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Physical Assault, Physical Threat, and Verbal Abuse Perpetrated Against Hospital Workers by Patients or Visitors in Six U.S. Hospitals

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Background *An elevated risk of patient/visitor perpetrated violence (type II) against hospital nurses and physicians have been reported, while little is known about type II violence among other hospital workers, and circumstances surrounding these events.*
Methods *Hospital workers (n = 11,000) in different geographic areas were invited to participate in an anonymous survey.*
Results *Twelve-month prevalence of type II violence was 39%; 2,098 of 5,385 workers experienced 1,180 physical assaults, 2,260 physical threats, and 5,576 incidents of verbal abuse. Direct care providers were at significant risk, as well as some workers that do not provide direct care. Perpetrator circumstances attributed to violent events included altered mental status, behavioral issues, pain/medication withdrawal, dissatisfaction with care. Fear for safety was common among worker victims (38%). Only 19% of events were reported into official reporting systems.*
Conclusions *This pervasive occupational safety issue is of great concern and likely extends to patients for whom these workers care for.* Am. J. Ind. Med. 58:1194–1204, 2015. © 2015 Wiley Periodicals, Inc.

KEY WORDS: workplace violence; hospital workers; type II violence

BACKGROUND

Although non-fatal violence perpetrated against health care workers is not a new public health issue, it has, with good reason, received significant attention in recent years. Bureau of Labor Statistics 2010 estimates [BLS, 2010] indicate that 3,350 non-fatal workplace violence-related injuries that required at least one day away from work occurred among workers in general medical and surgical hospitals, with a rate of 7.7 injuries per 10,000 workers. This accounted for 4.8% of all injuries and illnesses requiring days away from work in this occupational setting, which is an increase from 3.7% reported in 2009 [BLS, 2009]. While these estimates serve to highlight the problem, they lack details about the circumstances surrounding these events. Given that these estimates include only cases that involved injury with lost workdays, they do not represent the full burden of workplace violence. Furthermore, there is growing recognition that workplace injuries are not accurately reported to BLS, and that violent events are under-reported by workplace victims [Wuellner and Bonuato, 2014].

To guide prevention efforts, Howard [1996] and Peek-Asa et al. [1997] defined four types of workplace violence that consider the perpetrator's characteristics and motives for

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violence. Type II violence, in which violence is perpetrated by a customer receiving services from an establishment, such as a patient or visitor; is common in hospitals. Specific hospital workgroups such as nurses [Hesketh et al., 2003; Gacki-Smith et al., 2009; Rodríguez-Acosta et al., 2010; Pompeii et al., 2014] and physicians [Kowalenko et al., 2005; Salerno et al., 2009] are at high risk for type II violence, as are those employed in hospital emergency departments [Kowalenko et al., 2005; Gates et al., 2006; James et al., 2006; Gacki-Smith et al., 2009] and in-patient psychiatric units [Salerno et al., 2009]. While these workgroups are typically highlighted, few studies have examined type II violence across hospital workgroups [Pompeii et al., 2013], including those outside of nursing and medicine who also provide patient care, and/or services to hospital patients and visitors.

Physical assault, physical threat of assault, and verbal abuse are sub-types of type II violence that have been consistently used to define the nature of violent events perpetrated by patients and visitors [Pompeii et al., 2013]. Occupational and hospital department specific studies have reported a lower prevalence of physical assaults relative to verbal abuse, but not at an insignificant frequency. For example, 12-month prevalence estimates of 75–90% for verbal abuse have been reported for emergency room workers, with a prevalence of physical assault ranging from 28% to 32% [Kowalenko et al., 2005; James et al., 2006]. To date, studies have not examined these violence sub-types across hospital worker and workplace characteristics, or circumstances surrounding the events which could be relevant to informing workplace violence prevention and mitigation strategies.

The purpose of this study was to examine the 12-month prevalence, circumstances, and immediate consequences surrounding sub-types of type II violent events among a large sample of hospital workers likely to interact with patients and/or visitors as part of their job, in 6 U.S. hospitals.

METHODS

Definition of Sub-Types of Type II Workplace Violence

Our study definition of type II workplace violence included the three sub-types used in prior studies: physical assault, physical threat, and verbal abuse [Pompeii et al., 2013]. After pilot-testing at three study hospitals, we modified the working definitions of: (i) physical assault which included aggressive physical contact such as hitting, biting, scratching, pushing, shoving, spitting and/or sexual assault where a physical injury may or may not occur; (ii) physical threat included threatening or aggressive physical behavior or physical force that makes the worker feel that they may be harmed such as shaking fists, throwing furniture, destroying property, having an aggressive stance, physically moving toward the worker, moving into the worker's physical space; and (iii) verbal abuse included aggressive or inappropriate language that makes the worker feel threatened, scared and/or uncomfortable such as yelling, name calling, rude language, and verbal bullying. In each case, violence was perpetrated by patients or visitors towards the worker.

Study Hospitals and Data Collection

This study took place in two large hospital systems in Texas (TX) and North Carolina (NC); each system included one large medical center hospital and two community hospitals. Approximately 11,000 workers from the 6 hospitals who were likely to interact with patients and/or visitors as part of their job were invited to participate in a survey referred to as the *Blitz* (URL to BlitzSurvey) which was anonymous, and designed to take no longer than 5 minutes to complete.

