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The Prevalence of Workplace Violence Against Iranian Nurses: A Systematic Review and Meta - Analysis

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Abstract

Background: Workplace violence is one of the major health concerns and managerial issues that, by creating insecurity at the workplace, would affect the performance of the health personnel and their professional relations. Due to the close contact with patients and their companions, nurses are more exposed to workplace violence. The aim of the present study was to determine the prevalence of workplace violence against Iranian nurses.

Methods: In the present systematic review and meta - analysis, 22 Iranian articles, which were published in Farsi and English until February 2017, were selected. National and international databases were searched using "nursing", "aggression", "physical violence", "verbal violence", and "workplace violence" keywords and their possible combinations. Data were analyzed using meta - analysis and random effects model. Heterogeneity between the studies was evaluated using I^2 test.

Results: Analyzing the 22 selected articles with a sample size of 5639 showed that the general prevalence of verbal violence was 74% (95% CI: 66 - 83) and of physical violence was 28% (95% CI: 21 - 35). The prevalence of unreported workplace violence by the nurses was 48% (95% CI: 28 - 68).

Conclusions: The prevalence of verbal and physical violence against nurses is high and about half of the nurses do not report workplace violence to the hospitals' authorities.

Keywords: Workplace Violence, Meta - Analysis, Iran, Nurse, Prevalence

1. Background

The World Health Organization refers to workplace violence as the deliberate use of physical force or power as a threat against own self, another person, group, or community, which could lead to injury, psychological harm, and even death. It could also have adverse effects on development and growth and may lead to deprivation (1). Workplace violence is the third leading cause of deaths from injuries in the United States and is the second leading cause of women's death in the workplace (2). Healthcare workers are 16 times more likely to experience workplace violence than any other employees (3). Although violence occurs in all workplaces and medical settings, nurses are three times more likely to experience violence than any other healthcare providers due to their close contact with patients and their relatives (4, 5). Taylor (2011) believes that the level of exposure of nurses to workplace violence is more than that of police forces and prison guards (6).

In Brazil, 100% of nurses have experienced violence at their workplace and in Switzerland, 72% of nurses have experienced verbal violence and 42% experienced physical violence at their workplace (7, 8). The results of studies conducted in Iran show that the prevalence of workplace violence in the city of Ilam was 44% and in Tehran was 69% (9, 10). Due to the lack of a universal definition of workplace violence, nurses' different perceptions of workplace violence, and the lack of specific recording and reporting system in healthcare systems, the estimation of workplace violence is different (11). The lack of support from the hospital management and fear of revenge are some reasons for unreported workplace violence (12). The high volume of patients, congestion in the wards and noisy environment

are among factors associated with the workplace violence (13).

Lanctot and Guay (2014) in a study, after reviewing 68 studies on the violence - related outcomes, divided the workplace violence into seven categories; physical, mental, emotional, functional, social, financial, and patient & quality of care, with psychological consequences (depression and stress after the event), emotional consequences (anger and fear) and functional consequences (day off and job satisfaction) that are more common than other consequences of violence (11). Fear, anger, frustration, symptoms of post - traumatic stress disorder, and feelings of guilt and shame are among the most common psychological responses of nurses to violence, which have a negative effect on mental health, quality of nursing care, and professional life of nurses (8, 14). Workplace violence leads to increased occupational stress, reduced self - esteem, occupational and mental burnout, increased medical errors, suicide, disability, and even death (15-17). Although, various studies have been conducted to investigate the prevalence of workplace violence towards nurses in Iran, no general estimation of physical and verbal violence against nurses has been reported so far. The purpose of this study was to estimate the prevalence of workplace violence against Iranian nurses at workplace through conducting a systematic review and meta - analysis.

2. Methods

The protocol for this review was registered in the international prospective register of systematic reviews (PROSPERO) with the Number: CRD42017067825.

