Review

Nurse exposure to physical and nonphysical violence, bullying, and sexual harassment: A quantitative review

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ABSTRACT

Objectives: This paper provides a quantitative review that estimates exposure rates by type of violence, setting, source, and world region.
Design: A quantitative review of the nursing violence literature was summarized.
Data sources: A literature search was conducted using the CINAHL, Medline and PsycInfo data bases. Studies included had to report empirical results using a nursing sample, and include data on bullying, sexual harassment, and/or violence exposure rates. A total of 136 articles provided data on 151,347 nurses from 160 samples.
Procedure: Articles were identified through a database search and by consulting reference lists of review articles that were located. Relevant data were coded by the three authors. Categories depended on the availability of at least five studies. Exposure rates were coded as percentages of nurses in the sample who reported a given type of violence. Five types of violence were physical, nonphysical, bullying, sexual harassment, and combined (type of violence was not indicated). Setting, timeframe, country, and source of violence were coded.
Results: Overall violence exposure rates were 36.4% for physical violence, 66.9% for nonphysical violence, 39.7% for bullying, and 25% for sexual harassment, with 32.7% of nurses reporting having been physically injured in an assault. Rates of exposure varied by world region (Anglo, Asia, Europe and Middle East), with the highest rates for physical violence and sexual harassment in the Anglo region, and the highest rates of nonphysical violence and bullying in the Middle East. Regions also varied in the source of violence, with patients accounting for most of it in Anglo and European regions, whereas patents' families/friends were the most common source in the Middle East.
Conclusions: About a third of nurses worldwide indicated exposure to physical violence and bullying, about a third reported injury, about a quarter experienced sexual harassment, and about two-thirds indicated nonphysical violence. Physical violence was most prevalent in emergency departments, geriatric, and psychiatric facilities. Physical violence and sexual harassment were most prevalent in Anglo countries, and nonphysical violence and bullying were most prevalent in the Middle East. Patients accounted for most physical violence in the Anglo region and Europe, and patient family and friends accounted for the most in the Middle East.

What is already known about the topic?

- Nurses are at high risk for violence exposure.
- Violence exposure rates vary by violence type and employment setting.
- Most physical and nonphysical violence is committed by patients and their families/friends.

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- Nonphysical violence is often committed by staff members including other nurses.

    What this paper adds

- About a third of nurses are physically assaulted, bullied or injured, about two-thirds are nonphysically assaulted, and about a quarter are sexually harassed.
- Violence exposure rates are higher for emergency departments, geriatric facilities and psychiatric units than other settings.
- Nurse exposures to specific types of violence vary by world region, with the highest rates of physical and sexual harassment in the Anglo region, and the highest rates of nonphysical and bullying in the Middle East.
- Sources of violence vary by world region, with higher rates for patient families/friends in Asia and the Middle East than in Anglo and European regions.

1. Background

It has been well documented that nurses and other direct care health professionals are at significant risk for violence exposure (e.g., Happell, 2008; Nachreiner et al., 2005). A national Canadian study, for example, found that the rate of violence-related worker compensation claims was second highest of all occupations for nurses' aides, and sixth highest for nurses (Boyd, 1995). Many qualitative reviews can be found in the nursing literature (the literature search for this project located 17) that noted how violence exposure is widespread, and that there are differences among nurses in different settings (e.g., Johnson, 2009; Lau and Magarey, 2006; Needham et al., 2005; Taylor and Rew, 2011). What is lacking is a quantitative review that provides estimates of violence exposure rates broken down by type of violence (physical, nonphysical, bullying, and sexual harassment), setting (e.g., hospital, nursing home, and psychiatric facility), source of violence (patient, patient family and/or friends, and staff including other nurses), and world region. This paper describes such a quantitative review that combined results from 160 samples from 136 research reports.

There are several types of violence that have been discussed in the literature. Perhaps of most immediate concern is physical assault that can result in physical injury. Far more prevalent is nonphysical violence that ranges from insensitive and rude remarks (i.e., incivility; Pearson et al., 2005) to serious verbal abuse. Bullying is a repeated pattern of physical and/or psychological violence over time that can be directed at one or more individuals (Rayner and Keashly, 2005). It is often studied as horizontal or lateral violence perpetrated by nurses on their nurse colleagues (Johnson, 2009). Finally, sexual harassment by co-workers as well as patients is an issue that has received considerably less attention than physical and nonphysical violence.