Participants provided demographic and occupational information, career prevalence of type II violence, as well as the number of times they had experienced each sub-type of violence in the previous 12 months (which could involve all three sub-types in a single event). Workers were asked to provide details about one violent event in this time period; those who experienced more than one event were asked to report on the event they deemed most serious. Details were sought regarding the perpetrator (patient/visitor), if staff were alone during the event, location, perception of the perpetrator's intent to harm, weapons used (e.g., body part, gun) and factors the participant perceived to contribute to the event. Participants were asked if they were injured, lost workdays, sought medical treatment or counseling, if they reported the event, to whom (e.g., manager, security) and/or through which reporting system (e.g., first report of injury, general hospital patient and/or worker safety reporting system). Two open-ended questions asked for event details, and if the event made the worker feel frightened or concerned about their personal safety.

The hospital's Chief Executive Officer (TX sites) or study investigator (NC sites) sent an initial email invitation to workers, with a direct link to the online *Blitz* survey offered in English and Spanish, and weekly reminder emails for three weeks. Workers without intranet access (e.g., housekeepers) were provided paper surveys and a stamped envelope, which were distributed during staff meetings by study investigators.

Data Analysis

Descriptive statistics were used to describe respondents and examine demographic and occupational characteristics associated with type II violence and each sub-type. Twelve-month prevalence was assessed using a hierarchy of mutually exclusive categories of the sub-types: (i) physical assault that

could also include physical threat and/or verbal abuse; (ii) physical threats that could also include verbal abuse; and (iii) verbal abuse only. Using log-binomial regression, crude and adjusted prevalence ratios (PRs and aPRs) and 95% confidence intervals (CIs) were calculated to examine relative differences in prevalence across worker characteristics.

Using survey responses related to circumstances surrounding these events supplemented with open-ended text descriptions, each event was categorized into sets of perpetrator circumstances surrounding the event, including: (i) mental health/behavioral problems; (ii) medication or pain issues including illicit drug and alcohol use; and (iii) dissatisfaction with care, family and/or physician conflict, and receiving bad news. Frequencies were examined for these categories, and for nested sub-categories, which were stratified by violence sub-types. Analyses were conducted using SAS 9.3. [2002–2004].

All study methods and procedures were approved by the Institutional Review Boards at The University of Texas Health Science Center at Houston and Duke University Medical Center.

RESULTS

Half (49.0%; n = 5,385/11,000) of the workers likely to interact with patients and/or visitors as part of their job responded to the Blitz survey (Table I). The demographic characteristics of respondents are reflective of the underlying population of workers surveyed. Most were female (79.7%), half (48.8%) were white, one-fourth (23.3%) black, and more than half (56.6%) older than age 40. Larger occupational groups included nurses (36.5%), physical therapist/patient and medical tech (14.8%), administrative staff (12.7%), and nurses' aide/patient sitter/patient transporter (10.0%). Smaller workgroups included nurse manager/unit manager (4.8%), physicians/nurse practitioner/physician (3.1%), and security guard/police officer (1.1%).

Type II Violence Prevalence

Career prevalence of type II violence among respondents was 50.4%, with a 12-month prevalence among respondents of 39.0%. A total of 2,098 workers experienced at least one type II violent event in the prior year, with most (91%) experiencing more than one event. These 2,098 workers reported being physically assaulted 1,180 times, physical threatened 2,260 times and and verbally abused 5,676 times in the prior 12 months (Fig. 1). These were not measured as mutually exclusive events. Workers could have experienced these three type II violence sub-types in a single event.

No meaningful differences of type II violence were observed across the two health systems including by hospital type (i.e., medical center vs. community—data not shown). No differences were observed by gender, while white workers had a modestly higher prevalence of violence relative to other racial/ethnic groups (Table I). The prevalence of type II violence did not vary by years in the profession, with the exception of a low prevalence among workers with <1 year of experience. There was a steady increase in the prevalence of assault by decreasing age categories; workers under age 30 had an adjusted PR of 2.0 (95%CI 1.6, 2.5) compared to those over age 60. Security/police officers (63.8%), nurses (53.8%), nurses' aides/sitters/transporters (45.8%), social workers/case managers (44.6%) and department/unit managers (42.1%) had the greatest 12-month prevalence. These groups had an adjusted 1.5 to 2.2-fold increase in the prevalence of type II violence relative to administrative workers. Relatively low prevalence values were observed among pharmacists/pharmacy techs (10.5%) and food service/housekeeping workers (9.3%).

Sub-Types of Type II Violence

For the events deemed more serious by workers, verbal abuse was common (62.0%; n = 1,301) followed by physical threats (19.2%; n = 394) and assaults (18.8%; n = 403). Verbal abuse was modestly higher among women (aPR = 1.2; 95%CI 1.0, 1.3), with no difference in physical assault or threat by gender (Table II). Across sub-types, and particularly for physical threats, whites had a higher prevalence of violence than blacks. Regardless of violence sub-type, those under the age of 61 reported a higher prevalence, with younger age groups (18–40) at particularly high risk. Those under age 40 had nearly four times greater prevalence of physical assault (aPR = 3.7; 95%CI 1.8, 7.6) than workers over age 60.

