JOURNAL OF NURSING SCHOLARSHIP

HEALTH POLICY AND SYSTEMS

Prevalence and Perpetrators of Workplace Violence by Nursing Unit and the Relationship Between Violence and the Perceived Work Environment

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Key words
Nurse, violence, perpetrator, work demands, trust, justice, Korea, Copenhagen Psychosocial Questionnaire II

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Accepted: September 13, 2014

doi: 10.1111/jnu.12112

Abstract

Aims: To identify the prevalence and perpetrators of workplace violence against nurses and to examine the relationship of work demands and trust and justice in the workplace with the occurrence of violence.
Design: This study employed cross-sectional data from a 2013 nurse survey conducted at a university hospital in Seoul, South Korea. The study sample included 970 female nurses from 47 nursing units, including general, oncology, intensive care units (ICUs), operating rooms, and outpatient departments.
Methods: The second version of the medium-sized Copenhagen Psychosocial Questionnaire (COPSOQ II) was used to measure work demands (i.e., quantitative demands, work pace, and emotional demands), trust and justice, and violence. Relationships among those variables were examined by conducting multiple logistic regression analyses with multilevel modeling.
Findings: The 12-month prevalence of verbal abuse (63.8%) was highest, followed by threats of violence (41.6%), physical violence (22.3%), and sexual harassment (19.7%), but bullying had the lowest prevalence (9.7%). Physical violence, threats of violence, and verbal abuse occurred most frequently in ICUs, whereas sexual harassment and bullying were highest in operating rooms. The main perpetrators were patients, followed by physicians and patients' families. Nurses perceiving greater work demands and less trust and justice were more likely to have been exposed to violence.
Conclusions: The prevalence and perpetrators of violence varied considerably among nursing units. Greater work demands and less trust and justice were associated with nurses' experiences of violence.
Clinical Relevance: Adequate work demands and a trusted and just work environment may reduce violence against nurses. In return, reduction of violence will contribute to creating a better nursing work environment.

Workplace violence is a global problem affecting not only people's dignity but also their emotional and physical well-being. While workplace violence affects all occupations, healthcare professionals, particularly nurses, are at high risk because nurses work with people in distress and are mostly female, both of which are risk factors for workplace violence (Campbell et al., 2011). A recent integrative review of workplace violence against nurses in the Anglo, Asian, European, and the Middle Eastern regions (Spector, Zhou, & Che, 2014) reported that, on average, 31.8% of nurses were exposed to physical violence, 62.8% to nonphysical violence, 47.6% to bullying, and 17.9% to sexual harassment during the prior year; therefore, workplace violence may affect a majority of nurses.

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In an international effort to promote workplace safety in the healthcare sector, the International Council of Nurses participated in a joint program with other international organizations to develop the "framework guidelines for addressing workplace violence in the health sector" (International Labour Office, International Council of Nurses, World Health Organization, & Public Services International, 2002). In these guidelines, workplace violence was defined as abusing, threatening, or assaulting incidents experienced by staff, including physical or psychological violence (e.g., harassment, threats, bullying, and verbal abuse). While physical violence has been visibly recognized and reported, psychological violence has not drawn enough attention despite its cumulative adverse effects through repeated behavior. Thus, more research on psychological workplace violence is needed (International Labour Office et al., 2002; Lee, Lee, & Bernstein, 2013; Robbins, Bender, & Finnis, 1997). In South Korea, employers are required by the law to provide their employees with sexual harassment prevention education. General guidelines for workplace violence have also been published (Korea Occupational Safety & Health Agency, 2009). However, best practice guidelines and mandatory prevention programs specific to health care that cover various types of workplace violence have not been developed yet.

