

Nurses' Experience of Violence in Alberta and British Columbia Hospitals

**Susan M. Duncan, Kathryn Hyndman,
Carole A. Estabrooks, Kathryn Hesketh,
Charles K. Humphrey, Jennifer S. Wong,
Sonia Acorn, and Phyllis Giovannetti**

Cette recherche examine les résultats d'une étude ayant pour thème la violence en milieu de travail, laquelle a été effectuée auprès de 8780 infirmières autorisées œuvrant dans 210 hôpitaux situés dans les provinces de l'Alberta et de la Colombie-Britannique. Les résultats portent sur la fréquence d'incidents violents vécus par les infirmières, soit le nombre de fois qu'elles ont subi de la violence en milieu de travail. Près de la moitié (46 %) des participantes ont vécu une ou plusieurs formes de violence pendant leurs cinq derniers quarts de travail. La fréquence variait selon la forme : 38 % ont vécu de l'abus émotif, 19 % des menaces d'attaque physique, 18 % des attaques physiques, 7,6 % du harcèlement sexuel, 0,6 % une agression sexuelle. De plus, 70 % des participantes ayant vécu de la violence n'ont pas signalé l'incident. La violence sous toutes ses formes avaient principalement été perpétrée par des patients. La forme la plus prédominante, l'abus émotif, a fait l'objet d'une étude plus approfondie pour en identifier les déterminants. L'abus émotif était également la forme de violence dont la distribution était la plus constante quant aux sources (patients, familles, collègues, médecins). La modélisation à régressions multiples utilisant l'individu, soit l'infirmière, comme unité d'analyse a indiqué que les variables explicatives importantes dans le contexte de l'abus émotif étaient l'âge, le statut de travail

Susan M. Duncan, RN, PhD(c), is Assistant Professor, School of Nursing, University College of the Cariboo, Kamloops, British Columbia, Canada, and a doctoral candidate in the Faculty of Nursing, University of Alberta. Kathryn Hyndman, RN, MN, is a doctoral student in the School of Nursing, University of British Columbia. Carole A. Estabrooks, RN, PhD, is Assistant Professor, Faculty of Nursing, University of Alberta, MRC/CIHR Health Scholar, AHFMR Population Health Investigator, and Co-investigator, Alberta Team. Kathryn Hesketh, MSc, is Project Coordinator, Hospital Outcomes Study, Alberta Team. Charles K. Humphrey, MA, is Director, Data Library, University of Alberta, and Technical Advisor and Programmer/Analyst, Alberta Team. Jennifer S. Wong, MA, works at the Centre for Health Service and Policy Research, University of British Columbia. Sonia Acorn, RN, PhD, is Professor, School of Nursing, University of British Columbia, and Co-investigator, BC Team. Phyllis Giovannetti, RN, ScD, is Associate Dean, Faculty of Nursing, University of Alberta, and Principal Investigator, Alberta Team.

occasionnel, la qualité de soins, l'ampleur de la restructuration hospitalière, le type d'unité, les relations au sein du personnel hospitalier, le ratio infirmières-patients et les mesures de prévention de la violence. Selon une approche dont l'unité d'analyse était l'hôpital, les variables explicatives étaient la qualité des soins, l'âge, les rapports avec le personnel hospitalier, la présence de mesures de prévention de la violence, et la province. Ces résultats mettent en lumière d'importantes différences selon le modèle utilisé, soit celui fondé sur l'individu comme unité d'analyse, soit celui axé sur l'institution. Les résultats de la recherche indiquent la nécessité de mettre en place des stratégies de prévention non seulement auprès des infirmières mais aussi et surtout à l'échelle des hôpitaux. En somme, les conclusions suggèrent que les institutions de santé ne constituent pas toujours des milieux de travail sains et peuvent s'avérer des environnements de plus en plus stressants et à risque.

This study examined responses to a survey on violence in the workplace from a sample of 8,780 registered nurses practising in 210 hospitals in the Canadian provinces of Alberta and British Columbia. Findings relate to the frequency of violence against nurses, reported as the number of times they experienced a violent incident in the workplace. Nearly half (46%) of those surveyed had experienced 1 or more types of violence in the last 5 shifts worked. Frequency varied by type: emotional abuse 38%, threat of assault 19%, physical assault 18%, verbal sexual harassment 7.6%, sexual assault 0.6%. Further, 70% of those who had experienced violence indicated they had not reported it. Patients constituted the main source of all types of violence. The most prevalent type, emotional abuse, was further explored for its possible determinants. This was also the type of violence most evenly distributed among sources (patients, families, co-workers, physicians). Multiple regression modelling using the individual nurse as the unit of analysis showed the significant predictors of emotional abuse to be age, casual job status, quality of care, degree of hospital restructuring, type of unit, relationships among hospital staff, nurse-to-patient ratios, and violence-prevention measures; using the hospital as the unit of analysis the predictors were found to be quality of care, age, relationships with hospital staff, presence of violence-prevention measures, and province. These findings illustrate important differences in models that use the individual and the institution as the unit of analysis. Implications include targeting prevention strategies not only at the nurse but, perhaps more importantly, at the hospital. Overall, the findings suggest that health-care institutions are not always healthy workplaces and may increasingly be stressful and hazardous ones.

A safe practice environment for nurses and other health-care providers is critical to the integrity of the health-care system and to the quality of patient care. However, the hospital environment is frequently characterized by tension and emotion, and at times violent episodes are directed at nurses as primary caregivers. Concern for the health and safety of nurses is more compelling when one considers two facts. First, nurses are the health-care professionals most often called upon to assist individuals, families, and entire communities suffering the effects of violence. It is worthwhile asking if they are able to respond to the suffering of others if they are themselves the victims of violence. Second, there is a substantial body of research identifying critical links between the quality of practice environments and patient health outcomes

(Aiken, Smith, & Lake, 1994; Gleason, Sochalski, & Aiken, 1999). A hospital environment in which nurses are the target of violence is likely to influence patient outcomes.