Participants in jobs typically involving direct patient care were more likely to indicate physical assault, including 30.5% (75/246) of the events experienced among nurses' aides, 24.5% (62/253) among physical therapists/techs, and 21.5% (229/1,093) among nurses (Tables I and II). In contrast to their relatively low overall type II violence risk, physical therapists/techs had higher prevalence of physical assaults (aPR = 5.6; 95%CI 2.6, 12.3) and physical threats (aPR = 1.9; 95%CI: 1.1, 3.3). Among workers in jobs that require more verbal interaction (than direct care) with patients and visitors, they were more likely to indicate verbal abuse relative to other sub-types, including 61.0% (66/108) of events experienced by nurse managers, 78.1% (32/41) experienced by social workers/case managers, 86.7% (13/15) by pharmacists, 80.8% (21/26) by food service workers and 80.7% (152/177) by administrative staff.

Circumstances Surrounding Events

The majority (72.4%) of violent events in the prior 12 months occurred in patient rooms or exam rooms

TABLE I. Twelve-month Prevalence, Crude and Adjusted Prevalence Ratios (PR)[a], and 95% Confidence Intervals (CI) of Type II Violence in Six U.S. Hospitals (n = 5,385)

	Respondents		Twelve-month prevalence estimates of type II violence		
	No.	%	% (No.)	Crude PR (95%CI)	Adjusted PR (95%CI)[a]
All respondents	5,385	100.0	39.0 (2,098)	—	—
Hospital system location[b]					
North Carolina Study Hospitals	2,430	45.1	42.7 (1,037)	1.2 (1.1, 1.3)	1.1 (0.99, 1.1)
Texas Study hospitals (ref)	2,955	54.9	35.9 (1,061)	1.0	1.0
Gender					
Female	4,290	79.7	40.3 (1,728)	1.2 (1.1,1.3)	1.0 (0.95, 1.1)
Male	1,021	19.0	33.7 (341)	1.0	1.0
Race					
Asian	484	9.1	41.1 (199)	0.96 (0.86, 1.1)	0.89 (0.79, 1.0)
Black	1,256	23.3	28.7 (361)	0.67 (0.61, 0.74)	0.83 (0.75, 0.91)
Hispanic/Latino	419	7.8	34.4 (144)	0.80 (90.70, 0.92)	0.94 (0.82, 1.1)
Other	125	2.3	41.6 (52)	0.97 (90.79, 1.2)	0.97 (0.80, 1.2)
Preferred not to answer	472	8.8	46.0 (217)	1.1 (0.96, 1.2)	1.0 (0.91, 1.1)
White (ref)	2,629	48.8	42.8 (1,125)	1.0	1.0
Age (years)					
18–30	960	17.8	46.8 (449)	2.2 (1.8, 2.8)	2.0 (1.6, 2.5)
31–40	1,338	24.9	45.3 (606)	2.2 (1.7, 2.7)	1.9 (1.5, 2.4)
41–50	1,436	26.7	38.9 (559)	1.9 (1.5, 2.3)	1.7 (1.3, 2.1)
51–60	1,271	23.6	31.3 (398)	1.5 (1.2, 1.9)	1.3 (1.1, 1.7)
61 years and older (ref)	338	6.3	21.0 (71)	1.0	1.0
Years in profession					
<1	390	7.2	24.9 (97)	0.66 (0.55, 0.79)	0.58 (0.48, 0.70)
1–5	1,447	26.9	44.9 (650)	1.2 (1.1, 1.3)	0.99 (0.91, 1.1)
6–10	864	16.0	39.8 (344)	1.1 (0.96, 1.1)	0.96 (0.87, 1.1)
11+ (ref)	2,669	49.6	37.6 (1,004)	1.0	1.0
Occupational group					
Administrative staff (ref)	684	12.7	25.9 (177)	1.0	1.0
Food service, housekeeping	280	5.2	9.3 (26)	0.36 (0.24, 0.53)	0.40 (0.27, 0.60)
Nurse	1,976	36.5	53.8 (1,063)	2.1 (1.8, 2.4)	1.8 (1.6, 2.1)
Nurses' aide, patient sitter, patient transporter	537	10.0	45.8 (246)	1.8 (1.5, 2.1)	1.7 (1.4, 1.9)
Nurse manager, unit manager	256	4.8	42.1 (108)	1.6 (1.4, 2.0)	1.5 (1.3, 1.8)
Pharmacist, Pharmacy Tech	143	2.7	10.5 (15)	0.41 (0.25, 0.67)	0.33 (0.20, 0.57)
Physical therapist, medical tech, patient tech	799	14.8	31.7 (253)	1.2 (1.0, 1.4)	1.1 (0.93, 1.3)
Physician, NP, PA[c]	167	3.1	46.1 (77)	1.8 (1.5, 2.2)	1.5 (1.2, 1.9)
Security guard, police officer	58	1.1	63.8 (37)	2.5 (2.0, 3.1)	2.2 (1.8, 2.8)
Social worker, case manager	92	1.7	44.6 (41)	1.7 (1.3, 2.2)	1.6 (1.3, 2.1)
Other occupational groups	351	6.5	12.5 (44)	0.48 (0.36, 0.66)	0.51 (0.38, 0.70)

[a]PR, prevalence ratio calculated with log-binomial regression.
[b]Three hospitals per hospital system.
[c]NP, nurse practitioner; PA, physician assistant.