The source of violence is another concern because the effect of violence varies among perpetrators (Grandey, Kern, & Frone, 2007; Hershcovis & Barling, 2010). Criminals, clients, and coworkers have generally been identified as the major perpetrators of workplace violence (LeBlanc & Kelloway, 2002), with clients and coworkers prominent in the health sector (Farrell, 1997; Lee & Chung, 2007; Spector et al., 2014). According to Spector and colleagues' review study (2014), patients and their relatives were perpetrators of most incidents of physical violence (on average, 64.3% and 30.2%, respectively), while the perpetrators of nonphysical violence varied, but included nurse colleagues, superiors, physicians, and other staff members. To understand the impact of violence, comparing the effects of violence from different perpetrators might be meaningful. Furthermore, nursing studies reporting workplace violence have mainly focused on the experiences of psychiatric, geriatric, or emergency care nurses (Lawoko, Soares, & Nolan, 2004; Mullan & Badger, 2007; Taylor & Rew, 2011) because these areas have been identified as being at high risk for workplace violence. However, this research may obscure the fact that nurses may be exposed to violence anywhere they work.

Assessing risk factors of workplace violence has been suggested as the first step in preventing violence (International Labour Office et al., 2002), including individual characteristics, organizational factors, work demands, and type of nursing unit. Individual factors are age, gender, race, work experience, and education level (Campbell et al., 2011; Rowe & Sherlock, 2005; Weaver, 2013). Organizational factors include culture and the psychosocial work environment. Unfair treatment, disrespect, and distrust among coworkers and superiors have been identified as critical causes of conflict and aggressive behaviors in organizations (Almost, 2006; Daiski, 2004; Neuman & Baron, 1998). In addition, heavy work demands under time pressure caused by low staffing levels, high patient acuity, and high patient turnover have been reported to create stressful situations for patients, families, and hospital staff members (Carayon & Gurses, 2008; Di Martino, 2003); these intense or continuous stressful situations increase the risk for workplace violence by superiors, patients, and patients' families (Camerino, Estryn-Behar, Conway, van Der Heijden, & Hasselhorn, 2008; Roche, Diers, Duffield, & Catling-Paull, 2010). The type of nursing unit or clinical area (e.g., intensive care, perioperative, geriatric, psychiatric, and emergency) is also known to influence the prevalence of violence against nurses due to differences in their patient populations and the care provided to patients (Camerino et al., 2008; Cook, Green, & Topp, 2001; Park, Kang, Kim, & Kwon, 2011).

Among those risk factors, this study focused on individual nurse characteristics, organizational factors of workplace values (i.e., trust and justice), work demands, and the type of nursing unit under the assumptions that the prevalence of violence would differ by nursing unit and that nurses' greater work demands and lack of trust and justice in the workplace would increase the occurrence of violence. We also assumed that the influence of risk factors on violence may vary by type of violence and perpetrator rather than all risk factors leading to all types of violence and the involvement of all types of perpetrators. The aims of this study were to identify the prevalence of workplace violence perpetrated against nurses by the type of violence and perpetrator and to examine the relationship of work demands and trust and justice in the workplace with the occurrence of violence.

Methods

We performed a cross-sectional study using nurse survey data collected in January and February of 2013.

Participants

The original nurse survey was conducted in a university hospital in Seoul, South Korea. The survey targeted all staff nurses working on all nursing units (48 units) of

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the hospital, excluding the administration and emergency departments, by convenience sampling. A total of 1,027 registered nurses (RNs) completed the original survey (response rate = 95.2%). Detailed information on the original sample has been provided elsewhere (Cho, Park, Jeon, Chang, & Hong, 2014; Park, Jeon, Hong, & Cho, 2014). Of the total RNs surveyed, 13 nurses in the psychiatric unit were excluded from our study population because their work environment and patient characteristics were assumed to be unique and different from other nursing units. Male nurses ($n = 38$) were also excluded to control for the effect of gender on violence. In addition, six nurses with incomplete responses preventing the calculation of the prevalence of violence were further excluded. The final study population included 970 female RNs working on 47 nursing units.

