



Examination for sexual assault: Is the documentation of physical injury associated with the laying of charges? A retrospective cohort study

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Abstract

Background: Few studies have examined whether there is an association between individual medical findings and legal outcome in cases of sexual assault. This study was undertaken to determine the relation between the extent of documented physical injury and a positive legal outcome in cases of sexual assault and to determine other factors associated with the laying of charges in such cases.

Methods: In this retrospective cohort study, the authors reviewed the charts and medicolegal reports for all cases of sexual assault that were handled by the BC Women's Sexual Assault Service in 1992 for which a police report had been filed. Information on patients' characteristics, the nature of the assault and the extent of injury was extracted from these records. A system for scoring clinical injury was developed by 4 of the physicians at the Sexual Assault Service, and a clinical injury score was assigned for each case by one physician. The relation between the outcome (in terms of whether charges were laid) and the circumstances of the case was examined by logistic regression.

Results: A total of 95 cases with complete medical records and information about legal outcome were identified during the 1992 calendar year. After adjustment for income level and the patient's knowledge of the assailant (either as an acquaintance or as his or her partner), the odds ratio (OR) for charge-laying in a sexual assault case with documented moderate to severe injury was 3.33 (95% confidence interval [CI] 1.06–10.42). Socioeconomic status above the group median (defined as annual income greater than \$21 893) (OR 3.26, 95% CI 1.09–9.71) and knowledge of the assailant (OR 4.58, 95% CI 1.52–13.79) were also associated with charge-laying. Presence of genital injury per se, age of the patient and detection of sperm by microscopy at the time of examination were not associated with the laying of charges.

Interpretation: The results of this study show that the extent of documented injury is associated with the laying of charges in cases of sexual assault. However, many questions remain about the effectiveness of the medical component of gathering such evidence.

Several studies have summarized data from various sexual assault services on the characteristics and physical findings of the patient populations of these services.¹⁻⁴ To date, however, there has been little work to determine if there is any association between individual medical findings and legal outcome. Rambow and associates⁵ found that evidence of genital or nongenital trauma was significantly associated with conviction in a subset of cases in which there was an identified suspect and the victim was willing to testify. Penttillä and Karhunen,⁶ in a review of 249 female victims of alleged sexual offences in Finland, determined that there was little correlation between judicial outcome and severity of injuries. One Scandinavian study⁷ found that conviction was significantly related to the occurrence of severe violence, documentation of genital injuries and presence of sperm at the time of examination. There are no published Canadian reports on this question.

The purpose of this study was to answer the question, "Is there an association

Evidence

Études

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between the extent of documented physical injury and legal outcome in cases of sexual assault?” A secondary question was, “What other factors are associated with legal outcome in these cases?” Answers to these questions should provide insight into how a health care provider should apportion his or her time between the forensic component of the exam, educating the patient about treatment after assault and assisting the patient to “debrief” after the experience. If particular aspects of the physical exam (such as detection of sperm or documentation of genital injury) are strongly associated with a positive legal outcome, sexual assault services could direct greater resources to training in the collection of forensic evidence in these areas.

Methods

The study was a retrospective cohort analysis of all cases of sexual assault seen in 1992 by the BC Women’s Sexual Assault Service for which there was police involvement and for which a medicolegal report and information about the legal outcome were available. Ethics approval for the study was obtained from the University of British Columbia Clinical Research Ethics Board and from the BC Women’s Research Review Committee.

The BC Women’s Sexual Assault Service is operated by the BC Women’s Health Centre (part of the Children and Women’s Health Centre of BC) in partnership with the Vancouver General Hospital Emergency Department. It is a team of female family physicians and nurses based in the Emergency Department of the Vancouver General Hospital, who provide a 24-hour on-call service for adult and adolescent victims of sexual assault. In most cases of sexual assault for which there is police involvement, the victim is taken to the Sexual Assault Service for examination and treatment. The objectives of the service are to treat the patient for the effects of the assault, to collect evidence to give to police in cases where the victim wants to report the assault and to provide limited immediate and follow-up counselling. Over the past 5 years the service has made considerable efforts to improve physicians’ ability to detect forensic evidence; these efforts have included the purchase of a colposcope to detect the presence of genital trauma not visible to the naked eye.

Because it is the standard of the Vancouver Police Department to request examination by a physician from the Sexual Assault Service for all cases in which a police report is filed, it is reasonable to assume that the population studied represents virtually all adult and most adolescent sexual assault cases occurring in Vancouver in 1992 for which there was police involvement (some young adolescents are seen at the Children and Women’s Health Centre of British Columbia). People who were seen by the Sexual Assault Service and who requested that a report not be made to the police and cases in which the assault occurred outside of Vancouver were excluded, as were cases where the medical report (10 cases) or the legal outcome (6 cases) was not available. For the 3 people who were assaulted more than once during the study period, only the first assault was included in the study.