2.1. Search Strategy

In this systematic review and meta - analysis, the physical and verbal violence against Iranian nurses at workplace was reviewed based on published articles in internal and external journals without time limitations. The national and international databases of SID, MagIran, Google Scholar, IranMedex, Science Direct, PubMed, Web of Science, and Scopus were used to search for related articles. The search for articles was done using the keywords workplace violence, verbal violence, physical violence, workplace aggression, nursing, and their possible combinations. The sources of related articles were also reviewed for access to other articles.

2.2. Inclusion and Exclusion Criteria

In the beginning, all articles addressing the prevalence of physical and verbal violence against nurses were collected. The studies were selected based on inclusion and exclusion criteria. All studies addressing the frequency or prevalence of physical and verbal violence against nurses were analyzed. The exclusion criteria included non - relevant studies, case reports, interventional studies, duplicate publication, workplace violence in other healthcare groups or students, and lack of access to the full text of studies.

2.3. Data Extraction

In order to reduce the bias, the search for articles was independently done by two researchers, and in case of disagreement with a study, the study was judged by another author who was an expert in meta - analysis. Then, the required information such as the title of article, the first author, the year of publication, the prevalence of violence (physical/verbal), the place of study, sample size, ward, unreported violence, the quality score of article, and scales (researcher made/standard) were collected from the selected articles, and the prevalence of physical and verbal violence was recorded in a form. The articles' screening and selection process was conducted according to the PRISMA guidelines (18). The methodological quality of articles was evaluated based on the quality of life's tool used in various studies. The tool included 5 items, including the study plan, a comparison group, a description of the characteristics of study samples, the sample size of the study, and the tool used in the study. Each item was scored from 0 to 3, with higher grade indicating higher methodological quality (19-21).

2.4. Data Analysis

Since the prevalence rate has binomial distribution, the variance of the prevalence was calculated using the binomial distribution formula and the average weight was used to combine the prevalence in different studies. In order to evaluate the heterogeneity of the selected studies, Q Cochran test and I^2 index were used. Heterogeneity was divided into three categories of less than 25% (low heterogeneity), 25% to 75% (moderate heterogeneity), and more than 75% (high heterogeneity). Considering the heterogeneity of the selected studies ($P < 0.0001$) and $I^2 = 97.9\%$, the DerSimonian and Laird's random effects model was used to combine studies and estimate the prevalence rate. To investigate the relationship of the prevalence of workplace violence with the year of study and the sample size, a meta - regression test was used and to estimate the prevalence of violence in each of the five regions, violence measuring tool and department, subgroup analysis was used. To evaluate the publication bias, the Egger regression test was used. The data were analyzed using STATA software version 12 (Stata Corp, College Station, TX).

3. Results

In this study, 22 articles were entered into the meta - analysis process. The sample size included 5639 subjects with an average of 257 subjects per study.

The largest and the smallest sample sizes were related to the studies of Shoghi (22) with 1317 subjects and Imani (23) with 52 subjects, respectively. The general characteristics of the selected studies are presented in Table 1. The studies selected for meta - analysis were examined in terms of sensitivity. The results showed the exclusion of articles did not change the total estimate of the prevalence of physical and verbal violence. The results showed that the publication bias was significant (P = 0.03) (Figure 2).

The findings showed that the overall prevalence of verbal violence was 74% (CI 95%: 66 - 83) and of physical violence was 28% (CI 95%: 21 - 35). The prevalence of verbal violence was higher in the emergency department than in other departments (75% vs. 74%) and the prevalence of physical violence was lower in the emergency department than in other departments (23% vs. 31%). Moreover, in five studies, there was unreported workplace violence, which showed that the prevalence of unreported violence in the workplace was 48% (CI 95%: 28 - 68). The review of selected studies based on subgroups showed that the highest rates of physical violence (29%) and verbal violence (91%) were reported in area 3 and 4 in the country, respectively (Western and northwest provinces of the country). The reason for this finding may be due to the specific weather conditions in these areas. The findings, based on violence measuring tools showed that the highest physical (32%) and verbal (85%) violence were related to the standard and researcher - made tools, respectively.