Research findings point to the restructured health-care environment as influencing nurses' satisfaction with their work, nurses' workplace experiences, and the quality of patient care (Aiken, Clarke, & Sloane, 2000). Discussion of the reasons for the restructured hospital environment's increased vulnerability to violence is just beginning (Morrison, 1999; Smith Pitman & McKoy, 1999). To date there has been little empirical identification of organizational factors that contribute to workplace violence against nurses.

The purpose of this paper is to report on the frequency with which nurses experienced and reported five types of workplace violence, as well as on the source of the violence. We examined the organizational and individual factors predicting the emotional abuse experienced by a sample of 8,780 nurses practising in 210 hospitals in the Canadian provinces of Alberta and British Columbia (BC). Our analyses of these data at the levels of the individual nurse and the hospital contribute to theory development in the area of workplace violence against health professionals by identifying characteristics of the hospital environment that predict emotional abuse of staff nurses.

Background

This study is part of a larger international research project, Hospital and Patient Outcomes: A Cross-National Study, involving Canada, the United States, England, Scotland, and Germany (Sochalski et al., 1998). This international multidisciplinary study was undertaken to investigate the relationships among hospital-sector restructuring, the organization of professional nursing practice, and patient-care outcomes. Primary data in the current study are derived from both the Alberta and BC Nurse Surveys, similar versions of which have now been completed in all five participating countries, including three Canadian provinces. Questions relating to violence in the workplace were explored uniquely by the Alberta and BC teams.

Literature Review

The published research on workplace violence relates to frequency of violence among different groups of health-care providers; sources, or perpetrators, of violence; effects of violence; and the reporting of violent

episodes. Definitions of violence vary to the extent that they sometimes encompass incidents that do not result in physical injury such as verbal or emotional abuse or harassment (Hewitt & Levin, 1997). However, there is an emerging consensus that violence encompasses multiple forms of aggression, rooted in the dynamics of power and control (Canadian Nurses Association, 1996; Wigmore, 1995). Also identified were gaps in the literature concerning methodological inconsistencies and, in some key areas, lack of focus.

The International Council of Nurses (1999) acknowledges the "extent and gravity of the increasing problem of violence in the workplace, particularly as it affects nursing and health care." In the United States, assault against health-care workers, including nurses, has been recognized as an occupational health hazard (Lipscomb & Love, 1992; Olson, 1994; Simonowitz, Rigdon, & Mannings, 1997; Sommargren, 1994). In Canada, the Canadian Nurses Association (1993) and most provincial nursing associations and unions have, over the past decade, addressed the issue of workplace violence by conducting surveys to assess the extent of workplace abuse and by issuing policy statements and resource guides that target prevention strategies.

Comparison across populations with respect to the incidence and prevalence of workplace violence is hindered by the lack of standardized definitions. While workplace violence has been traditionally defined as that resulting in physical injury, the literature shows a trend towards basing research on more inclusive definitions. Therefore some studies define and measure the frequency of violent incidents that encompass one or more forms of emotional, verbal, physical, or sexual abuse or assault. Despite the inconsistencies in definition, there are indications that nursing is at high risk for workplace violence relative to other occupations, including law enforcement (Hewitt & Levin, 1997). According to the United States Bureau of Labor, health-care providers are at 16 times greater risk for nonfatal workplace violence than other workers (Elliott, 1997). In the United States from 1992 to 1996, nurses were victims of nonfatal assaults at the rate of 24.8 per 1,000, compared to police officers at 30.6, junior high school teachers at 57.4, and mental health professionals at 79.5 (Warchol, 1996).

While nursing unions and associations report that workplace violence is increasing, these trends are hard to confirm due to varied epidemiological measures such as incidence and prevalence rates and the different time frames on which the calculations are based (Arnetz, Arnetz, & Petterson, 1996). In Canada up to 80% of nurses have

reported experiencing some form of violence during their careers (Fédération des Infirmières et Infirmiers du Québec, 1995). Swedish investigators have calculated standardized career prevalence rates of 29% for workplace violence and 35% for threats of violence (Arnetz et al.). Canadian research has found that 33% of nurses reported experiencing physical or verbal abuse in the last five shifts worked (Graydon, Kasta, & Khan, 1994). Other studies have found that up to a third of nurses experience workplace violence over a 1-year period (Carroll, 1999; Liss & McCaskell, 1994; Whittington, Shuttleworth, & Hill, 1996). Researchers recommend a more standardized approach to defining and measuring workplace violence against nurses and other health-care providers (Arnetz et al.; Hewitt & Levin, 1997).

Sources of Abuse

Nurses report workplace violence as originating with four groups: patients, physicians, patients' family/friends, and supervisors and co-workers. Patients are overwhelmingly reported as the main perpetrators of physical assault and threatening behaviours (Crocker & Cummings, 1995; Keep & Glibert, 1992; Liss & McCaskell, 1994; Powell, 1996; Yassi, 1994). Physicians are reported as the main perpetrators of verbal assault by some studies (Cooper, Saxe-Braithwaite, & Anthony, 1996; Cox, 1991b; Hilton, Kottke, & Pfahler, 1995; Levin, Hewitt, & Misner, 1998; Manderino & Berkey, 1997), while patients are reported as the main perpetrators of verbal abuse by others (Braun, Christle, Walker, & Tiwanak, 1991; Graydon et al., 1994; Pekrul, 1993; Yassi, Tate, Cooper, Jenkins, & Trottier, 1998).

Risk of abuse varies with the time of day and day of the week, but the greatest risk occurs in the late evening and during the night shift (Arnetz et al., 1996; Mahoney, 1991; Yassi et al., 1998). One study found that 30% of abusive episodes were reported by health-care workers who had been caring for the patient for the first time or for less than 1 week (Yassi et al.).