The following information was extracted from the charts and medicolegal reports for the cases: age, sex and postal code of the patient; type, extent and location of the injury; whether sperm were observed by direct microscopy; whether the assailant was known to the patient; the number of assailants; and whether a weapon had been used. The Vancouver Police Department supplied information on the legal disposition of the cases.

The socioeconomic status of the patients was determined by a method developed by Wilkins of Statistics Canada.⁸ Census data on income and household size were used to construct an income measurement that adjusts average household income for the number of people living in the household. Enumeration areas within a given census metropolitan area were then ranked into 10 income levels (deciles), the 10th decile representing the highest income level and the 1st decile representing the lowest income level. In this study, patients’ postal codes were linked, by means of the 1991 census postal code conversion file,⁹ to the income levels derived from enumeration data for Vancouver.

A clinical injury score was designed by 4 of the physicians from the Sexual Assault Service (including Drs. McGregor and Wiebe), according to the clinical rating of medicolegal reports with respect to extent of injury (Table 1). The physicians discussed the criteria, independently rated 20 reports, discussed their disagreements and then rated 20 more reports. The combined multi-rater *k* score¹⁰ for the second trial was 0.87, which represents a high level of clinical agreement. A clinical injury score was then assigned for each case by one physician (Dr. McGregor). A quantitative injury score, which was simply the number of documented injuries at all sites, was determined for each case; this score correlated well with the clinical injury score (Pearson correlation coefficient 0.64, *p* < 0.001). Data were managed and analysed with SPSS 7.5.

Both clinical injury score and income level were dichotomized in the regression analysis. For this purpose, injury scores of 0 and 1 were grouped together as “no or mild injury,” and scores of 2 and 3 were grouped together as “moderate or severe injury.” The 10 income levels were grouped in relation to the median income level of the cohort, such that the low-income group was defined as patients with an income level of 1 or 2 (income less than or equal to the median of \$21 893). Patients with an income level of 3 to 10 constituted the high-income group. Age was tested both as a continuous variable and as a categorical variable.

The relation between the outcome (in terms of whether charges were laid) and the circumstances of the case was examined with logistic regression. Variables for which there was a significant univariate association with outcome were analysed in a multivariate model. Variables that were not significant in the multivariate model were removed in a reverse stepwise manner. Conviction was also examined as an outcome, although the number of convictions was low.

Table 1: Criteria for clinical injury score

Clinical injury score	Criteria
0 (no injury)	No documented signs or symptoms of injury
1 (mild injury)	Redness or tenderness only or minor injuries with no expected impact on physical function
2 (moderate injury)	Injury or injuries expected to have some impact on function <i>and/or</i> more than redness or tenderness of the genitalia (including anal and rectal areas), e.g., lacerations, bruising, abrasions <i>and/or</i> injuries requiring treatment (lacerations requiring suturing, wounds requiring dressings) <i>and/or</i> bruising of the head and neck expected to result in significant headache
3 (severe injury)	Head injury with concussion <i>and/or</i> evidence of attempted strangulation <i>and/or</i> other major injuries, e.g., fracture, internal organ contusion



Results

There were 114 cases of sexual assault with police involvement during the study period. For a total of 95 cases there was a complete medical report and information about the legal outcome; these cases involved 4 males and 91 females. The main characteristics of the study population are presented in Table 2. The mean age of the patients examined was 28 (range 14–68) years. Of the 80 patients for whom a postal code was available, 56 (70%) were estimated to have an income of \$24 005 per year or less. The median annual income was \$21 893 (the second decile).

In 10 cases no injuries were documented at the time of examination. The degree of injury was rated as mild in 26 cases (27%), moderate in 56 cases (59%) and severe in 3 cases (3%) (Table 2). In 31 cases (33%) there was documented genital injury, including tenderness on physical examination, and in 63 cases (66%) there were no findings of genital injury (Table 2).

In 31 cases (33%) charges were laid, and in 11 of these the outcome was a conviction, for a conviction rate of 12% overall and 35% for cases in which charges were laid. Of the 11 convictions, 10 were for sexual assault and 1 was for common assault (an assault that does not involve a weapon or threat of a weapon and that does not result in serious bodily harm). For the assailants who were charged, there was a stay of proceedings in another 11 cases. (A stay of proceeding is entered when the Crown counsel halts the judicial proceeding at some point between the laying of charges and the determination of guilt or innocence. A stay of proceeding is often entered if a victim or witness is unable or unwilling to testify, and there is insufficient additional evidence to proceed.¹¹)

The most common outcome for the cases in which charges were not laid was that the “case [became] inactive because of lack of information” (28 cases). This category applies to cases for which the police files remain open, but for which there is insufficient evidence to proceed with a recommendation to lay a charge. The second most common outcome for cases in which charges were not laid was a designation that the victim did not wish to proceed (13 cases).