It has been shown that violence exposure rates vary by setting, with some studies providing comparisons across hospital departments (Hahn et al., 2010) and others showing broader comparisons among different healthcare settings (Gerberich et al., 2005). Studies have been done in

particular settings, such as emergency departments of hospitals, nursing homes, or psychiatric hospitals, where violence exposure is of particular concern.

Another issue that has received considerable attention is the source of assault, most notably patients, patient family members and friends, and staff members, including physicians and other nurses. Whereas most physical violence arises from patients and their families/friends, a significant amount of nonphysical violence comes from other staff members (Spector et al., 2007).

Although much is known about nurses' exposure to workplace violence, much of the literature is fragmented and is in need of quantitative review to integrate the findings. Such a review can provide estimates of the exposure rates by different types of violence and in different settings. It can also indicate the proportion of each type of violence by various sources. Finally, although there are studies in the English-language literature from many countries (the review here includes studies conducted in 38 countries), there is little integration or synthesis that would allow one to draw conclusions about differences in exposure rates and sources of violence. This review addresses these issues.

2. Methodology

The methodology of this quantitative review followed accepted practices for conducting meta-analysis (e.g., Hunter and Schmidt, 1990; Rosenthal, 1991; Stroup et al., 2000). This included the following steps: (1) define the domain of interest, (2) conduct a search of relevant databases to identify potential articles for the analysis, (3) set inclusion criteria by which to screen potential articles, (4) retrieve statistics from the articles, and (5) conduct analyses.

2.1. Article search

Electronic searches were completed on October 24, 2012 of the complete CINAHL (from 1976), Medline (from 1946) and PsycInfo (from 1860) databases, resulting in 1216 records (Fig. 1 provides a flowchart summarizing the search). Search terms included *aggression*, *bullying*, *sexual harassment*, *violence*, or *workplace violence*, and *nurse* or *nursing*. To be included in the search, the paper had to be concerned with violence in healthcare or nursing. The reference lists of recent papers were also consulted, with 188 references checked for overlap with the database search and suitability. In total 271 papers were located that were promising based on the abstract, and an electronic full-text copy of each one was acquired. The research team reviewed each paper for suitability using inclusion criteria. These included that the paper had to be written in English, report the results of one or more empirical studies, and report incidence rates (percent or proportion of the sample) of violence against nurses. All papers reported results of survey studies that asked practicing nurses about their experiences with workplace violence. Almost all papers used cross-sectional designs with all variables assessed at the same time, and with all data provided from the target nurse. Excluded were papers that were reviews,
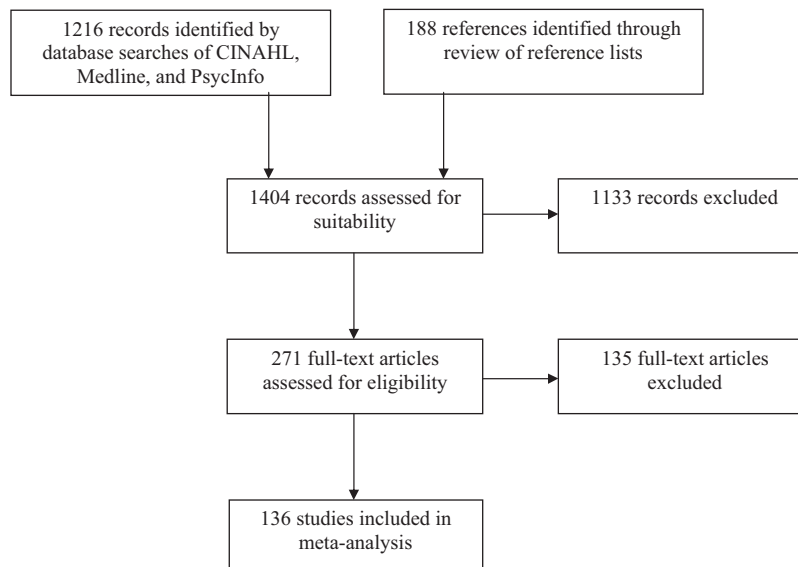
Fig. 1. Flowchart of literature review.

essays concerning violence in nursing that did not report incidence rates from a study, did not report findings from a sample of nurses, or were reports of qualitative studies that did not include incidence rates. Care was taken not to include the same findings twice if results from the same study were reported in more than one paper.