Being male has been associated with higher rates of abuse-related injury (Arnetz et al., 1996; Liss & McCaskell, 1994; Mahoney, 1991; Yassi, 1994). Both age and years of experience have been found to be factors in workplace violence among nurses (Arnetz et al.; Diaz & McMillin, 1991). Nurses aged 35 or under with less than 10 years' experience have reported greater verbal abuse by physicians than nurses aged 36 or older. Older nurses with 10 or more years' experience have reported fewer incidents of sexual abuse (Diaz & McMillin). Registered

nurses have been found to experience a lower incidence of abuse than registered nursing assistants (Arnetz et al.; Britt, 1992; Graydon et al., 1994; Yassi).

Effects of Abuse

Workplace violence has been implicated as a possible etiological factor in post-traumatic stress disorder (Powell, 1996). Verbally abused nurses have reported emotional effects such as anger, anxiety, irritability, and loss of control/powerlessness (Cooper et al., 1996; Cox, 1991a; Mahoney, 1991), feelings of decreased self-worth and morale and decreased job satisfaction (Cox, 1991b; Cox & Kerfoot, 1990), embarrassment and humiliation resulting in negative relationships with physicians (Manderino & Berkey, 1997), and a desire to leave the current unit or to leave nursing (Braun et al., 1991; Graydon et al., 1994). Nurses who have been assaulted causing physical injury may also experience the full range of emotional effects, including fear; the consequences of injury or trauma can be either immediate or delayed (Hewitt & Levin, 1997).

Reporting of Violent Episodes

A striking finding of our literature review was an underreporting of violent episodes. In fact, less than half of nurses report the abuse to a nursing supervisor or to anyone other than an immediate colleague (Croker & Cummings, 1995; Graydon et al., 1994; Hewitt & Levin, 1997). Several authors concur that the study of workplace violence is usually limited to formal incident reports (Lippman, 1993; Lipscomb & Love, 1992; Pekrul, 1993). Even when compensation data are examined, no statistics are available for denied claims or claims that do not involve lost time, so that the data likely underestimate the nature and extent of the problem (Liss & McCaskell, 1994; Yassi, 1994).

Most often nurses report abuse to a colleague (British Columbia Nurses Union, 1991; Cruickshank, 1995a, 1995b; Yassi, 1994). Nurses and other health-care providers have the additional risk of working with people who may, due to extreme stress, disease, injury, or drug-induced changes, have reduced capacity to understand or control their behaviours (Duncan, Estabrooks, & Reimer, 2000; Gates & Horstman, 1995; Stultz, 1993). When vulnerable patients are involved, workers may be reluctant to report violent episodes or to press charges. Further, nurses may be reluctant to complete injury forms for fear of being blamed by management; hence the assaults against them are hidden (Roberts, 1991).

Summary

The findings of recent studies validate the growing concern that violence is a serious occupational hazard for nurses. Researchers have measured the extent of workplace violence through surveys and, to a lesser extent, through analyses of secondary data including incident reports, Workers Compensation Board claims, and qualitative methods. Between-study comparison is difficult to conduct because of the variety of definitions of violence. Some studies report only assault resulting in injury, while others cite epidemiological measures, such as prevalence and incidence, for which denominators are inconsistently derived or omitted from the report. Prevalence rates tend to be based on career prevalence, while frequency rates tend to be measured over the preceding 5 years, 1 year, or 1 month. There has been a call for research that is based on an inclusive definition of violence (Wigmore, 1995) and consistent measures for identifying and confirming trends in workplace violence against nurses (Arnetz et al., 1996; Hewitt & Levin, 1997).

Finally, research into violence against nurses has focused on personal (nurse and patient) factors, paying much less attention to organizational factors that might influence or predict the problem in nurses' practice environments (Arnetz et al., 1996; Hewitt & Levin, 1997). Although some organizations have responded by redesigning the workplace and administrative and work practices (Canadian Centre for Occupational Health and Safety, 1999), there has been little evaluation of these or other initiatives in preventing workplace violence in health-care settings.

Methods

Procedures

This study combined survey data from two provinces, Alberta and BC. The Alberta Nurse Survey was mailed to the total population of 12,332 registered nurses in the province who had selected the category of "staff nurse" on their 1998 registration renewal. Nurses from 129 hospitals in 17 health regions were invited to participate in the study between September 28, 1998, and January 15, 1999. A total 6,526 useable surveys were returned, for a response rate of 52.8%. In BC, the names of registered nurses working in acute-care hospitals were collected from provincial licensure registration, and survey packages were mailed out in November 1998. In hospitals with 100 or fewer nurses, the total population of nurses was surveyed; in hospitals with more than 100 nurses, a random sample of 100 nurses were surveyed. Reminder telephone calls were made to non-respondents 4 weeks after the mailout. Of the

Table 1 Comparison of Sample and Population Demographics for Each Province						
	Alberta*		British Columbia**			
	Sample	Population	Sample	Population		
Regular (full-time/ part-time)	78%	72%	82%	73%		
Casual	23%	28%	18%	27%		
Female	97.6%	97.5%	97%	96%		
Male	2.4%	2.5%	4%	4%		
Age (years)	41 (9.32)	41.8	<25	2%	< 25	2%
			25–34	18%	25–34	18%
			35–44	36%	35–44	31%
			45–54	34%	45–54	33%
			55–64	11%	55–64	15%
			65+	0.1%	65+	1%
Diploma (RN)	77%	79%	84%	89%		
Baccalaureate	22%	21%	15%	11%		
Med/Surg	36%	34%	25%	24%		
Critical Care	19%	19%	16%	8%		
Emergency	8%	7%	10%	5%		
* Source: Alberta Association of Registered Nurses (1988).						
** Source: Registered Nurses Association of BC (1998).						