(Table III). Less than half (39.6%) occurred while the worker was alone with the perpetrator. A weapon(s) was used in one-third of the events; most (84.3%) being a body part with fewer involving body fluids (14.1%), furniture (7.4%), and gun and/or knife (0.95%). Of note, 111 (8.5%) events reported as verbal abuse also involved a weapon, in which the text description revealed the weapon to be body part for most of these. Workers perceived that perpetrators intended to harm them in 37.2% of physical assaults, 28.7% of threats and 8.1% of verbal abuse events.

Perpetrators were more often patients (76.1%) than visitors (23.9%), with most physical assaults (95.6%),

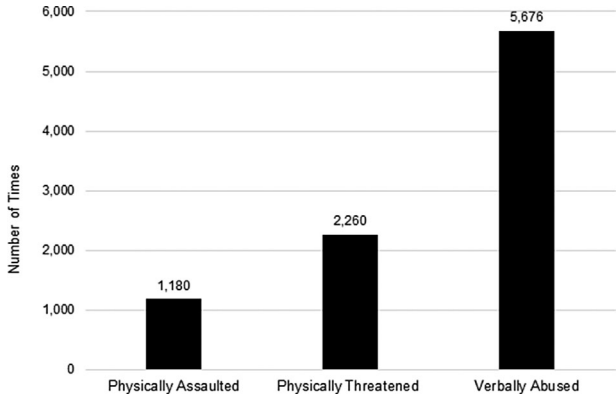

FIGURE 1. The number of times* type II violence sub-types were experienced by Workers in 12-months in six U.S. Hospitals, 2012 (n = 2,098 workers).

*Not mutually exclusive events.

physical threats (77.2%), and verbal abuse (69.4%) by patients. Mental health/behavioral issues were indicated as contributing factors for 63.7% of patient perpetrated events followed by medication withdrawal, pain, illicit drug/alcohol use (37.8%), and being unhappy with care and/or experiencing conflict with a physician and/or family member (33.3%). The majority of physical assaults (82.1%) and physical threats (75.3%) perpetrated by patients were also attributed, in part, to mental health or behavioral issues.

Visitor perpetrated events were more often verbal abuse (78.7%), and were associated with dissatisfaction with care (72.7%), including concern about patient care, unmet expectations of care, and/or long wait for care/scheduling delays. Fewer visitor-perpetrated events were attributed to alcohol/illicit drug use (10.0%) emergency/acute situations (9.6%), and/or environmental issues (e.g., crowded waiting room; 6.4%).

Reporting of Events

The majority of victims indicated in the survey that they reported 75% of the events. Physical assaults (82.6%) and threats (82.2%) were more likely to be reported than verbal abuse events (70.5%). Workers could use more than one mechanism for reporting an event. We observed that the act of reporting and the mechanism used to report varied by the violence sub-type (Fig. 2). Reports to coworkers/managers were most common (64.0%) across all violence sub-types including 40.9% physical assaults, 35.0% threats, and 47.4% verbal abuse. Compared to verbal abuse (13.3%), more physical abuse (25.1%), and physical threat (26.4%) events were reported in patient medical records. In contrast, only 7.1% of victims submitted a written report into a hospital reporting system such as the online First Report of Injury system or a general Hospital Safety Reporting System. Sixteen percent called security personnel for assistance with the event including 17.1% for physical assaults, 28.4% physical threats and 12.1% verbal abuse events. Twenty five percent of events were not reported through any these mechanisms.

Consequences of Type II Violence

Few workers who experienced type II violence were injured (4.6%; n = 96), missed workdays (2.0%; n = 42), sought medical care (2.2%; n = 47), and/or counseling (1.2%; n = 25). More injuries were experienced by nurses (57.8%; n = 55), nurses' aides/transporters (19.8%; n = 19), and physical therapists/patient techs (11.5%; n = 11), with 5.2% (n = 5) experienced by administrative staff. Over one-third of victims (38.2%; n = 802) indicated feeling frightened or worried about their personal safety including victims of physical assault (44.9%; n = 181), physical threats (58.1%; n = 229) and verbal abuse (30.1%; n = 392).

DISCUSSION

For purposes of estimating the prevalence, nature and consequences of type II violence, we sought input directly from hospital workers whose jobs likely involved interacting with patients and/or visitors across six hospitals in two large health systems, in geographically distinct regions of the U.S. Eleven thousand workers were invited to participate in our survey with half who responded. Respondents were representative of the underlying study population with respect to the distribution of age, gender, race and occupational groups. An overall prevalence of respondents reporting at least one type II violent event in the prior 12 months was 39%, which is similar to prevalence estimates ranging from 31% to 53% reported in prior hospital-based studies [Hesketh et al., 2003; Winstanley and Whittington, 2004; Findorff et al., 2005; Gates et al., 2006]. We also found several of our findings of type II violence with respect to specific demographic and occupational groups similar to those reported in prior studies, which we highlight in detail below. During the administration of the survey we learned some workers were not participating because they had not experienced a type II event. We took steps to ameliorate this, but acknowledge that this may have inflated our prevalence estimates with respect to workers who experience violence at work were more likely to report. It is expected, however, that a proportion of non-responders experienced workplace violence in the previous 12 months.