As shown in Figure 4, the results of meta - regression showed that there was no significant relationship between physical violence (P = 0.998) and verbal violence (P = 0.841) and the sample size of the articles. In addition, there was no relationship between physical violence (P = 0.07) and verbal (P = 0.255) and the year of study.

4. Discussion and Conclusions

Workplace violence is a common problem for all healthcare groups, especially nurses. The high prevalence of physical and verbal violence in Iran is consistent with the results of other studies. The prevalence of physical and verbal violence against Iranian nurses was 28% and 74%, respectively. The study findings in neighboring countries show that the prevalence of physical and verbal violence is respectively 74.9% and 91.4% in Turkey (43), and 52.8% and 67.8% in Jordan (44), which are higher when compared to the prevalence in Iran. The results of Abu al - Rub et al. (2007) study showed that the prevalence of physical violence against Iraqi nurses was 42.2%, from which 14.3% were carried out with deadly weapons (45). The results of a study by Thalas et al. examining the prevalence of violence against the emergency medical staffs in six hospitals of Ankara, Turkey, showed that the prevalence of physical and verbal violence was 41.1% and 79.6%, respectively (46), which is higher than the findings of the present study. The results of a study by Adib et al. (2002) in Kuwait showed that the prevalence of physical and verbal violence against healthcare providers was 48% and 7%, respectively (47). Moreover, the results of a study in Italy showed that 13.4% of nurses reported at least one physical attack over the past year and the incidence of verbal violence was higher than that of physical violence (48). The results of a study by Roche et al. (2010) in Australia showed that 100% of male nurses and 83.7% of female nurses have experienced workplace violence (49).

Since the workplace violence is a phenomenon that is influenced by culture and context, it is expected to be different in different cultures. The most cases of verbal and physical violence occurred in the areas of 3 (provinces of East Azarbaijan, West Azarbaijan, Ardebil, Zanjan, Gilan, and Kurdistan) and 4 (provinces of Kermanshah, Ilam, Lorestan, Hamedan, Markazi, and Khuzestan) in the country. This may be due to the actual occurrence of the violence, better reporting of violence, or specific hospital management policies in these areas. The results of analysis by hospital department showed that the prevalence of physical violence was lower in the emergency department than in other departments (23% vs. 31%) and the prevalence of verbal violence was higher in the emergency department than in other departments (75% vs. 74%). The results of a study in Italy showed that the most reported physical violence belonged to the emergency department (50).

The findings of violence measurement tools revealed that the highest physical violence (28%) and verbal violence (83%) had been measured by the standard and researcher - made tools, respectively. The reason for this finding can be attributed to the researcher-made tool. The lack of full psychometric and existence of specific questions (based on the researcher's preference) had a potential to reduce the quality of these studies. In this study, the mean score of methodological quality was less in studies with researcher - made tools than in studies using the standard tools (6.1 versus 7.5). Since the workplace violence is a cultural concept, the cultural differences in the design and arrangement of these tools could have influenced the results. In five studies, workplace violence had not been reported, which had a prevalence of 48%. Believing in that reporting the violence is useless or the incident is not impor-

