the average age of victims of non-spousal assault and 12 years greater than that of those who suffered accidental injury.

Table 1 also shows that 46 percent of spousal assault injuries was to the "head" (head, face (excluding eyes), or neck) compared to 50 percent of non-spousal assault injuries, and 23 percent of accidental injuries. The overwhelming number of spousal assault injuries were sustained in the home (77 percent) compared to 27 percent of non-spousal assault injuries and 49 percent of accidental injuries.

Although 29 percent of injuries due to spousal assault resulted in a superficial wound (compared to 24 percent of non-spousal assault injuries and 13 percent of accidental injuries), 22 percent of injuries due to spousal assault were regarded, by the relevant Emergency Department, as requiring "very urgent" attention (compared to 22 percent of non-spousal assault injuries and 30 percent of accidental injuries). However, there was a marked difference between men and women in the triage assessment of spousal assault injuries: 23 percent of spousal assault injuries to women were assessed as very urgent compared to 16 percent of such injuries to men.

After presentation of the injury to the relevant Emergency Department, 83 percent of persons with accidental injuries, and 89 percent with assault injuries, were discharged compared to only 71 percent with spousal assault injuries,. However, 18 percent of those with spousal assault injuries left the Emergency Department, *against medical advice*, compared to 12 percent of those with assault injuries and 4 percent of those with accidental injuries.

Lastly, over half the injuries from spousal violence were to persons who were Aboriginal or Torres Strait Islanders (ATSI) i.e. Australia's Indigenous people. However, only 19 percent of spousal assault injuries involving ATSI, compared to 25 percent for non-ATSI, were assessed by the relevant Emergency Department as requiring treatment "very urgently". At the same time, 26 percent of ATSI victims of spousal assault left the hospital against medical advice, compared to only 9 percent of the non-ATSI injured. The problem of domestic violence within ATSI communities is well recorded: a Women's Task Force on ATSI violence reported that "the degree of violence and destruction in the Aboriginal or Torres Strait Islander Communities cannot be adequately described…not only has there been a significant increase in the number of offences recorded in Indigenous communities but the level of severity has also increased" (Queensland Government, 1999).

3. Econometric Estimates

In the econometric work we asked two questions. First, what was the relative strength of the different factors influencing the probability of a person being injured through spousal assault? Second, after controlling for other factors, were injuries from spousal assault more (or less) severe than injuries from non-spousal assault and accidental injuries?

In order to answer the first question we estimated a logit model in which the dependent variable took the value 1 if an injury in the QISU data was the result of spousal assault and the value 0 if it was not such an injury. Table 2 shows the estimation results from estimating this equation. Shown alongside the estimates are the marginal

probabilities of being injured through spousal assault.[11] These show that four factors significantly increased the probability of a person being injured through spousal assault: (i) gender: being female; (ii) race: being an ATSI; (iii) age: being aged 22-45 years; (iv) labour market status: being unemployed or a home-maker. For example, given the composition of the sample – in particular, injuries to ATSI were 5 percent of the total number of injuries - 0.44 percent of the total number of injuries were spousal assault injuries; however, if all the injuries were to ATSI, the proportion of the total injuries which were the result of spousal would rise to 1.9 percent and the number of spousal assault injuries would rise from 313 to 1,624.[12].

In terms of the econometric results, an obvious limitation of the data is that the marital status of the injured person is not known. In other words, for unmarried persons the (population) probability of spousal injury is necessarily zero and ideally singles would be excluded from the estimating sample. However, this deficiency is not as constraining as might appear at first blush. The term "spousal injury" encompasses violence by: a legally married spouse; a cohabiting partner to whom, however, the victim is not married; a person with whom the victim is in a sexual relationship but who is neither a husband nor a cohabiting partner. Consequently one could be unmarried or even single and yet be the victim of "spousal violence".

As a robustness check, we re-estimated this equation on all individuals above the age of 30 years in order to exclude many of the unmarried injured. These results, which

[11] The marginal probability, associated with a determining variable, of being injured through spousal assault, is the change in the probability of being so injured, consequent upon a unit change in the determining variable, the values of the other variables remaining unchanged. For discrete variables, the marginal probabilities refer to changes consequent upon a move from the residual category for that variable to the category in question.