Our findings highlight the pervasive nature of patient and visitor perpetrated violence experienced by U.S. hospital workers. While a 12-month type II violence prevalence of 39% among respondents suggests a significant public health issue, the staggering number of times these workers indicated

TABLE II. Twelve-month Prevalence, Crude and Adjusted Prevalence Ratios (PR)[a] and 95% Confidence Intervals (CI) of Type II Violence Sub-Types[b] in Six U.S. Hospitals (n = 5,385)

		Physical Assault		Physical Threat		Verbal Abuse	
	No.	%	Adjusted PR (95% CI)	%	Adjusted PR (95% CI)	%	Adjusted PR (95% CI)
All respondents	5,385	7.5	—	7.3	—	24.2	—
Hospital System Location[c]							
N.C. Study Hospitals	2,430	8.6	1.1 (0.95, 1.4)	8.6	1.1 (0.93, 1.4)	25.5	1.1 (0.95, 1.2)
Texas Study Hospitals	2,955	6.6	1.0	6.3	1.0	23.1	1.0
Gender							
Female	4,290	7.6	0.84 (0.67, 1.1)	7.3	1.0 (0.81, 1.3)	25.4	1.2 (1.0, 1.3)
Male	1,021	7.4	1.0	7.6	1.0	18.9	
Race							
Asian	484	8.1	0.77 (0.55, 1.1)	5.6	0.56 (0.38, 0.83)	27.5	0.95 (0.81, 1.1)
Black	1,256	5.0	0.64 (0.48, 0.86)	4.2	0.58 (0.43, 0.79)	19.5	0.87 (0.76, 1.0)
Hispanic/Latino	419	5.7	0.70 (0.46, 1.1)	4.3	0.50 (0.29, 0.84)	24.3	1.1 (0.90, 1.3)
Other	125	8.0	0.96 (0.54, 1.7)	6.4	0.72 (0.38, 1.4)	27.0	1.0 (0.79, 1.4)
Preferred not to answer	472	8.8	0.91 (0.66, 1.3)	9.5	1.1 (0.83, 1.5)	27.6	1.0 (0.89, 1.2)
White (ref)	2,629	8.6	1.0	9.3	1.0	24.8	1.0
Age (years)							
18 to 30	960	10.1	3.7 (1.8, 7.6)	8.9	2.8 (1.6,5.2)	27.8	2.1 (1.5, 2.8)
31 to 40	1,338	9.9	3.6 (1.8, 7.2)	9.3	2.8 (1.6, 4.9)	26.1	1.9 (1.5, 2.5)
41 to 50	1,436	6.6	2.5 (1.2, 5.0)	7.8	2.1 (1.2, 3.5)	24.5	1.7 (1.3, 2.2)
51 to 60	1,271	5.3	1.9 (0.93, 3.8)	4.6	1.0 (0.57, 1.8)	21.5	1.4 (1.0, 1.8)
61 years and older (ref)	338	2.7	1.0	3.9	1.0	14.5	1.0
Years in Profession							
< 1	390	4.4	0.41(0.24, 0.70)	3.9	0.30 (0.17, 0.54)	16.7	0.58 (0.46, 0.74)
1 to 5	1,447	9.5	1.1 (0.87, 1.4)	8.2	0.80 (0.61, 1.1)	27.2	1.0 (0.89, 1.2)
6 to 10	864	9.4	1.2 (0.92, 1.5)	6.8	0.79 (0.60, 1.1)	23.6	0.93 (0.81, 1.1)
11 + (ref)	2,669	6.3	1.0	7.5	1.0	23.9	1.0
Occupational Group							
Administrative (ref)	684	1.0		2.6	1.0	22.2	1.0
Food Service, Housekeeping	280	—	—[d]	1.8	—[d]	7.5	0.37 (0.24, 0.58)
Nurse	1,976	11.6	11.5 (5.4, 24.3)	10.0	4.1 (2.5, 6.6)	32.2	1.6 (1.4, 1.9)
Nurses Aide, Patient Sitter, Patient Transporter	537	14.0	13.4 (6.2, 28.8)	7.1	3.3 (1.9, 5.7)	24.8	1.3 (1.0, 1.6)
Nurse Manager, Unit Manager	256	4.7	4.9 (2.0, 12.2)	11.7	4.1 (2.4, 7.2)	25.8	1.3 (1.0, 1.6)
Pharmacist, Pharmacy Tech	143	—	—[d]	1.4	—[d]	9.1	0.33 (0.19, 0.59)
Physical Therapist, Med Tech, Patient Tech	799	7.8	5.6 (2.6, 12.3)	6.0	1.9 (1.1, 3.3)	17.9	0.83 (0.68, 1.0)
Physician, NP, PA[e]	167	3.6	2.9 (0.97, 8.4)	15.0	4.7 (2.6, 8.4)	27.5	1.3 (1.0, 1.8)
Security Guard, Police Offcr	58	6.9	9.5 (3.0, 30.2)	24.1	9.6 (5.2, 17.7)	32.8	2.0 (1.4, 2.8)
Social Worker, Case Mgr	92	—	—[d]	9.8	—[d]	34.8	1.7 (1.2, 2.3)
Other Occupational Groups	351	2.0	1.8 (0.63, 5.1)	1.7	0.65 (0.26, 1.6)	8.8	0.42 (0.29, 0.61)

[a]Calculated with log-binomial regression.

[b]Sub-types of type II violence are mutually exclusive and defined as: physical assault (which may also include physical threat and/or verbal abuse); physical threat (which may also include verbal abuse); and verbal abuse only.