2.2. Samples

After screening out 135 articles that failed to meet inclusion criteria, 136 articles remained that contained useable data from 160 samples. These samples reported data from 151,347 nurses worldwide. We retained three studies that sampled nursing assistants, one that combined nurses with nursing assistants, and two that combined midwives with nurses. The studies came from 38 countries, and because in the majority of cases there was only one sample per country, and only 7 countries had 5 or more samples, the countries were combined into meaningful cultural/geographic regions using the classification found in Project GLOBE (Javidan et al., 2004). This 62-country study of 17,000 managers is one of the most comprehensive examinations of cultural differences in working populations. Based on 9 dimensions of cultural values, they classified countries into 10 regions, 4 of which are represented in the current study. A minimum criterion of five was set in order to include a region. The Anglo region consisted of English speaking countries that were culturally and linguistically similar, specifically Australia, Canada, England, Ireland, New Zealand, Scotland, and U.S. Asia was China, Japan, Philippines, Taiwan and Thailand. Europe was Belgium, Denmark, Finland, France, Germany, Iceland, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, and Switzerland. The Middle East was Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Saudi Arabia and Turkey. Nigeria and South Africa were omitted from the region analysis because they had

only one study each, and two studies did not meet the minimum criterion of five studies to form a category.

The studies were not rated in terms of quality because they were quite homogeneous in methodology. All but two papers described surveys of nurses who self-reported their past experiences with workplace violence. The remaining two either relied on logs of assaults (Gates et al., 2003) or incident reports of injuries (El-Gilany et al., 2010). A few of the studies used methods that would be expected to yield representative samples that were national within a single country such as Kuwait (Adib et al., 2002) or multi-national such as the European NEXT study (Estryn-Behar et al., 2008). Other studies had representative regional samples such as the recurring Queensland Nursing Union study (Hegney et al., 2006, 2010), or within a single U.S. state, the Minnesota Nurse's Study (Gerberich et al., 2004; Lin and Liu, 2005). The majority of studies surveyed nurses with convenience samples at either single (e.g., Binder and McNiel, 1994; Chapman et al., 2010; Lin and Liu, 2005; Spector et al., 2007) or multiple (e.g., Lanza et al., 2006; Ryan and Maguire, 2006; Şenuzun Ergün and Karadakovan, 2005; Yang et al., 2012) settings. Inclusion criteria helped maintain the quality of papers included in the analyses by removing papers that did not report violence incidence rates from a sample of nurses.

The papers themselves were used to classify the timeframe and type of violence exposure, and there was considerable variation in the specific questions asked. In some cases (e.g., Arnetz et al., 1996; Erikson and Einarsen, 2004) single items were used that asked if the person had been exposed to one or more types of violence (e.g., been bullied), whereas in other studies (e.g., Anderson and Parish, 2003; Yang et al., 2012) there was a multi-item checklist of specific incidents (e.g., been kicked, been punched), with a score computed by combining items. Physical injury was indicated in most cases by a question asking if the nurse had been injured in an assault at work

Table 1

Mean percent of violence exposure by violence type for overall sample.

Violence type	Number of samples	Number of nurses	Mean percent	Standard deviation	Range
Physical	95	77,658	36.4	26.0	.55–100
Nonphysical	81	72,376	67.2	24.9	5.0–100
Bullying	10	9388	37.1	25.2	4.5–86.5
Sexual harassment	33	18,128	27.9	21.5	.7–68.0
Overall	50	60,052	50.5	23.5	10.4–91.1
Injured	18	12,947	32.7	20.4	.09–67.0

Note: Total 160 samples from 136 papers, n = 151,347 nurses.