Among most of those convicted, sentences ranged from 21 days to 5 years. In one case, in which the assailant was a multiple offender, a sentence of life imprisonment was handed down. Charges were laid in 1 (10%) of the 10 cases with no injury, 6 (23%) of the 26 cases with mild injury, 22 (39%) of the 56 cases with moderate injury and 2 (67%) of the 3 cases with severe injury.

The probability of a charge being laid was modelled by regression with the following variables: extent of injury, age of the victim, presence of genital injury (excluding tenderness), use of a weapon, visualization of sperm by direct microscopy at the time of examination, the victim's knowledge of the assailant and income level (with enumeration area used as a surrogate measure of the victim's socioeconomic status). Age, presence of genital injury (excluding tenderness), use of a weapon and visualization of sperm by

direct microscopy were not significantly associated with the laying of charges and were dropped from the model. After adjustment for the victim's knowledge of the assailant and income level, the presence of moderate or severe injury was significantly associated with the laying of charges ($p < 0.001$). The odds ratio (OR) for charge-laying associated with moderate or severe injury was 3.33 (95% confidence interval [CI] 1.06–10.42). The OR for charge-laying associated with income level greater than the group median was 3.26 (95% CI 1.09–9.71). The victim's knowledge of the assailant (either as an acquaintance or as the victim's partner) was also associated with charge-laying (OR 4.58, 95% CI 1.52–13.79) (Table 3).

Interpretation

This study was undertaken to determine whether injury documented by a physician is associated with legal outcome in cases of sexual assault and to determine which characteristics of the patient, the physical examination and the as-

Table 2: Characteristics of patients, assailants and assaults in 95 cases of sexual assault occurring in Vancouver in 1992

Characteristic	No. (and %) of cases
Sex	
Male	4 (4)
Female	91 (96)
Age, yr	
10–19	20 (21)
20–29	35 (37)
30–39	29 (31)
40–49	6 (6)
50–59	3 (3)
60–69	1 (1)
Age unknown	1 (1)
Income level	
≤ median*	45 (47)
> median	35 (37)
Data missing	15 (16)
Genital injury	
None	63 (66)
Injury, excluding tenderness	23 (24)
Genital tenderness only	8 (8)
Data missing	1 (1)
Nature of assault	
Assailant known to victim	31 (33)
Weapon used	16 (17)
Forced vaginal penetration	86 (91)
Motile sperm seen	6 (6)
Non-motile sperm seen	7 (7)
Clinical injury score	
0	10 (11)
1	26 (27)
2	56 (59)
3	3 (3)

*The median income was \$21 893.

sault are associated with the laying of charges. This study is the first to link medical findings in Canadian sexual assault cases to legal outcomes. It also represents the first attempt to describe in socioeconomic terms a cohort of sexual assault victims whose assault has been reported to the police. Although there were too few convictions in the year of the study to provide sufficient power for analysis, the laying of charges was a reasonable “positive” legal outcome for our analysis, for without a charge there can be no conviction.

The victim’s knowledge of the assailant was a significant independent factor in the laying of charges. Assailants known to victims might include an acquaintance, a boyfriend, or a former or current spouse. The positive association of this variable with the laying of charges can probably be explained by the inability of police to lay charges without an identifiable suspect. The information on legal outcomes provided by the police department was inadequate to determine in which cases there was insufficient evidence to identify a suspect. Therefore, we used the variable “assailant known to victim.” Although this value is not as specific as “suspect identified by police,” it was nonetheless one way of adjusting for the availability of an identifiable suspect in the absence of this information.

The proportion of cases in which there was evidence of genital injury, excluding tenderness (24%), was similar to that reported in previous studies, which have found that visible genital trauma is relatively uncommon in sexual assault.^{1,12,13} The lack of an association between charge-laying and genital findings suggests that increasing the time devoted to documenting microtrauma of the genital region by means of colposcopy may not be appropriate.

The over-representation of residents of lower-income enumeration areas among assault cases for which there was police involvement suggests that, in Vancouver, cases of assault for which a police report is filed involve people who are much poorer than the average population. The positive association of charge-laying and income level higher than the group median, after adjustment for extent of injury and the victim’s knowledge of the assailant, suggests that socioeconomic factors may influence charge-laying. Some characteristic of victims of assault in the lowest income groups (prostitution or the use of drugs and alcohol, for instance) may bias those in the justice system against recommending that charges be laid. Because of limitations in

the data set, such factors could not be measured. It was also hypothesized that victims in the lowest income groups might belong to a subset of individuals who are less likely to cooperate with police in the laying of charges. However, an analysis of the association between cases in which the victim was uncooperative or did not wish to proceed and residence in a lower-income enumeration area did not support this hypothesis ($p = 0.21$). Although the derivation of income level from enumeration data linked to postal codes has become fairly common as a means of measuring socioeconomic status, it nonetheless remains an approximation.