Figure 1 <i>Definitions of Violence Categories Used in Survey</i>
<p>Violence against nurses or nurse abuse is defined in this study as any incident where a nurse experiences any of the following:</p> <ul style="list-style-type: none">• physical assault (e.g., being spit on, bitten, hit, pushed)• threat of assault (verbal or written threats intending harm)• emotional abuse such as hurtful attitudes or remarks (insults, gestures, humiliation before the work team, coercion)• verbal sexual harassment (repeated, unwanted intimate questions or remarks of a sexual nature)• sexual assault (any forced physical sexual contact including forcible touching and fondling, any forced sexual act including forcible intercourse)

5,479 nurses sampled, 2,661 useable surveys were returned, for a response rate of 48.6%. The study was based on the combined sample of 8,780 nurses.¹ The sample is representative of the population of nurses in both provinces (see Table 1).

An identical subset of questions on violence against nurses, developed by the Alberta team, was included in the larger survey in both provinces, prefaced by definitions of the five types of violence as indicated in Figure 1.

To assess the acuity of the problem, nurses were asked to indicate whether they had experienced any of the five types of violence over the last five shifts worked. The time frame of the last five shifts worked was based on the rationale that this would elicit the most accurate recall (Graydon et al., 1994). Subsequent questions asked nurses to indicate the source of the violence, whether they had reported the incident, and the extent to which they thought their employer had taken measures to prevent violence in the workplace. The survey included examples of preventive measures such as zero tolerance policy, education, and conflict management programs. We determined frequencies of the five types of violence, the source, and reporting of violence episodes for the two provinces.

Standard multiple regression was used to identify variables that predicted emotional abuse using both the individual nurse and the hospital as units of analysis. Emotional abuse was selected as the dependent variable for this analysis because of its high incidence among nurses and because this type of abuse is perpetrated not only by patients, but also by nursing co-workers, other colleagues, and families and visitors. It was thought to be significant for the organizational culture of Canadian acute-care institutions that employ nurses. Methodologically, the distribution and frequencies of emotional abuse facilitated the use of regression analysis.

The conceptual framework guiding the selection of predictor variables associated with nurses' experiences of violence included interpersonal, organizational, and societal factors. This selection was influenced by the literature on workplace violence and on the impact of hospital restructuring on practice environments and patient outcomes (Aiken et al., 2000; Hewitt & Levin, 1997; Levin et al., 1998). Conceptualization of the predictor variables was also influenced by the framework of the

¹ 407 cases were lost in the Alberta data when non-acute hospitals were eliminated from the sample.

Nurse Survey, which included factors related to the quality of practice environments (Aiken & Patrician, 2000; Gleason et al., 1999). All analyses were conducted using SPSS Version 10.0 (Chicago).

Measures

A proxy measure of quality of care was created using five individual items from the Nurse Survey. Nurses were asked (in the context of their last shift): "Which of the following tasks were necessary but left undone because you lacked the time to complete them?" The response items addressed components of quality care of which the patients and families would be aware. They included: routine teaching, preparing patients for discharge, comforting and talking with patients, backrubs, and oral hygiene. This proxy measure is cumulative, ranging from zero to five tasks not completed. The rationale for including this measure was that tasks left undone (resulting in decreased quality of patient care) would lead to anger and frustration among patients and family members, resulting in increased emotional abuse towards nurses.

A second proxy measure was created to address the degree of restructuring that had taken place in the work environment. The central question asked whether or not "...the following changes occurred in your hospital in the past year." The changes were: substitution of part-time, per diem, or temporary RNs for full-time positions; reduction in the number of nurse managers; increase in cross-training of staff; loss of senior nurse administrator without replacement; and hiring of unlicensed personnel to provide patient care previously provided by RNs. This proxy measure is cumulative, ranging from zero to five, and provides an approximate indicator of the amount of restructuring in the nurses' work environment. The rationale for including this proxy measure was that the changes indicated in the question were associated with a restructured nursing practice environment (Aiken et al., 2000; Blythe, Baumann, & Giovannetti, in press).

The Nurse as Unit of Analysis

The responses of the combined sample of 8,780 RNs were analyzed. Frequencies of each of the five types of violence, the sources of the violence, and the reporting of abuse were calculated for each province separately. Where appropriate, frequencies were examined for nursing specialty. In the multiple regression models, the presence or absence of the experience of emotional abuse (as a binary outcome) was predicted by a selection of independent variables.

The Hospital as Unit of Analysis

The individual data from the nurse level of analysis were aggregated at the hospital level for 190 acute-care hospitals in both provinces. Analyses were conducted on the aggregated mean of each variable across all nurses reporting within a hospital. The regression model predicted the average incidence of emotional abuse within a given hospital setting. A criterion of $p < 0.05$ was used to retain variables in the model at the individual nurse unit of analysis and $p < 0.10$ at the aggregated hospital level. The different p values were chosen due to sample size differences between the two units of analysis, with the hospital level consisting of only 190 cases (versus 8,780). Furthermore, the exploratory nature of the modelling led to more lenient practices for retaining variables.

Results

Important findings of this study are the frequencies with which the nurses experienced the five categories of workplace violence in the last five shifts worked (Figure 1), the source of the abuse, and whether the abuse was reported. When calculated over all five types of violence, a cumulative 46% of the nurses in the sample experienced one or more types in the last five shifts. The percentage of nurses experiencing abuse varied by type of violence and by province (Table 2). BC nurses reported significantly more cases of physical assault and threats of abuse than Alberta nurses.

Table 2 <i>Incidence of Violence</i>		
Type of Violence	Alberta (%)	British Columbia (%)
Physical assault*	16.9	21.0
Threat of assault*	17.6	22.3
Emotional abuse	38.0	36.6
Verbal sexual harassment	7.6	7.6
Sexual assault	0.5	0.8
*Significant difference ($p = .000$)		

Patients were the main source of all types of abuse. However, the sources of emotional abuse, the most pervasive type, were more evenly distributed amongst perpetrators (Table 3). For instance, more than one quarter of the emotional abuse originated with physicians and other

nurses. Overall, 70% of nurses in the combined sample did not report the abuse. The frequency of reporting varied with the type of abuse experienced, the most underreported forms being verbal sexual harassment and sexual abuse (see Table 4).