Instruments

Nurse characteristics including age, marital status, education, and years worked as an RN were included in the survey questionnaire as potential factors associated with violence. Violence, work demands, and trust and justice in the workplace were measured using the second version of the medium-sized Copenhagen Psychosocial Questionnaire (COPSOQ II; Pejtersen, Kristensen, Borg, & Bjorner, 2010). The COPSOQ II has been used with various occupations, including health professions and various countries, and its validity has been established (Pejtersen et al., 2010). June and Choi (2013) translated the COPSOQ II into Korean and examined the validity and reliability of the Korean version using a sample of office workers. After reviewing the Korean version developed by June and Choi (2013), we revised several sections of the COPSOQ II and back-translated our revised Korean version into English until the original and Korean versions had equivalent meanings.

The COPSOQ II included four types of violence: physical violence, threats of violence, sexual harassment (undesired sexual attention), and bullying (repeated unpleasant or degrading treatment). We also added questions about verbal abuse to the survey questionnaire to identify verbal abuse that would not be directly related to threats of violence, sexual harassment, or bullying. Nurses were asked if they had been exposed to each type of violence during the previous 12 months and answered with one of five responses: "yes, daily"; "yes, weekly"; "yes, monthly"; "yes, a few times"; or "no." When nurses replied with one of the four "yes" responses, they were asked further about the perpetrators of the violence, and multiple responses (data on more than one perpetrator) were allowed. The COPSOQ II included four groups of perpetrators (i.e., colleagues, managers or superiors, subordinates, and clients, customers, or patients). Based on the literature, these original groups were revised into five categories by our researchers: patients, patients' families, nurse colleagues, nurse managers, and physicians. The first two groups comprised the "clients" and the others were considered "insiders."

Two domains, "demands at work" and "values at workplace level," included in the COPSOQ II were used to measure nurses' work demands and levels of trust and justice in the workplace, respectively. The domain "demands at work" consisted of three dimensions: quantitative demands (four items), work pace (three items), and emotional demands (four items). The domain "values at workplace level" also consisted of three dimensions: trust regarding management (four items), mutual trust between employees (three items), and justice (four items). Each item on the six dimensions was answered with a 5-point scale (from "to a very small extent" to "to a very large extent"; or from "never/hardly ever" to "always"). Responses with the 5-point scale were then converted to 0, 25, 50, 75, and 100, and a higher score indicated a stronger feeling about each dimension (Pejtersen et al., 2010). For example, a response of "always" to a question about quantitative demand (e.g., "Is your work unevenly distributed so it piles up?") was converted into 100 points; a response of "to a very small extent" to a question about justice (e.g., "Are conflicts resolved in a fair way?") was converted into 0 points.

The Cronbach's alpha of six dimensions ranged from .61 to .82. Cronbach's alpha of "mutual trust between employees" and "emotional demands" was .61 and .66, respectively, but the other dimensions had a Cronbach's alpha equal to .70 or higher.

Ethical Considerations

This study was approved by our institutional review board. Nurses participated in the survey voluntarily and were provided with an individual envelope to seal their questionnaire immediately after completing it. Data used in this study did not include any information that can be used to identify individual nurses.

Data Analysis

The prevalence of the five types of violence was computed as the proportion of nurses who had been exposed to the violence (i.e., daily, weekly, monthly, or a few times) out of the total number of nurses during the previous 12 months. The overall prevalence was also computed as the proportion of nurses who had been exposed to at least one of five types of violence. The 12-month prevalence was compared by type of violence

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and nursing unit. Nursing units were grouped into five categories: general units, oncology units, intensive care units (ICUs), operating rooms, and outpatient departments. The distribution of the five categories of perpetrators (patients, patients' families, nurse colleagues, nurse managers, and physicians) was analyzed based on the type of violence and nursing unit by presenting the percentage of nurses who experienced violence in each category of perpetrator.

The relationships of work demands and trust and justice in the workplace to violence were examined using multiple logistic regression analyses with a separate model for each type of violence with the outcome as nurses who had experienced a specific violence versus nurses who had not experienced violence. The relationships of work demands and trust and justice in the workplace with violence perpetrators were also examined using multiple logistic regression analyses with a separate model for each category of perpetrator. The outcome of these models was nurses who had experienced violence by a specific perpetrator (e.g., patients) regardless of the violence type versus nurses who had not experienced violence by a perpetrator. Multilevel modeling was employed in all regression analyses to take into account the clustering of nurses within their units. Nurse characteristics and the type of nursing unit were also included in the regression models. Age was excluded from the regression models due to a high correlation with years worked as an RN ($r = .95$, $p < .001$). SAS 9.3 (SAS Institute, Cary, NC, USA) was used to analyze the data.