(e.g., Magnavita and Heponiemi, 2011). Some studies asked questions that did not differentiate physical from non-physical violence (e.g., Arnetz et al., 1996; Camerino et al., 2008) whereas others assessed types of violence with individual questions (e.g., Anderson and Parish, 2003; Pai and Lee, 2011). Timeframes varied from daily (e.g., Snyder et al., 2007) to career (e.g., Vessey et al., 2009). Each study's measures were reviewed to be sure they matched the type of violence indicated in the paper.

2.3. Data analysis

The rate of violence exposure was operationalized as the percentage of the sample that reported each type of violence (physical, nonphysical, bullying, sexual harassment, and general violence that did not breakdown specific types), as well as the percentage who were physically injured in an assault. Proportions were converted to percentages, and if only frequencies were given of those exposed versus not exposed to violence, percentages were calculated. All analyses were conducted for each type of violence separately. Next the samples were placed into various categories for more fine-grained analysis. For the one-way analyses of setting, source, and region, a criterion of at least 5 studies available was the criterion to include a category. For region by source analysis the number of source categories was collapsed from five to three, with the minimum number for each combination relaxed. For timeframe, given the

numbers of studies available, only three categories were possible that fit all but 10 of the studies: career, past year, 1–6 months. Another set of analyses was done on the setting for all cases with at least 5 samples. Settings included emergency departments, general (e.g., national or state-wide) samples, geriatric, hospital, and psychiatric. Twelve studies were omitted from the setting analysis because there were fewer than 5 samples in the same setting (e.g., forensic or group home). The category of *clinical* was omitted because it was not clear if it was used in a consistent way across studies. Source of violence was classified into patient, patient family or friend, nurse, physician, and staff. Finally, analyses were conducted of source by region. For each analysis the mean percentage, as well as standard deviation and range, were computed, all of which are shown in the tables. Although five was the criterion to create a category, results with fewer than five studies was reported for a type of violence as long as the overall number of studies for that category (e.g., prior six months or less) was at least five.

3. Results

Analyses began by computing the mean percentage of nurses exposed for all studies broken down by type of violence. As shown in Table 1, 36.4% of nurses reported being physically assaulted, with 67.2% reporting nonphysical assault, 37.1% reporting being bullied, 27.9% reporting sexual harassment, and 50.5% reporting general violence

Table 2

Mean percent of violence exposure by violence type and timeframe.

Violence type	Number of samples	Number of nurses	Mean percent	Standard deviation	Range
Prior six months or less (total n = 19,560)					
Physical	6	6582	31.2	20.0	7.2–67.0
Nonphysical	7	7043	76.7	21.1	47.9–98.0
Bullying	5	7811	22.8	9.0	13.0–31.0
Sexual harassment	2	503	11.7	9.5	4.6–18.0
Overall	5	4706	44.7	19.8	15.5–63.5
Injured	1	5876	37.0	–	–
Prior year (total n = 65,424)					
Physical	49	52,520	31.8	23.1	3.0–84.0
Nonphysical	45	51,911	62.8	26.3	5.0–100.0
Bullying	3	1191	47.6	33.8	26.4–86.5
Sexual harassment	14	12,743	17.9	19.0	.7–68.0
Overall	14	7992	57.3	22.8	24.7–88.9
Injured	14	6598	35.5	20.9	.09–67.0
Career (total n = 53,089)					
Physical	30	10,007	44.9	30.0	.5–100.0
Nonphysical	20	5062	73.4	24.3	17.2–100.0
Bullying	1	212	70.0	–	–
Sexual harassment	15	4389	39.0	20.9	1.1–66.0
Overall	23	43,222	44.2	25.7	10.4–91.1
Injured	–	–	–	–	–

Table 3
Mean percent of violence exposure by setting.