[c]Three hospitals per hospital system.

[d]Excluded from the adjusted model due to small sample sizes; model would not converge.

[e]NP, nurse practitioner; PA, physician assistant.

they were physically assaulted, threatened, and/or verbally abused in this same time period highlights just how significant. Moreover, events of verbal abuse resulted in 30% of respondent victims feeling frightened for their personal safety indicating that it should not be assumed that these events are not as serious as physical assaults or threats. A small proportion of workers who reported a verbal abuse event also indicated that a weapon was involved, with body part (being threatened or hit) as the weapon and context described in most events. These findings may suggest that the verbal nature of the event was perceived on the part of the worker to be a more prominent or serious compared to being threatened or hit. Physical assaults more commonly involved a body part as a weapon followed by body fluids, while traditional weapons were used in less than 1% of events. All study hospitals prohibited concealed weapons; however, we did not ascertain data regarding weapons confiscated by security during the study period.

Non-white respondents had a lower prevalence of physical assaults and physical threats. Estimates were adjusted for occupation and cannot be attributed to differential risk in jobs held by whites and non-whites. Nachreiner et al. [2007] observed that white registered nurses had a reduced risk (OR 0.58; 95%CI: 0.31, 1.08) of physical assault relative to non-whites, but did not find this same association among white licensed practical nurses (OR 1.16; 95%CI: 0.44, 3.05). Before concluding that non-whites are less likely to be victims of violence in hospitals, consideration should be given to the possibility of different cultural definitions of these violence sub-types and/or differences in reporting.

The increased prevalence of workplace violence across all sub-types in workers of younger age suggests that younger workers are more likely to be victims. Older workers may be more accepting of these events resulting in their reporting less [Whittington et al., 1996] or they may be more skilled at event de-escalation. In contrast, the prevalence of violence was fairly steady across categories of time in the nursing profession. The exception was for those with less than 1 year of experience; their relatively low prevalence of violence likely relates to their limited time at risk. Gerberich et al. [2005] similarly reported an inverse trend in physical assault by age, and a lack of association by years in the profession, while Kowalenko et al. [2005] reported emergency room physicians with fewer years of experience were more likely to be victims of physical assault and verbal abuse.

Most workgroups involved in direct patient care were at considerable risk of violence. Nurses had the highest prevalence followed by nurses' aides, and physicians/nurse practitioners/physician assistants. These findings are not surprising given that hands-on patient care is a risk factor for type II violence [Findorff et al., 2005]. We found physical therapists/patient technicians at lower risk of verbal abuse, but at particularly high risk of physical assault. Relative to nursing staff, these workgroups are not the patients' primary care provider and most likely provide care to a greater number of patients in a given work shift, but perhaps for shorter time periods (e.g., therapy session, blood draw).

Several workgroups not responsible for direct care shared the burden of type II violence including nurse/unit managers, security personnel, and case managers/social workers which was observed in a few prior studies [Hesketh et al., 2003; Findorff et al., 2005; Ayranci et al., 2006]. Prior to a workplace violence prevention intervention, Arnetz and Arnetz [2000] found that those in a supervisory position were at twofold increased risk of type II violence in a 12-month time period relative to those not in this type of job. These workgroups are often called on to assist with aggressive patients and visitors. Other groups not typically discussed in the hospital violence literature (e.g., administrative staff, food services workers, housekeeping staff) were not immune to type II violence, including our referent group of administrative staff in which one-fourth of respondents reported an event.

In line with prior findings [Ayranci et al., 2006; Pompeii et al., 2013], workers incurred few injuries; however, those injured were more likely to be nurses, nurse's aides, and physical therapists. Also consistent with other reports [Fernandes et al., 2002; Findorff et al., 2005; Kowalenko et al., 2005; El-Gilany et al., 2010], nearly 40% of victims of type II violence reported being frightened or worried about their safety at work. Other studies have reported victims of assault at work have decreased job satisfaction [Hesketh et al., 2003; Ayranci et al., 2006; El-Gilany et al., 2010], feelings of anger, frustration, and/or blaming themselves [Fernandes et al., 2002; Findorff et al., 2005; Gerberich et al., 2005; Kowalenko et al., 2005; El-Gilany et al., 2010]. In separate analyses of workers' compensation claims and pharmacy claims at our NC study hospitals, an association was observed between reporting a type II violence event and being prescribed anti-depressant and anxiolytic medication [Dement et al., 2014]. Psychological consequences may stem, in part, from the victim's perception that the perpetrator intended to harm them [Cortina et al., 2001]. Response to such fears has been reported to include hyper-vigilance at work, or seeking protection by carrying a weapon [Findorff et al., 2005; Kowalenko et al., 2005; Ayranci et al., 2006]. Others have reported associations between hospital nurses who experienced emotional abuse, as well as decreased quality of care they provided to their patients [Arnetz and Arnetz, 2001].