Findings

Our study sample of 970 RNs had a mean age of 28.6 years. The majority were single (77.5%) and had a baccalaureate or higher academic degree (76.6%). The average years worked as an RN was 5.4 years; 33.7% had worked less than 3 years as an RN, 31.6% for 3 to 5 years, and the rest 6 years or longer.

Prevalence of Workplace Violence by Type of Violence and Nursing Unit

The prevalence of violence is presented in **Table** 1. Respondents could report experiencing violence "daily," "weekly," "monthly," or "a few times." During the previous 12 months, 71% of nurses reported having been exposed to at least one of five types of violence. The 12-month prevalence of verbal abuse (63.8%) was the highest, followed by threats of violence (41.6%), physical violence (22.3%), and sexual harassment (19.7%); bullying had the lowest prevalence (9.7%). The majority, 74.3% and 93.2% of those who had experienced verbal abuse and sexual harassment, respectively, had been exposed to the violence "a few times."

The highest prevalence of violence overall (exposed to at least one type of violence) was found in the ICUs (82.8%), followed by outpatient departments (73.3%), with the lowest prevalence (63.5%) in oncology units. ICUs also had the highest prevalence of physical violence (48.5%), threats of violence (61.4%), and verbal abuse (75.8%) among the five groups of nursing units and the second highest prevalence of sexual harassment (23.2%). Sexual harassment (25.2%) and bullying (10.8%) occurred most frequently in operating rooms. Outpatient departments had the second highest prevalence of overall and physical violence, threats of violence, and verbal abuse.

Distributions of Perpetrators by Type of Violence and Nursing Unit

The distributions of perpetrators by type of violence and nursing unit are presented in **Table** 1. Overall, the majority (64.4%; 444/689) of violent incidents were perpetrated by patients, followed by physicians (49.3%), and patients' families (48%). Patients, followed by families, were the most frequent perpetrators of physical violence and threats of violence; patients, followed by physicians, were the major perpetrators of sexual harassment and verbal abuse. In the operating rooms, however, physicians were the most frequent perpetrators of all types of violence except for bullying. Bullying was perpetrated mostly by nurse colleagues (68.1%) across all nursing units.

Relationships of Work Demands and Trust and Justice in the Workplace With the Occurrence of Violence

The relationships of nurse characteristics, work demands, and trust and justice in the workplace with the occurrence of violence are presented in **Table** 2. After the relationship of the type of nursing unit with violence was controlled for, nurses with 3 years or more experience as an RN were more likely to experience threats of violence than those with less than 3 years. When nurses perceived a higher work pace, they were more likely to have been exposed to physical violence, threats of violence, and verbal abuse with an odds ratio (OR) of 1.02, which indicates a 2% increase in the odds of violence when the work pace increases by 1 point out of 100 points. To make this OR of 1.02 using the 0–100 point scoring comparable with that in other studies using 1–5 point scoring, a 25-point increase in work pace, which is equivalent to an increase by 1 out of 5 points (e.g., responses change

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Table 1. Prevalence of Workplace Violence and Distribution of Perpetrators ($N = 970$)