[12] By introducing ATSI interaction terms, we also allowed for the slope coefficients to be different between ATSI and non-ATSI. However, the coefficients on these interaction terms were never significantly different from zero.

are shown in the final two columns of Table 2, show that the results did not alter in substance when the equation was estimated on the older sample. The marginal probability of women being victims of spousal violence was approximately the same under the full and the restricted samples; similarly, the marginal probability of persons who were ATSI being the victims of spousal violence did not change by much under the two samples; the unemployed persons. However, unemployed persons were slightly more likely to be the victims of spousal violence under the restricted sample, compared to the full sample, while the marginal probability of homemakers being the victims of spousal violence was no longer significantly different from zero.

Some evidence supporting the link between labour market status and domestic violence is from India through studies of domestic violence in the context of inadequate, or unfulfilled promises of, dowry payments. Bloch and Rao (2002) have argued that Indian husbands weigh the costs and benefits of violence: they are violent towards their wives when the benefits of extracting higher economic resources from the wife's family outweigh the costs of social and legal sanctions. Thus, on this hypothesis, wives who are "empowered" because they bring large dowries are less likely to suffer violence than wives who bring smaller dowries.

A similar argument applied to market situations would suggest that wives who, through their market earnings, are an economic resource to their families are less likely to suffer violence than wives who do not have such earnings. For the former type of wife, the cost of violence includes forgone earnings - particularly when, as shown in this paper, these injuries are likely to be severe; for the latter type, it does not. For example, the comparative statistics gathered from the Farmer and Tiefenthaler (1997) model predict

that increases in income and financial support for women decreases the possibility of domestic violence. Therefore, increased economic opportunities for women may be expected to reduce the incidence of violence within households. Indeed, of the 173 spousal assaults in the sample, only 13 were to persons who were employed; the other 160 victims were either unemployed or home-makers.

The previous section noted that one in five spousal assault victims were men. To test for gender differences in the probability of spousal assault, the logit equation was estimated separately for women and men above the age of 15 years. These results, shown in Table 3, indicate that the only determinant of the likelihood of men being victims of spousal assault was unemployment – compared to other men, unemployed men were more likely to face spousal assault. On the other hand, the age, ethnicity, and economic effects – noted in the above discussion to Table 2 – applied also to women.

In order to answer the second question, this study defined the severity of an injury in terms of its triage assessment and categorization by the Emergency Department to which the injury was presented. The categories used in this paper were: "very urgent" (QISU triage categories: resuscitation; emergency; urgent); fairly urgent (QISU: semi-urgent); and not urgent (QISU: non urgent). Table 4 shows the estimation results from estimating an ordered logit model in which the dependent variable took the values: 3, if the injury needed very urgent treatment; 2, if the injury was fairly urgent; 1, if the injury was not urgent.

Shown alongside the estimates are the marginal probabilities of an injury being assessed as "very urgent".[13] These show, for example, that: injuries to females were less

[13] The marginal probability, associated with a determining variable, of being in a particular triage category, is the change in the probability of being placed in that category, consequent upon a unit change in the

likely to be very urgent than male injuries by 1.5 (percentage) points; injuries to infants, children, and older persons were more likely be very urgent – by respectively, 11.3, 10.1 and 12.0 points - than injuries to adults; on the other hand injuries to youths were less likely to be very urgent than adult injuries.

The results show that the probability of spousal assault injuries being very urgent was not significantly different from that for accidental injuries: the marginal probability of spousal assault injuries, with accidental injuries the residual outcome, was not significantly different from zero. Since the marginal probability of non-spousal assault injuries was significantly negative, spousal assault injuries were more likely, by 5.6 points, to be assessed as very urgent compared to non-spousal assault injuries.

4. Estimating the True Number of Assault Injuries to Women

Injuries through spousal assault are but a particular instance of violence against women. The QISU recorded 937 injuries to women which were *intentionally* caused: 31 cases of sexual assault; 38 cases of parental assault; 247 cases of spousal assault; 612 cases of "other assault"; and 9 cases of assault through police intervention or operation. These 937 injuries through assault comprised 3 percent of the total injuries to women (31, 948). The recorded number of assault injuries to women could, however, underestimate the true number of assault injuries to women: even if one focuses on only those injuries recorded by the QISU, and ignores those injuries which are not presented at hospitals, there is the possibility that some of the injuries to women which were recorded as accidental were, in fact, the result of assault.