A limitation of this study is the small sample size and our resultant inability to analyse the probability of conviction according to the same variables. Furthermore, the study results can only be generalized to cases in which the victim reports the assault to the police, and this group is thought to represent a small subset of all sexual assault cases. The 1993 Statistics Canada survey of violence against women found that more than 1 in 3 adult women had been sexually assaulted since the age of 16 and also that 94% of these cases never came to the attention of the criminal justice system.¹⁴

The overall conviction rate, using total number of cases as the denominator, was lower in this study (12%) than in studies by Helweg-Larsen¹⁵ and Pentillä and Karhunen⁶ (20%) and slightly higher than that in the cases series reported by Rambow and associates⁵ (19%). Vancouver conviction rates have not changed since 1986: a previous summary of cases seen by our Sexual Assault Service showed that the conviction rate was 10% in 1986 (Greater Vancouver), 14% in 1988 and 4% in 1990 (Vancouver). Given that reported cases of sexual assault are thought to represent a small number of all such cases, the number of convictions for sexual assault remains strikingly low.

These results support the hypothesis that there is an association between the laying of charges and the presence of documented moderate or severe injury. In examinations of victims of sexual assault, there is always a tension between the time required to “debrief” the patient and that required to provide supportive counselling, to treat the effects of the assault, and to meticulously collect and document evidence. It is therefore important to have good evidence that the time spent on the forensic part of the examination does indeed influence the legal outcome of the case. It will also be

Table 3: Factors associated with laying of charges in cases of sexual assault

Factor	Unadjusted regression		Adjusted regression	
	Odds ratio	95% CI	Odds ratio	95% CI
Age	0.98	0.93–1.03		
Genital injury (excluding tenderness)	1.83	0.69–4.83		
Sperm seen	0.93	0.60–1.42		
Weapon used	0.93	0.29–2.96		
Assailant known to victim	4.30	1.68–10.97	4.58	1.52–13.79
Moderate or severe injury	2.84	1.07–7.53	3.33	1.06–10.42
Enumeration-area income > group median	2.31	0.91–5.91	3.26	1.09–9.71

Note: CI = confidence interval.



valuable to extend this line of research to learn more about the other variables that predict the laying of charges and, even more important, the securing of a conviction.

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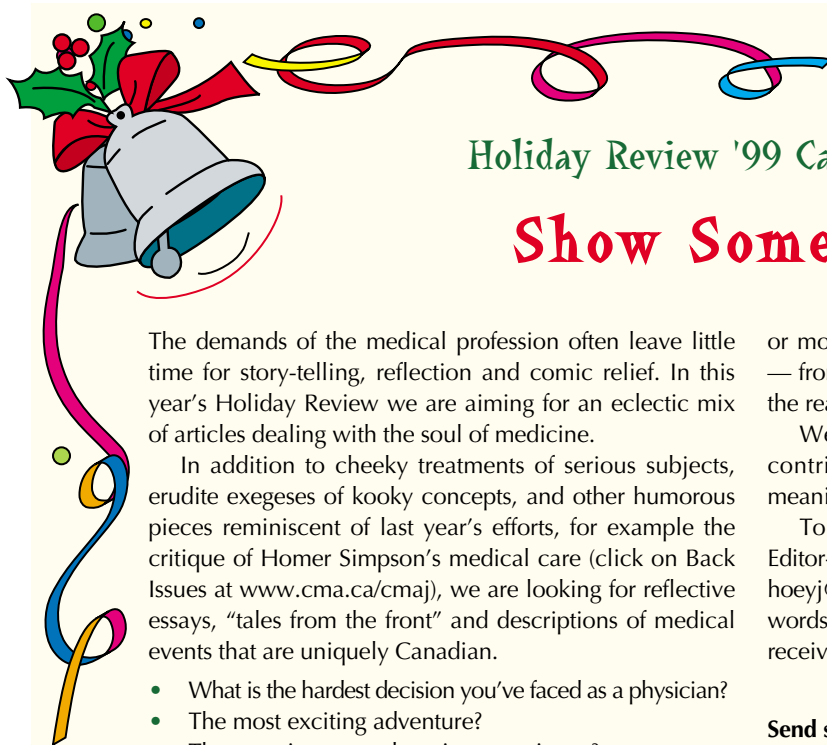
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Competing interests: None declared.

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