Violence Type	Number of Samples	Number of Nurses	Mean Percent	Standard Deviation	Range
Emergency department (total n = 4600)					
Physical	10	4573	49.5	24.0	19.7–89.0
Nonphysical	9	4518	81.3	21.9	40.0–100
Bullying	–	–	–	–	–
Sexual harassment	–	–	–	–	–
Overall	–	–	–	–	–
Injured	–	–	–	–	–
General samples (total n = 77,881)					
Physical	21	22,044	23.4	16.3	3.1–65.0
Nonphysical	19	20,602	62.2	22.4	34.1–94.0
Bullying	8	8671	26.8	14.0	4.5–44.7
Sexual harassment	11	3374	41.1	19.1	12.9–66.0
Overall	20	48,022	36.4	19.9	10.4–85.0
Injured	1	5876	37.0	–	–
Geriatric (total n = 6047)					
Physical	6	2254	45.9	24.4	11.0–75.3
Nonphysical	2	676	34.3	41.4	5.0–63.5
Bullying	–	–	–	–	–
Sexual harassment	1	506	1.2	–	–
Overall	4	1411	53.7	16.3	40.0–77.3
Injured	2	3026	20.1	21.2	5.0–35.0
Hospital (total n = 46,554)					
Physical	26	38,696	26.7	19.9	3.1–80.4
Nonphysical	30	42,037	65.5	24.9	19.9–95.2
Bullying	2	717	78.3	11.7	70.0–86.5
Sexual harassment	14	13,022	18.8	17.5	.7–56.0
Overall	11	5456	57.6	26.3	15.5–91.1
Injured	6	1288	33.4	24.1	.09–64.0
Psychiatric (total n = 13,119)					
Physical	24	8072	55.0	26.6	.5–100.0
Nonphysical	14	2608	72.8	24.6	17.0–100.0
Bullying	–	–	–	–	–
Sexual harassment	5	621	29.7	23.0	9.5–68.0
Overall	11	4778	67.7	15.4	36.8–88.9
Injured	6	1673	40.9	20.8	4.5–67.0

Note: All settings had at least 6 samples.

not broken down by type (i.e., nurses were merely asked if they were subject to some type of violence at work). Almost a third of nurses indicated they had been physically injured in an assault at work. As can be seen in the ranges, the rates of assault varied considerably across the studies, for example, physical violence ranged from less than half a percent to 100 percent within a sample.

3.1. Timeframe

Table 2 shows the breakdowns of the different violence types by timeframe (1–6 months, year, career). Although one might expect the exposure rates to increase with length of timeframe, that was not always the case. For example, the rate for nonphysical violence exposure was higher for the yearly studies than career.

3.2. Setting

Violence incidence rates were computed for five different settings, including general samples that included nurses from a variety of settings. In some cases there were no studies found for some types of violence, for example, studies of emergency departments only included physical and nonphysical violence. As shown in Table 3, incidence rates varied considerably across settings. In both the general nursing population and in hospitals, the rate of

physical violence was about a quarter of nurses. Physical violence was most prevalent in psychiatric, geriatric, and emergency departments. In all but geriatric, nonphysical violence was more prevalent than physical. Sexual harassment also varied considerably among settings, ranging from 1.2% in Geriatric (but based only on one study) to 41.1% in the general samples.

3.3. Source

For source of violence, there were only sufficient numbers of studies for physical, nonphysical and combined types. As shown in Table 4, there were considerable differences across violence types. For physical violence, almost two-thirds is performed by patients, and almost a third by family/friends. Physical assault by nurses, physicians or staff was well under 10%. For nonphysical and general violence, the percentages were more balanced across sources, although patients were still the most frequent source. However other health professionals account for a much larger percentage of nonphysical than physical violence.

3.4. World region

Table 5 shows how the incidence rate of violence varies considerably by world region. Physical violence was almost twice as prevalent in the Anglo as Middle East

Table 4
Mean percent of violence exposure by source.