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determining variable, the values of the other variables remaining unchanged. For ease of presentation, only the marginal probability of an injury being categorized as "very urgent" is shown.

There are a number of reasons why spousal abuse is likely to be under-reported. The first is the *embarrassment* or *shame* factor which is motivated by a desire on the part of the abused person to internalize family issues, to look for ways of minimizing the potential impact of isolated abuse cases on other family members and from self denial (Eisenstat and Bancroft, 1999).[14] Another reason for under-reporting is the *fear* of further retributory abuse. Closely allied to this is the fear is the fear of family disruption if the attention of the police or other governmental agencies is drawn to the abuse. The final reason is the *guilt* factor, where the abused person feels that the abuse is in some way a just punishment for their failings in the relationship; in such a situation, the victim will often report their injuries as resulting from an accident rather than deliberated abuse (Headey *et. al.*, 1999).

In this section we provide an estimate of the "true" number of assault injuries to women. Let *C* represent the event that an injury was the result of "contact with a person" and let *A* represent the event that the injury was the result of an assault. Of the 937 assault injuries to women, 75 percent were the result of contact with a person. Consequently, for women, the *conditional probability* $P(C|A) = 0.75$ where $P(C|A)$ is the probability of injury through "contact with a person ", given that it was the result of assault. We are, however, interested in the conditional probability $P(A|C)$: the probability of injury through assault, given that it was the result of "contact with a person".

By Bayes' Theorem, $P(A|C) = [P(C|A) \times P(A)]/P(C)$. Since, of the 31,948 injuries to women, 2,361 were the result of "contact with a person" and 937 were the result of

[14] Males are known to be highly susceptible to this factor and are less likely than females to admit to abuse because of issues of self-esteem (Lowenstein, 2005).

assault, $P(C) = 0.074$, $P(A) = 0.029$, and, therefore, $P(A|C) = 0.298$. The true number of injuries to women due to assault was 937 (the recorded figure) *plus* 29.8 percent of the 1,540 *accidental* injuries to women resulting from "contact with a person", or 937 + 459 = 1,396 injuries.

We can, similarly, estimate the true number of spousal assault injuries to women. Let *S* represent the event that the injury was the result of a spousal assault. Of the 247 spousal assault injuries to women, 78 percent were the result of contact with a person. Consequently, for women, the *conditional probability* $P(C|S) = 0.78$ where $P(C|S)$ is the probability of injury through "contact with a person ", given that it was the result of spousal assault. We are, however, interested in the conditional probability $P(S|C)$: the probability of injury through spousal assault, given that it was the result of "contact with a person".

By Bayes' Theorem, $P(S|C) = [P(C|S) \times P(S)]/P(C)$. Since, of the 31,948 injuries to women, 2,361 were the result of "contact with a person" and 247 were the result of spousal assault, $P(C) = 0.074$, $P(A) = 0.008$, and, therefore, $P(A|C) = 0.084$. The true number of injuries to women due to spousal assault was 247 (the recorded figure) *plus* 8.4 percent of the 1,540 *accidental* injuries to women resulting from "contact with a person", or 247 + 129 = 376 injuries.

Lastly, we estimate the true number of spousal assault injuries to ATSI women. Of the 129 spousal assault injuries to ATSI women, 73 percent were the result of contact with a person, i.e. $P(C|S) = 0.73$. Since, of the 1,785 injuries to ATSI women, 386 were the result of "contact with a person" and 129 were the result of spousal assault, $P(C) = 0.216$, $P(A) = 0.072$, and, therefore, $P(A|C) = 0.243$. The true number of injuries to

ATSI women due to spousal assault was 129 (the recorded figure) *plus* 24.3 percent of the 77 *accidental* injuries to ATSI women resulting from "contact with a person", or 129 + 19 = 148 injuries.