	Prevalence			Perpetrator, *n* (%)[a]				
	n	Exposed	Prevalence (%)	Patients	Patients' family	Nurse colleagues	Nurse managers	Physicians
Any type of violence								
Overall	970	689	71.0	444 (64.4)	331 (48.0)	112 (16.3)	61 (8.9)	340 (49.3)
General unit	302	214	70.9	145 (67.8)	130 (60.7)	34 (15.9)	18 (8.4)	108 (50.5)
Oncology unit	241	153	63.5	102 (66.7)	93 (60.8)	28 (18.3)	16 (10.5)	74 (48.4)
Intensive care unit	198	164	82.8	133 (81.1)	66 (40.2)	27 (16.5)	11 (6.7)	76 (46.3)
Operating room	139	92	66.2	8 (8.7)	4 (4.3)	17 (18.5)	9 (9.8)	73 (79.3)
Outpatient department	90	66	73.3	56 (84.8)	38 (57.6)	6 (9.1)	7 (10.6)	9 (13.6)
Physical violence								
Overall	969	216	22.3	177 (81.9)	66 (30.6)	6 (2.8)	2 (0.9)	11 (5.1)
General unit	302	56	18.5	46 (82.1)	24 (42.9)	1 (1.8)		1 (1.8)
Oncology unit	241	31	12.9	20 (64.5)	16 (51.6)	2 (6.5)	2 (6.5)	1 (3.2)
Intensive care unit	198	96	48.5	91 (94.8)	18 (18.8)	1 (1.0)		
Operating room	139	14	10.1	4 (28.6)		2 (14.3)		8 (57.1)
Outpatient department	89	19	21.3	16 (84.2)	8 (42.1)			1 (5.3)
Threats of violence								
Overall	967	402	41.6	298 (74.1)	184 (45.8)	11 (2.7)	12 (3.0)	82 (20.4)
General unit	300	124	41.3	90 (72.6)	69 (55.6)		2 (1.6)	28 (22.6)
Oncology unit	241	81	33.6	53 (65.4)	50 (61.7)	4 (4.9)	5 (6.2)	17 (21.0)
Intensive care unit	197	121	61.4	110 (90.9)	38 (31.4)	4 (3.3)	3 (2.5)	10 (8.3)
Operating room	139	33	23.7	5 (15.2)	2 (6.1)	2 (6.1)		25 (75.8)
Outpatient department	90	43	47.8	40 (93.0)	25 (58.1)	1 (2.3)	2 (4.7)	2 (4.7)
Sexual harassment								
Overall	970	191	19.7	106 (55.5)	29 (15.2)	5 (2.6)	3 (1.6)	66 (34.6)
General unit	302	61	20.2	45 (73.8)	14 (23.0)	2 (3.3)	1 (1.6)	10 (16.4)
Oncology unit	241	35	14.5	24 (68.6)	9 (25.7)	1 (2.9)		6 (17.1)
Intensive care unit	198	46	23.2	27 (58.7)	2 (4.3)	1 (2.2)	2 (4.3)	17 (37.0)
Operating room	139	35	25.2	2 (5.7)	1 (2.9)	1 (2.9)		30 (85.7)
Outpatient department	90	14	15.6	8 (57.1)	3 (21.4)			3 (21.4)
Verbal abuse								
Overall	970	619	63.8	370 (59.8)	287 (46.4)	64 (10.3)	46 (7.4)	303 (48.9)
General unit	302	191	63.2	119 (62.3)	115 (60.2)	20 (10.5)	14 (7.3)	96 (50.3)
Oncology unit	241	136	56.4	85 (62.5)	81 (59.6)	20 (14.7)	10 (7.4)	70 (51.5)
Intensive care unit	198	150	75.8	111 (74.0)	54 (36.0)	15(10.0)	11 (7.3)	67 (44.7)
Operating room	139	80	57.6	5 (6.3)	3 (3.8)	8 (10.0)	8 (10.0)	63 (78.8)
Outpatient department	90	62	68.9	50 (80.6)	34 (54.8)	1 (1.6)	3 (4.8)	7 (11.3)
Bullying								
Overall	970	94	9.7	2 (2.1)	6 (6.4)	64 (68.1)	15 (16.0)	7 (7.4)
General unit	302	29	9.6	1 (3.4)	3 (10.3)	19 (65.5)	5 (17.2)	1 (3.4)
Oncology unit	241	25	10.4		2 (8.0)	15 (60.0)	4 (16.0)	4 (16.0)
Intensive care unit	198	18	9.1	1 (5.6)	1 (5.6)	13 (72.2)	1 (5.6)	1 (5.6)
Operating room	139	15	10.8			12 (80.0)	1 (6.7)	1 (6.7)
Outpatient department	90	7	7.8			5 (71.4)	4 (57.1)	