Source	Number of samples	Number of nurses	Mean percent	Standard deviation	Range
Physical violence					
Patient	22	17,364	64.3	29.1	10.5–100.0
Family/friend	18	16,305	30.2	29.1	0–85.3
Nurse	9	8672	3.2	4.2	0–12.0
Physician	8	8459	1.6	1.8	0–4.3
Staff	15	15,980	6.3	5.1	0–17.9
Nonphysical violence					
Patient	26	29,039	53.9	24.4	9.8–93.8
Family/friend	25	26,818	47.3	26.1	11.6–94.2
Nurse	12	20,200	21.8	13.6	4.0–44.5
Physician	12	18,318	28.5	20.2	1.0–74.0
Staff	21	28,074	39.2	26.4	4.0–100
Combined types of violence					
Patient	15	9102	62.2	28.6	14.7–97.0
Family/friend	9	7334	31.2	19.7	11.6–68.1
Nurse	10	6708	44.8	23.7	18.5–80.6
Physician	10	6708	29.1	25.4	4.0–73.0
Staff	14	2584	54.7	32.5	5.0–100

Table 5
Mean percent of violence exposure by world region.

Violence type	Number of samples	Number of nurses	Mean percent	Standard deviation	Range
Anglo (total $n = 74,566$)					
Physical	46	55,041	43.0	26.0	3.1–94.0
Nonphysical	42	53,827	69.4	22.7	19.9–100
Bullying	6	1770	39.5	17.7	21.0–70.0
Sexual harassment	13	11,418	38.7	21.9	7.6–68.0
Overall	22	13,609	58.3	19.6	25.0–88.9
Injured	10	5054	36.1	20.9	5.0–67.0
Asia (total $n = 7792$)					
Physical	12	4524	27.3	26.5	3.1–84.0
Nonphysical	11	4418	50.4	20.4	17.2–91.5
Bullying	1	521	29.8	–	–
Sexual harassment	6	2540	21.6	24.6	.7–56.0
Overall	6	1872	51.3	21.7	15.5–76.0
Injured	1	106	45.0	–	–
Europe (total $n = 55,353$)					
Physical	20	8506	35.0	25.0	3.0–100.0
Nonphysical	12	4295	59.5	33.2	5.0–100.0
Bullying	2	6592	8.8	6.0	4.5–13.0
Sexual harassment	6	1750	16.2	13.0	1.2–38.2
Overall	18	42,265	38.3	24.0	10.4–85.0
Injured	3	1286	22.7	22.5	.09–45.0
Middle East (total $n = 13,469$)					
Physical	15	9420	22.4	21.9	.5–74.9
Nonphysical	15	9763	78.5	20.5	38.9–100.0
Bullying	1	505	86.5	–	–
Sexual harassment	7	2347	22.4	19.8	2.0–53.3
Overall	4	2306	61.3	28.0	24.7–91.1
Injured	4	6501	28.9	22.3	4.5–55.8

region. Nonphysical violence occurred in more than 50% of cases across regions, although the rate was lower in Asia than the other regions. Bullying had the lowest incidence rate in Europe (but based on only two studies), and the highest in the Middle East. The rate of sexual harassment was highest in the Anglo region (38.7%), and lowest in Europe (16.2%).

3.5. Source by world region

Finally, a series of analyses were done of violence by region and source (Table 6). In the Anglo, and European regions, physical violence was mainly performed by patients, with relatively little performed by family and friends. In Asia and especially in the Middle East, family and friends had relatively high rates of physical violence. Likewise the rates of nonphysical violence by family and friends were far higher in Asia and the Middle East than in the Anglo and European regions. Differences in violence rates by staff (nurses, physicians, and staff were combined because of small numbers of studies using the more precise breakdowns) were smaller among regions, with relatively little physical violence perpetrated by staff members.

Table 6
Mean percent of violence exposure by source and world region.