Table 3 Sources of Emotional Abuse		
Source	Alberta (%)	British Columbia (%)
Patient	35.4	34.3
Family/visitor	11.6	12.2
Physician	13.5	19.6
Nursing co-worker	13.0	13.3
Other	2.6	4.6
Multiple sources	24.0	16.1

Table 4 Percentages of Nurses Reporting Violent Incidents in Last Five Shifts Worked	
Type of Abuse	Reported (%)
Physical assault	36.4
Threat of assault	38.2
Emotional abuse	28.4
Verbal sexual harassment	23.3
Sexual assault	25.6

Regression Analysis: the Nurse as Unit of Analysis

The regression model, as previously described, predicted 13.2%² of the variance in emotional abuse experienced by nurses, and is significant ($F(10, 6208) = 94.6, p < .000$) (see Table 5). The 10 predictor variables at the individual level included personal, interpersonal, and organizational factors. Of these, the most prominent personal factors were age and casual job status (versus full-time, part-time, or temporary, as indicated by the nurse). Experience of emotional abuse varied inversely with the age of the nurse. Casual status predicted significantly less abuse than other forms of employment.

² While this model has a relatively modest coefficient of determination, it has been pointed out that the ratio of standard error to the unstandardized regression coefficient for each variable is a better indicator of the goodness of fit of a regression model (King, 1986).

Table 5 Predictors of Emotional Abuse at Nurse and Hospital Levels		
Predictor	B	t-value
Nurse Level		
Constant	0.414	8.431***
Restructuring	0.170	3.124**
Age	-0.002	-3.667***
Casual job status	-0.03	-2.403**
Emergency	0.21	10.513***
Psychiatry	0.26	8.507***
Patients assigned per nurse	0.03	2.291**
Existence of violence-prevention measures	0.08	10.878***
Relationships with physicians	-0.07	-8.041***
Relationships with LPNs	-0.02	-3.185***
Quality of care	0.06	16.161***
Hospital Level (mean)		
Constant	2.062	2.472**
Province	0.40	2.292**
Age of nurses	-0.04	-2.050**
Quality of care	0.11	4.659***
Relationships with physicians	-0.57	-2.229**
Relationships with LPNs	-0.04	-1.487
Existence of violence-prevention measures	0.09	1.870*
Province by prevention measures	-0.16	-2.340**
Age by relationships with physicians	0.01	1.892*
* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$		
Note 1: Variables that were tested but did not contribute significantly to the Nurse Level model included: province, highest nursing credential, opportunity to be involved in hospital governance, job satisfaction, emotional exhaustion, and sense of depersonalization.		
Note 2: Variables that were tested but did not contribute significantly to the Hospital Level model included: job status, job specialty, size of hospital, job satisfaction, and degree of restructuring.		

Organizational factors included quality of care, restructuring, patient assignment, type of unit, and violence-prevention measures. Of these, quality of care was the most significant predictor. The probability of experiencing emotional abuse increased incrementally by 6.8% with each direct-care nursing task that a nurse was unable to complete. As expected, psychiatric and emergency settings predicted a greater incidence of abuse. Increasing quality of relationships between registered nurses and physicians and between nurses and licensed practical nurses (LPNs) predicted lower probabilities of emotional abuse. Other variables were included in the analysis but did not contribute significantly to the model (see Note 1 in Table 5).

Regression Analysis: the Hospital as Unit of Analysis

The regression model that predicted emotional abuse at the level of hospital (the aggregated abuse score based on all nurses reporting abuse in a given hospital) consisted of six variables and two interaction effects. The model predicted 25.0% of the total variability and is significant ($F(8, 180) = 7.52, p < .000$) (see Table 5). As in the individual model, quality of care was the most important predictor of emotional abuse. The mean age of nursing staff and the average score of the quality of relationships with physicians were also important predictors of emotional abuse at the organizational level. The existence of measures to prevent violence within the hospital was significant in interaction with province. Where violence-prevention measures in BC were shown to decrease predicted organizational levels of abuse, this relation was inverse in Alberta. These results indicate that in Alberta the more strongly the nurses in a hospital agreed that workplace violence prevention measures were in place, the more likely they were to experience emotional abuse.

The mean age of nurses in the hospital interacted with the quality of nurse-physician relationships in that hospital. As the average age of nurses in a hospital increased beyond 46 or 47 years, the relationship with physicians started to improve. This change in relationships between physicians and nurses is coincident with a decrease in the likelihood of nurses experiencing emotional abuse in that hospital. Finally, while the relationships of RNs with LPNs did not contribute significantly to the model on its own, it contributed to the predictability of the model as a whole. Unaccounted interaction among other variables might explain this variable's importance to the model. For other variables that were included in the analysis but did not contribute significantly to the model, see Note 2 in Table 5.

Discussion

Scope of the Problem

These findings show that the frequencies with which nurses in Alberta and BC experience violence are cause for concern. The impact of these frequencies is more compelling when one considers that 46% of nurses in our sample experienced one or more types of violence *in the last five shifts worked*. Although this study cannot easily be compared with other studies due to the methodological inconsistencies across studies, our findings indicate a higher rate of violence among nurses in the past five shifts worked than did an earlier study with Ontario nurses (Graydon et al., 1994).