Note. Empty cells indicate no case. [a]The sum of percentages may be over 100% due to multiple responses.

from "to a large extent" to "to a very large extent"), corresponded to a 64% increase in the odds of violence (OR = 1.64 = $(1.02)^{25}$). Perceiving greater emotional demands was also associated with a greater likelihood of experiencing threats of violence, sexual harassment, and verbal abuse. Higher mutual trust between employees was associated with a greater occurrence of threats of violence, but with a lower occurrence of bullying. Justice was inversely related with verbal abuse (OR = 0.98) and bullying (OR = 0.98).

Table 3 presents the relationships of nurse characteristics, work demands, and workplace values to the type of perpetrator. When the type of nursing unit was controlled for, nurses holding a baccalaureate or higher degree were more likely to experience violence by physicians than were those with a diploma in nursing. Those

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Table 2. Relationships of Work Demands and Workplace Values to Violence by Type of Violence: Odds Ratio [95% Confidence Interval]

	Physical violence		Threats of violence		Sexual harassment		Verbal abuse		Bullying	
Single (vs. married)	0.84	[0.49, 1.43]	0.92	[0.59, 1.45]	1.28	[0.77, 2.13]	1.09	[0.71, 1.67]	0.69	[0.37, 1.29]
Diploma (vs. BSN or higher)	0.93	[0.60, 1.44]	0.75	[0.52, 1.09]	0.96	[0.63, 1.44]	0.74	[0.52, 1.05]	0.71	[0.39, 1.29]
Years worked as an RN (vs. <3)										
3–5	1.37	[0.87, 2.16]	1.82	[1.23, 2.70]**	1.19	[0.77, 1.85]	0.93	[0.63, 1.36]	0.79	[0.43, 1.46]
≥6	1.53	[0.88, 2.67]	2.03	[1.27, 3.26]**	1.60	[0.96, 2.68]	1.01	[0.65, 1.58]	1.32	[0.68, 2.56]
Work demands										
Quantitative demands	1.01	[0.99, 1.02]	1.00	[0.99, 1.01]	1.00	[0.99, 1.01]	1.00	[0.99, 1.01]	1.02	[0.998, 1.04]
Work pace	1.02	[1.01, 1.04]**	1.02	[1.01, 1.03]**	1.01	[0.99, 1.02]	1.02	[1.01, 1.03]**	1.00	[0.98, 1.02]
Emotional demands	1.01	[0.99, 1.03]	1.02	[1.00, 1.03]*	1.02	[1.01, 1.04]**	1.03	[1.01, 1.04]***	1.01	[0.99, 1.03]
Workplace values										
Trust regarding management	1.02	[0.995, 1.04]	0.99	[0.97, 1.01]	1.02	[0.997, 1.04]	1.00	[0.98, 1.01]	1.01	[0.99, 1.04]
Mutual trust between employees	0.99	[0.98, 1.01]	1.02	[1.00, 1.03]*	0.99	[0.97, 1.00]	1.01	[0.999, 1.02]	0.96	[0.94, 0.98]***
Justice	0.99	[0.97, 1.00]	0.99	[0.97, 1.00]	0.99	[0.98, 1.01]	0.98	[0.97, 0.99]**	0.98	[0.96, 0.99]*

Note. *$p < .05$, **$p < .01$, ***$p < .001$. Effects of the type of nursing unit were controlled for in the multiple regression analyses.

Table 3. Relationships of Work Demands and Workplace Values to Violence by Type of Perpetrator: Odds Ratio [95% Confidence Interval]