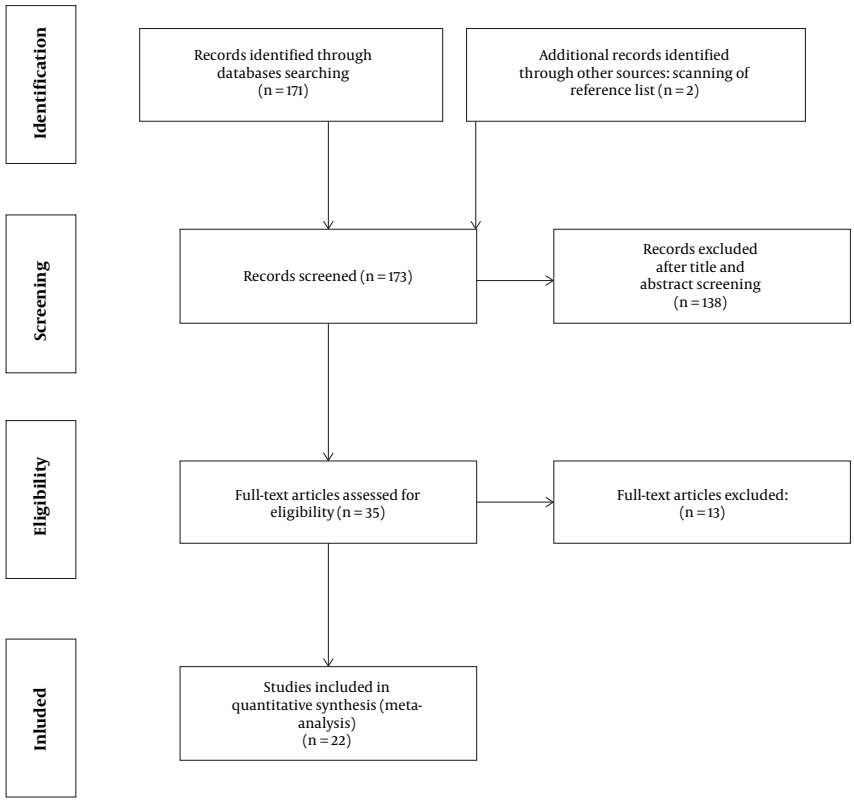

Figure 1. Flow Chart of the Study and Selection of Articles Based on PRISMA Steps

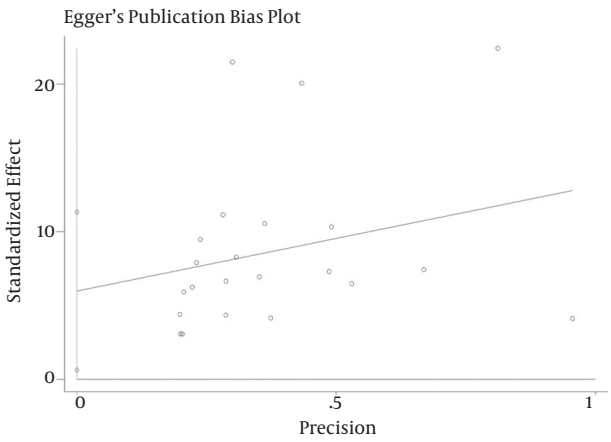

Figure 2. Publication Bias

tant, the lack of follow - up by managers, and the fear of consequences of reporting were the main reasons for not reporting the violence (14). In Fallahi Khoshknab et al. (2016), more than 60% of the respondents stated they had no guideline on how to report violence in the workplace (3). Unreported workplace violence is compared to an iceberg, which makes the problem seems less severe than it really is. It also gives a message that there is less need to prevent the potential and negative effects of workplace violence, resulting in prevention programs to focus on limited aspects of violence (51).

The literature review showed that the workplace violence against nurses had only been investigated in one systematic review and there was no accurate estimation of the prevalence of this problem in the Iranian nursing community. One of the strengths of this study was its novelty and comprehensiveness. However, the lack of access to essential information in some articles was one of the limitations of this study.

Considering that, in this study, verbal and physical violence was investigated exclusively in nurses, it is recommended to investigate the prevalence of such violence among nursing students in future studies. The prevalence of verbal and physical violence against nurses is high and communication skill training for nurses is necessary in order to reduce the workplace violence.