Patients were the main source of all types of violent episodes in hospitals. This is an understandable finding in light of the stressfulness of illness and hospitalization. However, if we are to comprehend and ultimately prevent violence between patients and health-care providers, we must move, in our thinking and actions, from an exclusively interpersonal model to include institutional models. It is critical for us to understand that all interactions are influenced by complex systemic factors. Our results show that emotional abuse is prevalent across different types of interactions in hospitals — between and among care providers, families, co-workers, and physicians — and is predicted by both interpersonal and organizational factors. Although not part of this study, analyses of incidents in which violence originates with the nurse in interaction with patients and co-workers will lead to a deeper understanding of the problem of violence and help to identify meaningful solutions. We also acknowledge that we were unable to determine patterns of abuse or violence from the results of this survey, which was based on the recall of isolated incidents; we did not ask nurses to differentiate between isolated and repeated incidents.

Our data show that 70% of the nurses did not report their violent incident(s). There are likely several plausible explanations for this result. For example, the underreporting may be related to an acceptance of a *culture of violence* in hospitals, particularly by mid- and late-career nurses. Such a phenomenon would not be asynchronous with the societal trend towards tolerance for increasing levels of violence — for example, in high schools, on the highways, and in the air. Underreporting may also be related to nurses' reticence to disclose violence to hospital administrators. It is also likely that the magnitude of the problem of violence against nurses is greater than currently acknowl-

edged. An exploration of the reasons why nurses do not report violent episodes is urgently needed.

Predicting Emotional Abuse in Individual Nurses

Personal, interpersonal, and organizational factors were found to predict emotional abuse in nurses. With respect to personal characteristics, younger nurses experienced more emotional abuse than older nurses. One explanation for this finding may be that younger nurses are more vulnerable to violence because of their age and lack of experience in the work setting. A second explanation may be that younger nurses acknowledge their experiences of violence more readily than older nurses, who might accept a level of violence as part of the job.

Employment status and practice setting are also predictive. Casual status predicted less emotional abuse; the nature of casual work may protect nurses from developing emotionally abusive relationships in that it allows them to move away from problematic situations. Nurses in psychiatric and emergency settings were more likely to experience violence of all types, including emotional abuse. This finding is consistent with those of previous studies. Critical-care nurses experienced the lowest incidence of all types of violence. Based on our analysis of other components of the Nurse Survey, it is our understanding that critical-care nurses report greater job satisfaction, a higher nurse-to-patient ratio, and more collaborative working relationships with physicians (Giovannetti & Estabrooks, 2000). It may also be that critical-care units have been buffered from some of the effects of restructuring. These observations provide further insight into how the quality of relationships and organizational factors actually influences the experience of violence in different practice settings.

The nurse's ability to complete the five functions included in the proxy quality-of-care measure was the single greatest predictor of emotional abuse. Hospital restructuring, including mergers, downsizing, and resource constraints, has been previously linked to changes in nursing practice that have had a detrimental effect on quality of care (Aiken et al., 2000; Blythe et al., in press; Moore, Clarke, Regan, & Steele, 1999). The significance of organizational factors in this model points to strained relationships and lack of support for quality care in a stressful practice environment. The link to emotional abuse is therefore not surprising. Most important, the relationship among organizational restructuring, quality of care, and emotional abuse re-frames the problem and its prevention at the level of the organization.

Measures taken to prevent violence also predicted less emotional abuse among individual nurses. It is difficult to analyze the significance of these findings, as our survey indicates little about whether or how preventive measures might address this problem. Previous research has included little evaluation of preventive measures such as zero tolerance policies or staff education. Furthermore, the timing of the implementation of these measures is unknown, a factor that may or may not have influenced the nurses reporting emotional abuse in our study.

Predicting Emotional Abuse at the Organizational Level

The proxy quality-of-care measure overwhelmingly predicted emotional abuse among nurses at the hospital level. This is a measure of nurses' inability to complete the most basic direct nursing functions that they believe their patients require. Based on its significance to both the nurse and hospital levels of analysis, we must consider that the quality of care that nurses provide is a powerful organizational determinant of the emotional health of hospitals. This realization again re-frames the discussion of violence beyond the level of individual and interpersonal relations and leads us to consider the related issues of organizational change, organizational culture, and the valuing of nursing work and concomitant resource adequacy.

This is not to say that interpersonal issues are not significant. As in the previous model, the quality of nurse-physician relationships at the level of the hospital is a significant predictor. The quality of the nurse-physician relationship also interacts with the mean age of the nurses in a hospital to predict greater emotional abuse. This leads us to consider the impact of nurse-physician interactions during the formative years of a nurse's career. It may also be that younger nurses acknowledge emotional abuse from physicians instead of accepting it as a part of the job. Alternatively, it may be that younger nurses are more vulnerable to the existing power differentials among physicians, nurses, and hospital policy-makers (Clare, 1993; Dan, Pinsof, & Riggs, 1995; Libbus & Bowman, 1994; Lippman, 1993; Wigmore, 1995).

These organizational issues are also important in a broader social context, as our organizational model points to the province itself as a source of variability. The province factor is significant in its interaction with violence-prevention measures. In Alberta, preventive measures appear to be inversely related to emotional abuse, whereas in BC they are correlated in the expected direction. For reasons cited above, we were not able to interpret the meaning of the preventive measures and their relationship to emotional abuse. However, the interaction effect

does point to the significance of social context at the level of the province. For instance, we are aware of some differences between the two provinces in their implementation of hospital restructuring. In BC, for example, nurses' job security was protected somewhat during the most vigorous period of restructuring (Moore et al., 1999), whereas in Alberta large numbers of RNs were laid off. There are likely other contextual differences in the implementation of restructuring, including approaches to regionalization. Further analyses of contextual differences beyond the level of the organization will be important to our understanding of violence as a social phenomenon.

Implications

To our knowledge, this is the first instance in which violence against nurses has been examined at both the individual and hospital levels. Such an analysis underscores the importance of the organizational and cultural dimensions of violence and demonstrates the complementarity of the individual and hospital models. Together, these models add to our understanding of the dynamics of violence in the nursing environment. Moreover, this study provides a baseline measure for future comparisons.