	Patients		Patients' family		Nurse colleagues		Nurse managers		Physicians	
Single (vs. married)	0.77	[0.46, 1.27]	0.95	[0.60, 1.52]	0.77	[0.39, 1.51]	0.81	[0.35, 1.84]	0.96	[0.60, 1.53]
Diploma (vs. BSN or higher)	0.98	[0.66, 1.46]	1.01	[0.70, 1.46]	0.62	[0.36, 1.07]	0.77	[0.37, 1.61]	0.62	[0.43, 0.91]*
Years worked as an RN (vs. <3)										
3–5	1.36	[0.89, 2.07]	1.15	[0.78, 1.70]	0.57	[0.34, 0.96]*	0.78	[0.37, 1.66]	1.64	[1.11, 2.44]*
≥6	1.19	[0.71, 1.98]	1.44	[0.90, 2.31]	0.41	[0.21, 0.81]*	0.80	[0.33, 1.93]	1.65	[1.02, 2.66]*
Work demands										
Quantitative demands	1.00	[0.99, 1.02]	1.01	[0.99, 1.02]	1.01	[0.99, 1.03]	1.03	[1.00, 1.05]*	1.01	[0.99, 1.02]
Work pace	1.02	[1.00, 1.03]*	1.01	[0.99, 1.02]	0.99	[0.98, 1.01]	0.98	[0.96, 1.01]	1.01	[0.99, 1.02]
Emotional demands	1.02	[1.00, 1.03]*	1.03	[1.01, 1.04]***	1.03	[1.01, 1.04]**	1.01	[0.99, 1.04]	1.03	[1.01, 1.04]***
Workplace values										
Trust regarding management	1.01	[0.99, 1.02]	0.99	[0.98, 1.01]	1.02	[0.997, 1.04]	0.97	[0.94, 1.00]	0.99	[0.98, 1.01]
Mutual trust between employees	1.01	[0.99, 1.02]	1.01	[0.99, 1.03]	0.98	[0.96, 0.99]*	0.99	[0.96, 1.01]	1.01	[0.99, 1.02]
Justice	0.98	[0.97, 0.99]*	0.99	[0.98, 1.01]	0.97	[0.95, 0.99]**	0.98	[0.95, 1.01]	0.98	[0.97, 0.99]*

Note. *$p < .05$, **$p < .01$, ***$p < .001$. Effects of the type of nursing unit were controlled for in the multiple regression analyses.

with 3 or more years of experience as an RN were less likely to experience violence by nurse colleagues, but more likely to by physicians than were nurses with less than 3 years of experience. Higher quantitative demands were associated with an increased occurrence of violence by nurse managers, whereas higher work pace was associated with violence by patients. Emotional demands were positively related with violence by all perpetrators except for nurse managers. Higher mutual trust between employees was associated with a lower occurrence of violence by nurse colleagues. Justice was inversely related with violence by patients, nurse colleagues, and physicians.

Discussion

This study reports the high prevalence of workplace violence against nurses in a university hospital, suggesting the need for attention to workplace violence. The overall prevalence (71%) of workplace violence in this study was high compared to the prevalence range (mean = 57.3%; range = 24.7%–88.9%) that was reported in a recent review of 136 articles related to violence against nurses (Spector et al., 2014). The prevalence of nonphysical violence (e.g., verbal abuse and threats of violence) was higher than that of physical violence in both studies. Compared with emergency, geriatric, and psychiatric nurses who had a high prevalence of physical violence in the review, the nursing units in this study (general, oncology, intensive care, operating room, and outpatient) had a relatively low prevalence of physical violence. The prevalence of bullying (9.7%) in this study was also lower than those reported in the review (mean = 47.6%; range = 26.4%–86.5%) and among Korean nurses in another study (23%; Lee et al., 2013).

Overall, the main sources of workplace violence in this study were patients, which were consistent with previous studies (Spector et al., 2014). Violence in general hospital

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settings is likely to be perpetrated by clients (i.e., patients or patients' relatives). However, unlike previous studies, this study found physicians, not patients' relatives, to be the second most frequent perpetrators, based on the high prevalence of sexual harassment and verbal abuse by physicians. Verbal abuse and sexual harassment from physicians have been frequently reported in the nursing literature (Cook et al., 2001; Robbins et al., 1997). A Korean study indicated that verbal abuse from physicians reflects a hierarchical rather than collegial, mutual relationship between nursing and medicine in Korea (Lee & Chung, 2007). Nurse colleagues were major perpetrators of bullying, which is frequently mentioned in the nursing literature (Lee et al., 2013; Weaver, 2013). The prevalence of violence also varied considerably among nursing units. ICUs had the highest prevalence of physical violence, threats of violence, and verbal abuse. Violence in ICUs was mainly perpetrated by patients, which may stem from intentional or unintentional aggression of patients in a confused or irritable mental status or severe pain (Park et al., 2011). While violence from patients or patients' families was rare for nurses in operating rooms, the nurses were more likely to be exposed to violence from physicians.