Type II violence was more often perpetrated by patients than visitors, which is consistent with a recent study of U.S. hospital nurses [Speroni et al., 2014]. This is not unexpected given that these workgroups have greater exposure to patients. Similar to other studies [Gates et al., 2006; Gacki-Smith et al., 2009] workers often attributed physical assaults

TABLE III. Circumstances Surrounding Type II Violent Events and Event Sub-Types[a] in the Prior 12 Months by Patient and Visitor Perpetrator Events (n = 2,098)

	All Type II events 2,098	Physical assault 403	Physical threat 394	Verbal abuse 1,301
Location of event				
Patient room/exam room	1,518 (72.4)	358 (88.6)	295 (75.1)	865 (66.5)
Hallway	186 (8.9)	30 (7.4)	34 (8.7)	122 (9.4)
Waiting room	129 (6.2)	2 (0.50)	25 (6.4)	102 (7.8)
Via telephone	80 (3.9)	—	1 (0.25)	79 (6.1)
Other area	161 (7.7)	12 (2.9)	34 (8.7)	115 (8.8)
Worker alone during event	830 (39.6)	144 (35.7)	148 (37.6)	538 (41.4)
Worker perceived perpetrator intended to harm				
Yes	368 (17.5)	150 (37.2)	113 (28.7)	105 (8.1)
Not sure	777 (37.0)	121 (30.0)	164 (41.6)	492 (37.8)
No	950 (45.3)	131 (32.5)	117 (29.7)	702 (54.0)
Weapon used[b]	631 (30.0)	339 (84.1)	180 (45.7)	111 (8.5)[c]
Body part	(84.3)	(95.0)	(75.6)	(66.7)
Body fluids	(14.1)	(13.9)	(18.9)	(7.2)
Furniture	(7.4)	(6.5)	(11.7)	(3.6)
Food tray	(4.3)	(3.8)	(6.1)	(2.7)
Medical equipment	(3.5)	(1.8)	(7.2)	(2.7)
Maintenance equipment	(1.6)	(1.8)	(1.7)	(0.90)
Gun or knife	(0.95)	(0.60)	(2.2)	–
Other	(10.8)	(4.7)	(11.7)	(27.0)
Patient perpetrator circumstances[d]	**No. 1596**	**No. 386**	**No. 304**	**No. 903**
Mental health/behavioral issues[e]	1017 (63.7)	317 (82.1)	229 (75.3)	471 (52.2)
Altered mental status/sundowning	(58.4)	(74.4)	(57.2)	(48.2)
Behavioral or emotional problems	(41.6)	(25.6)	(16.6)	(51.8)
Medication/drug/pain related	603 (37.8)	153 (39.6)	136 (44.7)	314 (34.7)
Side effects/medication withdrawal	(47.9)	(56.9)	(62.5)	(37.3)
Experiencing pain	(47.3)	(36.6)	(30.1)	(59.9)
Drunk/Illicit drugs	(36.7)	(39.9)	(43.4)	(32.2)
Conflict/Unhappy with Care[d]	532 (33.3)	63 (16.3)	99 (32.6)	370 (40.8)
Unhappy with care received	(62.8)	(61.9)	(55.6)	(64.9)
Patient-doctor conflict	(43.6)	(41.2)	(47.5)	(42.9)
Patient-family conflict	(24.2)	(30.2)	(31.3)	(21.4)
Receiving bad news	(12.0)	(6.3)	(8.1)	(14.1)
Other Issues	91 (5.7)	14 (3.6)	10 (3.3)	67 (7.4)
Did not know	143 (8.9)	16 (4.1)	22 (7.2)	105 (11.6)
Visitor perpetrator circumstances[f]	**No. 502**	**No.18**	**No. 89**	**No. 395**
Conflict/unhappy with care	365 (72.7)	12 (66.7)	69 (77.5)	284 (71.9)
Concerned or angry about patient care	(61.6)	(58.3)	(66.7)	(60.5)
Unmet expectations of care	(39.2)	(50.0)	(33.3)	(41.9)
Long wait for care/Scheduling delays	(33.7)	(58.3)	(33.3)	(32.7)
Receiving bad news	(22.5)	(33.3)	(26.1)	(21.1)
Patient-doctor conflict	(18.4)	(41.7)	(17.4)	(17.6)
Patient-visitor conflict	(11.5)	(25.0)	(13.0)	(10.9)
Emergency or acute situation	48 (9.6)	2 (11.1)	12 (13.3)	34 (8.6)
Alcohol/Illicit drug use	50 (10.0)	2 (11.1)	12 (13.5)	36 (9.1)
Hospital environment (e.g. crowded wait room)	32 (6.4)	2 (11.1)	4 (4.5)	26 (6.6)
Other issues	54 (10.8)	1 (5.6)	7 (7.9)	47 (11.9)
Did not know	64 (12.8)	5 (27.8)	11 (12.4)	48 (12.2)

[a]Sub-types of type II violence are mutually exclusive and defined as: physical assault (which may also include physical threat and/or verbal abuse); physical threat (which may also include verbal abuse); and verbal abuse only.
[b]Includes nested frequencies for this category—which are not mutually exclusive.
[c]Participants indicated a weapon was used for verbal abuse—text description revealed that body part was weapon used.
[d]Broad categories of Mental Health, Medication, and Conflict are not mutually exclusive.
[e]Includes nested frequencies for this category - which are mutually exclusive.
[f]Broad categories of Conflict, Emergency, Alcohol, and Hospital Environment are not mutually exclusive.

and physical threats by patients to altered mental status or behavioral problems. These findings highlight the challenges workers face when caring for patients with mental illness in the general medicine hospital setting, and emphasizes the need for these workers who are outside the psychiatric care setting to be trained on how to best care for these patients. Less than half, but not an insignificant proportion of patient perpetrated events, were attributed to drug/alcohol use, pain, or some form of conflict. Visitor perpetrated events, which were mostly verbal in nature, centered largely on concern for the patient. Wait times and crowded waiting rooms were not as prominent as we expected based on other reports; however, these prior findings were largely from emergency room studies [Gates et al., 2006; Gacki-Smith et al., 2009; El-Gilany et al., 2010].