Violence type and source	Number of samples	Number of nurses	Mean percent	Standard deviation	Range
Anglo					
Physical patient	6	7554	87.7	17.2	53–97.2
Physical family/friend	4	7258	13.1	9.3	7.1–27.0
Physical staff	4	7258	6.6	3.5	1.7–9.1
Nonphysical patient	11	19,079	56.0	26.5	18–93.8
Nonphysical family/friend	10	16,858	33.0	24.4	11.6–83.9
Nonphysical staff	10	18,984	37.4	21.8	4.0–74.0
Asia					
Physical patient	4	1507	79.3	17.7	64.3–100.0
Physical family/friend	3	962	18.0	16.2	0–31.4
Physical staff	4	1507	7.3	6.2	0–12.7
Nonphysical patient	4	1507	48.1	21.6	25.6–75.9
Nonphysical family/friend	4	1507	46.2	26.8	21.8–81.5
Nonphysical staff	4	1507	50.2	21.6	19.9–70.7
Europe					
Physical patient	3	779	50.2	18.9	39.0–72.0
Physical family/friend	3	779	8.8	11.5	1.0–22
Physical staff	2	488	4.5	.6	4.0–4.9
Nonphysical patient	3	779	50.3	13.4	39.6–65.3
Nonphysical family/friend	3	779	33.4	3.9	29.7–37.5
Nonphysical staff	2	488	27.6	4.8	24.2–31.0
Middle East					
Physical patient	9	7524	46.9	29.8	10.5–100
Physical family/friend	8	7306	51.4	31.1	12.0–85.3
Physical staff	5	6727	6.0	7.0	0–17.9
Nonphysical patient	8	7674	55.3	29.1	9.8–88.0
Nonphysical family/friend	8	7674	70.9	16.0	44.3–94.2
Nonphysical staff	5	7095	44.9	52.5	5.0–121.4

Note: Staff in some cases comprised more specific categories that in some instances were not mutually exclusive and could sum to more than 100%.

4. Discussion

Nurses' exposure to different types of violence has been a topic of considerable research attention. The literature review for this paper located 136 published articles in the literature that provided incidence rates, and more than 100 additional papers on the topic that did not meet inclusion criteria. What analysis of these studies provides are estimates of the prevalence of different types of violence worldwide, as well as breakdowns by study timeframe, setting, source, and world region. Worldwide about a third of nurses experience physical violence, injury due to violence, and bullying, about two-thirds experience nonphysical violence, and about a quarter experience sexual harassment. Many of these rates are even higher when the timeframe is the entire nursing career rather than a more limited timeframe, such as the prior year.

The rate of violence exposure varies according to setting and world region. Physical violence is most prevalent in psychiatric units, emergency departments, and geriatric facilities. Nonphysical violence was quite prevalent (rates up to 81.3%) in all but geriatric units. Although there were differences in incidence rates for bullying and sexual harassment, there were relatively few studies of these types of violence, and for some settings there were no studies located. There were also differences in violence exposure by world region, with each region having its own pattern. The Anglo region was highest for physical violence and sexual harassment, and second highest for nonphysical violence and bullying. Asia was lowest for nonphysical, and second lowest for physical, bullying, and sexual harassment. The Middle East was lowest for physical violence and highest for nonphysical violence and bullying. Thus it seems that nurses in the Anglo region have the most overall exposure, nurses in Asia have the least, and nurses in the Middle East experience relatively high levels of nonphysical violence and relatively low levels of physical violence. In part the low rate of physical violence in the Middle East might be due to the fact that males account for most physical violence (Gerberich et al., 2004) and there are strong taboos about males making physical contact with females (Esmaeilpour et al., 2011). Another thing to keep in mind is that violence among nurses can be under-reported, at least officially (Snyder et al., 2007), and that the under-reporting tendencies might vary across world regions. For example, El-Gilany et al. (2010) noted that Middle Eastern women would be quite hesitant to admit to sexual harassment. Thus some of the regional differences might reflect, at least to some extent, the cultural sensitivity of violence exposure, especially sexual harassment.

The findings on source of violence clearly showed differences between physical that is performed predominantly by patients and nonphysical that is performed by a variety of sources. Of particular note is that the source varies by world region. In particular the incidence of both physical and nonphysical violence by patients' family and friends is relatively high in Asia and the Middle East and relatively low in the Anglo and European regions. To some extent this might be due to culture values, as the former two regions tend to be collectivistic and the latter two individualistic (Hofstede, 2001). Whereas individualists

might tend to navigate their healthcare by themselves or with the help of a small number of nuclear family members, collectivists are more likely to receive help from a broader network of extended family members and friends who might accompany the ill person as they receive treatment, and thus have more contact with nurses that provides opportunities for violence.