This study found that high work demands were significantly associated with workplace violence, as reported in previous studies (Camerino et al., 2008; Roche et al., 2010). Although these relationships cannot be considered causal, this finding suggests that excessive workloads may increase the prevalence of violence against nurses. Inverse relationships were also found between workplace values (trust and justice) and bullying. These relationships can be interpreted as reciprocal associations. For example, when nurses work in an environment with low trust and justice, they may be more likely to experience bullying, or nurses may perceive low trust among colleagues and unfair treatment as a result of experiencing bullying. Therefore, increasing trust and justice in the workplace may reduce bullying, and in return, reduction of bullying can create a trusted and just work environment. We also found an unexpected positive relationship between mutual trust among employees and threats of violence. Because threats of violence were perpetrated mainly by outsiders (patients and their relatives) or physicians rather than by nursing colleagues, further investigations are needed to identify other factors that may explain this relationship.

This study also reported that nurses with less nursing experience were more likely to experience violence from nurse colleagues. Prompting the expression "nurses eat their young," new nurses have been recognized to be at high risk for horizontal violence (Rowe & Sherlock, 2005; Weaver, 2013). Nursing scholars have emphasized the importance of maintaining workplace values such as mutual support, respect, and trust among nurses to limit horizontal violence (Daiski, 2004; Farrell, 1997).

Limitations

There were limitations to this study. First, this study employed a cross-sectional design; thus, the significant associations of work demands, trust, and justice with the occurrence of violence cannot be considered causal relationships. Second, we added verbal abuse questions to the survey to identify verbal abuse that would not be directly related to threats of violence, sexual harassment, or bullying. However, verbal abuse might not be exclusive of other types of psychological violence. The low prevalence of bullying reported in this study would be attributed to the lack of mutual exclusiveness between verbal abuse and bullying. Third, one of our aims was to examine differences in the prevalence and perpetrators of violence by nursing unit within the same hospital; therefore, our survey was conducted in a large university hospital. Collecting data in one hospital had an advantage of controlling for some factors (e.g., hospital characteristics) that could influence violence. However, these results may not be generalized to other hospitals (e.g., nonteaching or small hospitals) or care settings that could have different age distributions of RNs, work demands, and environments. Fourth, we relied on the nurses' ability to recall violent experiences during the previous 12 months, and this may have influenced our data on the prevalence of violence. However, previous studies commonly use a 12-month recall to estimate prevalence. Asking nurses about violence experienced within a shorter period (e.g., 6 months) may have minimized the recall bias.

Conclusions

This study provided comprehensive information related to the prevalence, perpetrators, and risk factors of workplace violence against nurses in a general hospital setting in South Korea. In particular, we reported considerable differences in the prevalence and perpetrators of violence among nursing units. Hospital and nurse managers should be familiar with the common types of violence and main perpetrators in each unit. Strategies for violence prevention should be tailored to specific nursing units based on the prevalence and main perpetrators of violence. In addition, we found that greater work demands and less trust and justice in the workplace were associated with nurses' experiences of violence. These associations suggest that adequate work demands and a trusted and just work environment may reduce

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violence against nurses. In return, reduction of violence will contribute to creating a better nursing work environment.

Acknowledgments

This work was supported by the Research Settlement Fund for new faculty of Seoul National University.

Clinical Resources

- International Council of Nurses. Workplace violence in the health sector. http://www.icn.ch/pillarsprograms/workplace-violence-in-the-health-sector/
- Centers for Disease Control and Prevention. Workplace safety & health topics: Occupational violence. http://www.cdc.gov/niosh/topics/violence/

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