The most compelling implications of this analysis are those concerning policy, both organizational and governmental. Policies to prevent emotional abuse, the most pervasive form of violence in institutions, must focus on the adequacy and appropriateness of human resources and the quality of patient care. Whereas past and current approaches to violence prevention have been educational and focused on the individual nurse and the interpersonal domain, we now need to target the practice environment and the social context in which it is created.

Our analysis was based on the selection of variables from the Nurse Survey, and there may be other variables that would increase the explained variance in future analyses. However, as King (1986) illustrates, explained variance is not necessarily the best indicator of goodness-of-fit. Future research on workplace violence against nurses should address questions in four unresolved areas. First, it is important that we understand the culture of violence in hospitals, including nurses' decisions about whether to report incidents of violence. Cultural perspectives will also help us to understand the organizational context of providing care and how it may contribute to an environment in which violence occurs. Second, we need more sophisticated analyses of the predictive capacity of organizational factors such as those identified

in this study. Structural equation modelling would assist in the development of theory related to the organizational and systemic determinants of workplace violence. Further, it is important that modelling be conducted using the other types of violence (physical assault, threat of assault, verbal sexual harassment, sexual assault) as the dependent variable, so that we can learn about predictors and preventive strategies uniquely associated with each. Third, more comprehensive measures of quality of care could possibly improve the predictive ability of the models. Finally, we need evaluations of policy interventions designed to prevent violence. We believe that research in which the organization serves as the unit of analysis will be the most useful in identifying and evaluating systemic solutions to workplace violence.

References

- Aiken, L., Clarke, S.P., & Sloan, D.M. (2000). Hospital restructuring: Does it adversely affect care and outcomes? *Journal of Nursing Administration*, 30(10), 457–465.
- Aiken, L., & Patrician, P.A. (2000). Measuring organizational traits of hospitals: Revised nursing work index. *Nursing Research*, 49(3), 146–153.
- Aiken, L., Smith, H.L., & Lake, E.T. (1994). Lower medicare mortality among a set of hospitals known for good nursing care. *Medical Care*, 32(8), 771–787.
- Arnetz, J., Arnetz, B., & Petterson, I. (1996). Violence in the nursing profession. *Work and Stress*, 10(2), 119–127.
- Blythe, J., Baumann, A., & Giovannetti, P. (in press). Nurses' experiences of restructuring in three Ontario hospitals. *Image: Journal of Nursing Scholarship*.
- Braun, K., Christle, D., Walker, D., & Tiwanak, G. (1991). Verbal abuse of nurses and non-nurses. *Nursing Management*, 22(3), 72–76.
- British Columbia Nurses Union. (1991). *Survey on violence*. Vancouver: Author.
- Britt, B. (1992). Danger on the job: Violence in the health care workplace. *Canadian Occupational Safety*, 30(5), 21–21.
- Canadian Centre for Occupational Health and Safety. (1999). *Violence in the workplace prevention guide*. Hamilton, ON: Author.
- Canadian Nurses Association. (1993, June). *Policy statement on violence in the workplace*. Ottawa: Author.
- Canadian Nurses Association. (1996). *Policy statement on interpersonal violence*. Ottawa: Author.
- Carroll, V. (1999). Health and safety: Workplace violence. *American Journal of Nursing*, 99(3), 60.
- Clare, J. (1993). A challenge to the rhetoric of emancipation: Recreating a professional culture. *Journal of Advanced Nursing*, 18, 1033–1038.

- Cooper, A., Saxe-Braithwaite, M., & Anthony, R. (1996). Verbal abuse of hospital staff. *Canadian Nurse*, 92(6), 31–34.
- Cox, H. (1991a). Verbal abuse nationwide. Part 1: Oppressed group behavior. *Nursing Management*, 22(2), 32–35.
- Cox, H. (1991b). Verbal abuse nationwide. Part 2: Impact and modifications. *Nursing Management*, 22(3), 66–69.
- Cox, H.C., & Kerfoot, K.M. (1990). Nursing management considerations. *Nursing Economics*, 8, 416–417.
- Croker, K., & Cummings, A.L. (1995). Nurses' reactions to physical assault by their patients. *Canadian Journal of Nursing Research*, 27(2), 81–93.
- Cruikshank, C.J.M. (1995a). Nurse abuse: A study of workplace violence. Unpublished doctoral dissertation, Dalhousie University, Halifax, Nova Scotia.
- Cruikshank, C.J.M. (1995b). Nurse abuse: A study of workplace violence in Nova Scotia. *Nurse to Nurse*, 6(2), 12.
- Dan, A.J., Pinsof, D.A., & Riggs, L.L. (1995). Sexual harassment as an occupational hazard in nursing. *Basic and Applied Social Psychology*, 17(4), 563–580.
- Diaz, A.L., & McMillin, J.D. (1991). A definition and description of nurse abuse. *Western Journal of Nursing Research*, 13(1), 97–109.
- Duncan, S., Estabrooks, C.A., & Reimer, M. (2000). High rates of workplace violence against nurses: Findings of the Alberta Nurse Survey. *Alberta RN*, 56(2), 13–14.
- Elliott, P.P. (1997). Violence in health care: What nurse managers need to know. *Nursing Management*, 28(2), 38–41.
- Fédération des Infirmières et Infirmiers du Québec. (1995, November). *Research report on violence against nurses in the workplace*. Report A95-Cf-IV-D7. Quebec: Author.
- Gates, D.M., & Horstman, S.W. (1995). Occupational health and safety: Professionals' attitudes toward workplace violence. *Applied Occupational and Environmental Hygiene*, 10(2), 79–83.
- Giovannetti, P., & Estabrooks, C.A. (2000, February). *International study of hospital outcomes: Preliminary analysis*. Invited presentation to the Alberta Association of Registered Nurses, Edmonton.
- Gleason, S.J., Sochalski, J., & Aiken, L. (1999). Review of magnet hospital research: Findings and implications for professional nursing practice. *Journal of Nursing Administration*, 29(1), 9–19.
- Graydon, J., Kasta, W., & Khan, P. (1994). Verbal and physical abuse of nurses. *Canadian Journal of Nursing Administration*, 94(6), 70–89.
- Hewitt, J., & Levin, P. (1997). Violence in the workplace. *Annual Review of Nursing Research*, 16, 81–99.
- Hilton, P.E., Kottke, J., & Pfahler, D. (1995). Verbal abuse in nursing: How serious is it? *Nursing Management*, 25(5), 90.
- International Council of Nurses. (1999, March 8). *Increasing violence in the workplace is a threat to nursing and the delivery of health care: The International*

Nurses' Experience of Violence in Alberta and British Columbia Hospitals

Council of Nurses and nurses everywhere call for zero tolerance of workplace violence. Geneva: Author.