5. Conclusions

This study, which differs from other studies in this area by its application of econometric methodology to injuries data, analyzed the nature of spousal assault injuries comparing such injuries to non-spousal assault injuries and accidental injuries. Those most likely to suffer abuse were females, indigenous persons, those not in market employment and those aged less than 45 years of age.

Our finding that spousal abuse and indigenous status are highly correlated is consistent with results found for indigenous populations in other countries. One hypothesis is that the consumption of alcohol (as determined by its price) is directly related to the incidence of abuse. Markowitz (2000), using data from the National Family Violence Survey for the USA, has shown that higher alcohol prices appear to reduce the level of domestic violence against women but offer no clear evidence for reducing the level of violence against men.

While age, gender and indigenous status are personal characteristics beyond the sphere of social policy, labour market status is not. Our results show that increasing the empowerment of women through greater labour market participation would noticeably reduce the probability of being injured through spousal assault.

That injuries from spousal assault are significantly are likely to be more severe than non-spousal assault injuries is an important finding. There is a tendency to underplay the severity of spousal assault in particular and of injuries which occur in the home in

general. Our study showed that this complacency was unjustified. Of equal concern was the fact that those suffering spousal injuries were more likely to refuse further attention, through medically-advised hospital admission, than persons with other injuries.

Lastly, we suggested using Bayes' theorem to estimate the "true" number of injuries due to spousal assault. Using this methodology, we found that the reported level of spousal assaults against all women understated the true level of spousal assaults by over one-third.

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Table 1
Salient Features of Injuries Due to Different Intentions:
Emergency Departments of Queensland Hospitals, 2003-2005

	Spousal Assault	Other Assault	Accident
Number of Cases	**313**	**2,493**	**78,639**
Gender			
Male (%)	21	74	62
Female (%)	79	26	37
Total (%)	100	100	100
Average Age (years)	32	28	18
Bodily Location of Injury			
Head (%)	46	50	23
Trunk (%)	9	5	4
Upper limbs (%)	14	16	34
Lower limbs (%)	4	3	21
Unspecified location (%)	27	26	18
Total (%)	100	100	100
Place of Injury Occurrence			
Home (%)	77	27	49
School/public institution (%)	0	7	10
Recreation/sports area (%)	3	6	13
Street (%)	4	15	8
Workplace (%)	2	18	9
Other Place (%)	14	27	11
Total (%)	100	100	100
Nature of Injury			
Superficial (%)	29	24	13
Open Wound (%)	27	28	23
Fracture/dislocation (%)	14	19	33
Foreign body (%)	1	0	7
Other injury (%)	29	29	24
Total (%)	100	100	100
Ethnicity of Injured Person			
White (%)	44	67	88
ATSI (%)	51	26	4
Other (%)	5	7	8
Total (%)	100	100	100
Triage Category			
Very urgent (%)	22	22	30
Fairly urgent (%)	61	63	59
Not urgent (%)	17	15	11
Total (%)	100	100	100

Source: QISU data

Table 2
Logit Estimates of the Likelihood of Spousal Assault Injury, By Age

	Age of respondents > 15 years		Age of Respondents: 30-65 years	
Sex (residual: male)	Coefficient Estimates	Marginal Probability	Coefficient Estimates	Marginal Probability
Female	2.012***	.0062***	1.704***	.0056***
	(13.42)		(8.85)	
Ethnicity (residual: other)				
White	0.298	.0008	0.478	.0016
	(1.09)		(1.20)	
ATSI	2.399***	.0257***	2.452***	.0293***
	(8.39)		(5.88)	
Country of Birth (residual: foreign born)				
Australian born	-0.150	-.0004	0.009	.0000
	(0.79)		(0.04)	
Age Category (residual: +65 years)				
Youth: 15-21 years	1.864***	.0112*		
	(3.09)			
Young adult: 22-30 years	2.126***	.0136**		
	(3.59)			
Mature adult: 31-45 years	2.114***	.0120**	2.082***	.0077***
	(3.59)		(3.52)	
Older Adult: 46-65 years	1.206**	.0058	1.206**	.0051
	(1.98)		(1.97)	
Labour Market Status: (residual: other employment)				
Student	-0.886**	-.0019***		
	(2.16)			
Unemployed	0.884***	.0040***	1.011***	.0052***
	(5.75)		(4.84)	
Employed	-0.120	-.0003	-0.663	-.0016
	(0.27)		(0.89)	
Home Duties	0.630***	.0026**	0.474*	.0019
	(3.30)		(1.85)	
Constant	-10.612***		-10.188***	
	(15.43)		(13.26)	
Observations	31339		17078	