4.1. Limitations

The major limitations to this quantitative summary of the nurse violence literature are inherent in the available studies themselves. First, the numbers of studies available were quite variable across the comparisons made. Although there were a sufficient number of studies overall for some of the types of violence (e.g., 95 samples for physical violence) for bullying there were only 10 studies. Furthermore, for some breakdowns, the number of samples was quite small. Although results were reported in some cases with fewer than 5 studies, those results are merely suggestive and not conclusive.

A second limitation is that the studies were not all comparable across type, setting, source, and region. This is a particular limitation where there were few studies, and when comparing across world regions, as there was some confounding among these different study characteristics. Unfortunately, there were not many studies that used the same measures and procedures across regions that could make for more direct comparisons.

A third limitation is that there is little standardization in measures or methods across studies. This is a particular problem with types of violence and time frames. Studies vary in the specific questions they ask about violence, with some separating physical from nonphysical (e.g., Anderson and Parish, 2003; Pai and Lee, 2011) and others combining them (e.g., Arnetz et al., 1996; Camerino et al., 2008). Even those that asked specifically about physical violence differed in the question asked, with some including threats (e.g., Hegney et al., 2003) and others only physical contact (e.g., Roche et al., 2010). Time frames also varied from daily exposure (e.g., Snyder et al., 2007) to entire career (Ferns and Meerabeau, 2009). Although the majority of cases asked about one year, some studies used unique time frames that make comparisons to other studies difficult, such as a week (Roche et al., 2010), or 33 months (Binder and McNiel, 1994). Similarly, differences in the measurement of bullying can have significant impact on exposure rates, as some studies adopt a stricter criterion than others (Fox, 2012). For example, Erikson and Einarsen (2004), used a strict definition of repeated bullying acts by someone with greater power whereas Yildirim and Yildirim (2007) only required that bullying acts were experienced at all. Not surprisingly the incidence rate was much higher for the Yildirim and Yildirim study (86.5%) than the Erikson and Einarsen study (4.5%).

Finally, many studies that reported breakdowns by setting or source did not provide cross-tabulations that would have made it possible to look at finer grained combinations. For example, a paper might have reported incidence rates by setting and then by source without indicating setting by source (Adib et al., 2002; Lin and Liu, 2005). For some studies, this was undoubtedly due to inadequately small sample size for the finer-grained combinations, but it limited the number of comparisons that could be performed.

4.2. Implications

This study provides a snapshot of violence exposure rates in nursing. Although the high rate of physical violence is well recognized and has been the focus of workplace intervention in many organizations, what is perhaps less recognized is the high rates of other types such as bullying and sexual harassment. Given that most physical violence is performed by patients, violence prevention programs have often focused on patient care. However, the high rates of other types suggest that violence prevention programs need to be comprehensive, and deal with patients, their families and friends, and staff members including nurses and physicians. Only by addressing all types and sources of violence can the workplace become a safer environment.

A second issue is that although violence exposure is universal, there are regional and country differences in the incidence rates and sources of violence. Thus interventions should be tailored to the particular violence issues in a particular setting. This means more attention should be given to family and friends in Asia and the Middle East than in the Anglo and European regions. It is also important to determine if the low rates of sexual harassment in these regions is due to low incidence or under-reporting. That would help determine the extent to which efforts need to be directed toward sexual harassment prevention in those regions.

4.3. Conclusions

This quantitative synthesis of the nursing violence literature provides a comprehensive picture of the nature of the problem throughout the world. Whereas about a third of nurses are physically assaulted and injured, and about two-thirds are nonphysically assaulted, with these rates varying by setting and world region. The Anglo region is particularly prone to violence of all types, although it is possible that some of these differences are due to the greater candor of nurses in this region, particularly for sexual harassment. However, violence is too common an occurrence even in regions that have comparatively lower incidence rates. Furthermore, the type of violence varies with the setting and source of violence, and source varies with region. Clearly violence exposure is a significant hazard for nurses that is in need of additional research to determine effective solutions.

Conflict of interest
None declared.

Appendix A. Studies used in quantitative review

AbuAlRub, R. F., & Al-Asmar, A. H. (2011). Physical violence in the workplace among Jordanian hospital nurses. *Journal of Transcultural Nursing, 22,* 157–165.

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