- Keep, N., & Glibert, P. (1992). California Emergency Nurses Association's informal survey of violence in California emergency departments. *Journal of Emergency Nursing*, 18(5), 433-442.
- King, G. (1986). How not to lie with statistics: Avoiding common mistakes in quantitative political science. *American Journal of Political Science*, 30(3), 666-687.
- Levin, P.F., Hewitt, J.B., & Misner, S.T. (1998). Insights of nurses about assault in hospital-based emergency departments. *Image: Journal of Nursing Scholarship*, 30(3), 249-254.
- Libbus, M.K., & Bowman, K.G. (1994). Sexual harassment of female registered nurses in hospitals. *Journal of Nursing Administration*, 24(16), 26-31.
- Lippman, L. (1993). Sexual harassment: An updated picture. *Registered Nurse*, February, 61-66.
- Lipscomb, J.A., & Love, C.C. (1992). Violence toward health care workers: An emerging occupational hazard. *American Association of Occupational Health Nursing Journal*, 40(5), 219-228.
- Liss, G.M., & McCaskell, L. (1994). Injuries due to violence: Workers' compensation claims among nurses in Ontario. *American Association of Occupational Health Nursing Journal*, 42(8), 384-390.
- Mahoney, B.S. (1991). The extent, nature, and response to victimization of emergency nurses in Pennsylvania. *Journal of Emergency Nursing*, 17(5), 282-294.
- Manderino, M.A., & Berkey, N. (1997). Verbal abuse of staff nurses by physicians. *Journal of Professional Nursing*, 13(1), 48-55.
- Moore, G., Clarke, H.F., Regan, S., & Steele, M. (1999). Nursing and healthcare system reform: A balancing act. *Hospital Quarterly*, 2(4), 25-32.
- Morrison, L.J. (1999). Abuse of emergency room workers: An inherent career risk or barometer of the evolving health care system. *Canadian Medical Association Journal*, 161, 1262.
- Olson, N.K. (1994). Workplace violence: Theories of causation and prevention strategies. *American Association of Occupational Health Nursing Journal*, 42(10), 477-482.
- Pekrul, L.K. (1993). Nurse abuse in Saskatchewan: A study. *Concern*, 22(1), 16-18.
- Powell, P. (1996). *The prevalence of post traumatic stress disorder among registered nurses working Manitoba emergency and intensive care units: A replication study.* Unpublished master's thesis, University of Manitoba, Winnipeg.
- Roberts, S. (1991). Nurse abuse: A taboo topic. *Canadian Nurse*, 87(3), 23-25.
- Simonowitz, J.A., Rigdon, J.E., & Mannings, J. (1997). Workplace violence: Prevention efforts by the occupational health nurse. *American Association of Occupational Health Nursing Journal*, 45(6), 305-316.
- Smith Pitman, M.H., & McCoy, Y.D. (1999). Workplace violence in healthcare environments. *Nursing Forum*, 34(2), 5-13.

- Sochalski, J., Aiken, L.H., Rafferty, A.M., Shamian, J., Müller-Mundt, G., Hunt, J., Giovannetti, P., & Clarke, H.F. (1998). Building multinational research. *Reflections*, Third Quarter, 20–23.
- Sommargren, C.E. (1994). Violence as an occupational hazard in the acute care setting. *American Association of Critical Care Nursing Journal*, 5(4), 516–522.
- Stultz, M.S. (1993). Crime in hospitals 1986–1991 — the latest IAHSS surveys. *Journal of Healthcare Protection Management*, 9(2), 1–25.
- Warchol, G. (1996). Workplace violence: Bureau of Justice statistics special report. Available online: <<http://www.ojp.usdoj.gov/bjs/pub/ascii/wv96.txt>> [July 5, 2000].
- Whittington, R., Shuttleworth, S., & Hill, L. (1996). Violence to staff in a general hospital setting. *Journal of Advanced Nursing*, 24, 326–333.
- Wigmore, D. (1995). Taking back the workplace. Workplace violence: The hidden risk in women's work. In K. Messing, B. Neis, & L. Dumais (Eds.), *Issues in women's occupational health: Invisible* (pp. 321–352). Charlottetown, PEI: Gynergy Books.
- Yassi, A. (1994). Assault and abuse of health care workers in a large teaching hospital. *Canadian Medical Association Journal*, 151(9), 1273–1279.
- Yassi, A., Tate, R., Cooper, J., Jenkins, J., & Trottier, J. (1998). Causes of staff abuse in health care facilities. *American Association of Occupational Health Nursing Journal*, 46(10), 484–491.

Authors' Note

Funding for this study was provided by the Alberta Heritage Foundation for Medical Research (AHFMR) and by the BC Health Research Foundation and the Registered Nurses Association of British Columbia (RNABC). Doctoral study support to Susan Duncan has been provided by AHFMR and NHRDP. Career support to Dr. Estabrooks has been provided by AHFMR and MRC/CIHR.

Correspondence may be directed to S. Duncan, Assistant Professor, School of Nursing, University College of the Cariboo, Box 3010, Kamloops BC V2C 5N3 Canada.