Notes to Table 2:
The first and second equations were estimated for injured persons whose ages were, respectively, greater than 15 years and greater than 30 years.
Dependent variable = 1, if an injury in the QISU data was the result of spousal assault; =0 if it was not such an injury.
Absolute value of z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3
Logit Estimates of the Likelihood of Spousal Assault Injury, by Gender

	Females		Males	
	Coefficient Estimates	Marginal Probability	Coefficient Estimates	Marginal Probability
Ethnicity (residual: other)				
White	0.301	.0031	0.265	.0003
	(0.98)		(0.44)	
ATSI	2.401***	.0841***	2.382***	.0113
	(7.49)		(3.72)	
Country of Birth (residual: foreign born)				
Australian born	-0.071	-.0008	-0.478	-.0005
	(0.34)		(1.03)	
Age Category (residual: +65 years)			-0.698	
Youth: 15-21 years	2.456***	.0698*	(0.59)	-.0008
	(3.36)			
Young adult: 22-30 years	2.480***	.0699*	0.909	.0015
	(3.44)		(0.88)	
Mature adult: 31-45 years	2.436***	.05587**	1.048	.0018
	(3.39)		(1.02)	
Older Adult: 46-65 years	1.272*	.0212	0.875	.0016
	(1.70)		(0.83)	
Labour Market Status: (residual: other employment)				
Student	-1.127**	-.0083***	0.168	.0002
	(2.54)		(0.16)	
Unemployed	0.727***	.01088***	1.341***	.0033***
	(4.14)		(4.20)	
Employed	-0.633	-.0053	0.934	.0020
	(1.03)		(1.33)	
Home Duties	0.569***	.0077**	2.252**	.0111
	(2.90)		(2.18)	
Constant	-6.861***		-7.643***	
	(9.01)		(6.67)	
Observations	10215		21124	

Absolute value of z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Ordered Logit Estimates of Triage Equation

	Coefficient (z-value)	Marginal Probability: Very Urgent
Female	-0.072***	-.015***
	(4.86)	
Bodily Location of Injury		
Head	-0.434***	-.084***
	(18.17)	
Trunk	-0.235***	-.045***
	(5.97)	
Upper limbs	-0.743***	-.142***
	(29.72)	
Lower limbs	-1.177***	-.201***
	(43.80)	
Nature of Injury		
Superficial	-0.827***	-.145***
	(33.20)	
Open wound	-0.818***	-.149***
	(38.39)	
Fracture/dislocation	0.074***	.015***
	(3.38)	
Foreign body	-0.967***	-.158***
	(28.45)	
Intention		
Spousal Assault	-0.139	-.027
	(1.17)	
Non-spousal assault	-0.291***	-.056***
	(6.64)	
Place Where Injury Occurred		
Home	0.080***	.016***
	(3.28)	
School or other public institution	0.130***	.027***
	(4.01)	
Street	0.545***	.120***
	(16.24)	
Recreation/sports area	0.070**	.014**
	(2.33)	
Workplace	0.058*	.012*
	(1.82)	
Ethnicity		
White	0.147***	.029***
	(5.47)	
ATSI	-0.094**	-.018**
	(2.26)	
Australian born	-0.148***	-.029***
	(7.28)	
Age group		
Infant: <6 years	0.529***	.113***
	(23.93)	
Child: 6-15	0.481***	.101***
	(23.24)	
Youth: 16-21	-0.086***	-.017**
	(2.95)	
Old: 65+	0.540***	.120***
	(11.87)	
Observations	80657	

Notes to Table 4

1. The dependent variable takes the values: 3, if the injury needs very urgent attention; 2, if the injury needs fairly urgent attention; 1, if the injury does not need urgent attention.
2. The residual categories are - sex: male; bodily location: unspecified bodily location; nature of injury: other injury; intention: accident; place: other places; ethnicity: other.