The diverse nature of violent events highlights the need for broad workplace policies and staff training that allows workers to gain necessary skills to recognize, de-escalate, and manage these events. Application of a universal precautions approach to workplace violence prevention has been suggested [Hill, 2012; Gillespie et al., 2014] with all patients/visitors being treated as potentially violent. Suggested precautions include having chaperones during interactions with high-risk patients/visitors, maintaining safe physical distance when possible, and consistently enforcing visitor restriction policies. The high proportion of events in which the perpetrator was unhappy with care reinforces the need for workers to be trained to recognize early cues and verbal de-escalation techniques as forms of prevention and mitigation [Joe et al., 2014].

Workplace violence is under-reported through established mechanisms making it difficult to study [Wuellner and Bonuato, 2014]. The use of multiple data sources has recently been called for to improve occupational injury surveillance [Arnetz et al., 2011] and our use of a self-report survey that included established definitions of type II violence, that ascertained staff reactions and perceptions of contributing circumstances, demonstrates that active surveillance efforts are essential for supplementing information gleaned through existing hospital resources such as workers' compensation.

Limitations of our study are worth noting. Information on circumstances surrounding these events was ascertained from workers who were victims, rather than a third party, or from the perpetrator. We believe workers would have knowledge about the perpetrator if they were caring for them. Still, details about these events may not have been captured. The three study hospitals in Texas do not directly employ physicians, which most likely resulted in a less robust estimate of type II violence for this work group, which remains in need of further study. Numerous studies have highlighted the risk of type II violence in emergency and psychiatric units. We did not have a refined measure of work departments, but prior research in our study hospitals and others have identified these departments, in addition to critical care, medical-surgical, neurology, rehabilitation/orthopedics, and nursing float pool as high risk [Rodriguez-Acosta et al., 2010; Pompeii et al., 2013].

The large sample size enabled us to examine sub-types of type II violence across occupational groups and perpetrator circumstances, which has not previously been done. We were able to examine adjusted prevalence estimates with respect to worker characteristics, and workgroups not typically considered to be at risk for type II violence in the hospital setting, as well as smaller workgroups that are often overlooked.

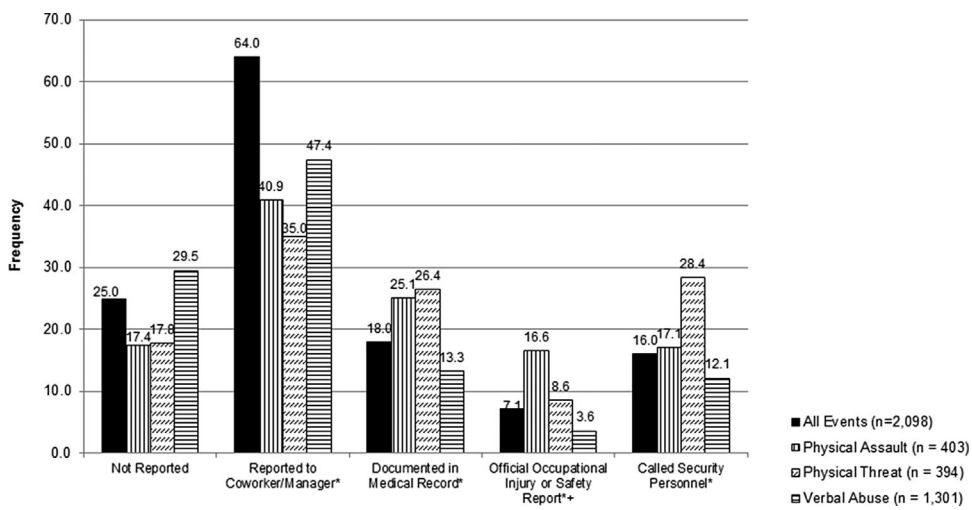

FIGURE 2. Twelve-month prevalence and mechanism of reporting type II violent events in six U.S. Hospitals, 2012 (n = 2,098 events).

*Not mutually exclusive. +First report of injury, general hospital safety reporting system pertaining to patient and/or worker safety.

CONCLUSION

Type II violence is pervasive in hospitals across occupational groups. While patients are more often to be perpetrators than visitors, there is no clear perpetrator profile. The diverse nature of these violent events highlights the need for prevention strategies that go beyond keeping weapons out of institutions. Hospital workers need the skills to recognize and diffuse a wide range of potentially violent circumstances that they may encounter in the course of caring for patients and visitors, as well as institutional support when de-escalation strategies fail. Further consideration by hospital administration should be given to the impact of having workers, who are caring for patients and visitors, while they are frightened and fear for their safety while at work. There have been numerous calls to move occupational safety into mainstream public health. The issue of workplace violence in the hospital setting provides a clear opportunity to implement a change; effectively addressing this pervasive problem could benefit healthcare workers and their patients—who, at some point, are likely to be all of us.

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