Table 1. Specifications of the Articles in the Systematic Review and Meta - Analysis of the Prevalence of Violence among Nurses in Iran

First Author	Year	City	Sample Size	Department	Questionnaire		Prevalence of Violence		Unreported Violence	Quality Score of Article
					Researcher - made	Standard	Physical	Verbal		
Aivazi (24)	2017	Ilam	106	Other	*		15.1	90.6	-	7
Hemati Esmaeili (25)	2015	Mash-had	68	Emergency		*	22.1	14.7	58.8	6
Eslamian (26)	2015	Esfahan	186	Emergency		*	26.9	76.9	-	7
Paryad (27)	2015	Rasht	442	Other		*	11.1	54.1	-	10
Babayi (28)	2014	Tabriz	376	Other		*	4.3	25	-	9
Teymourzadeh (10)	2014	Tehran	301	Other		*	12.2	64	-	7
Talebi (29)	2014	Sabzevar	87	Other	*		28.7	73.5	30.1	7
Soheili (30)	2014	Urmia	120	Emergency	*		34.2	92.5	66.4	6
Sohrabzadeh (31)	2014	Ilam	53	Other	*		15.1	90.6	-	6
Imani (23)	2013	Hamadan	52	Emergency	*		15.4	96	-	4
Mozafari (32)	2013	Ilam	147	Other	*		23.1	87.7	-	5
Fallahi Khoshknab (33)	2013	Tehran	183	Other		*	71.6	-	62.3	9
Khademloo (34)	2013	Mazandaran	271	Other		*	29.1	95.9	-	4
Moshtaq Eshgh (35)	2012	Tehran	100	Emergency	*		28	87	-	7
Dehnadi-Moghaddam (36)	2012	Rasht	138	Emergency	*		11.1	58.6	-	6
Esmaeilpour (37)	2011	Tehran	196	Emergency		*	19.7	91.6	-	8
Sahebi (38)	2011	Tabriz	400	Other	*		21	64.2	23.6	6
Rafati Rahimzadeh (39)	2011	Babol	302	Emergency		*	15	58.8	-	8
Moravaji (40)	2010	Zanjan	190	Other		*	39.5	77.4	-	8
Shoghi (22)	2008	Tehran	1317	Other	*		27.6	87.7	-	7
Zamanzadeh (41)	2007	Tabriz	468	Other		*	46.2	72.1	-	7
Salimi (42)	2006	Tehran	136	Emergency	*		39.7	97.8	-	7

Table 2. The Prevalence of Physical and Verbal Violence by Subgroups[a]

Group		Type of Violence		Number of Studies	Sample Size	Prevalence	Confidence Interval (95%)		Heterogeneity	
		Physical	Verbal				Upper	Lower	Percentage	P
Area	1	*		10	3386	26	35	17	97.6	< 0.0001
			*	10	3386	77	87	68	98.5	< 0.0001
	2, 5	*		3	341	26	31	22	-	0.614
			*	3	341	55	94	6	98.7	< 0.0001
	3	*		5	1554	29	47	11	98.1	< 0.0001
			*	5	1554	66	89	43	99.2	< 0.0001
	4	*		4	358	18	22	13	13.3	0.326
			*	4	358	91	95	88	38.1	0.183
Department	Emergency	*		9	1298	23	29	17	86.3	< 0.0001
			*	9	1298	75	89	62	98.3	< 0.0001
	Other	*		13	4341	31	41	21	97.7	< 0.0001
			*	13	4341	74	85	62	99	< 0.0001
Violence measuring tool	Researcher - made	*		11	2871	23	28	19	85.3	< 0.0001
			*	11	2871	85	91	78	95.7	< 0.0001
	Standard	*		11	2768	32	45	20	98.6	< 0.0001
			*	11	2768	63	79	47	99.2	< 0.0001
Unreported				5	858	48	68	28	97.3	< 0.0001

[a] Region 1: Alborz, Tehran, Qazvin, Mazandaran, Semnan, Golestan, and Qom; Region 2: Esfahan, Fars, Bushehr, Hormozgan, Kohgiluyeh and Boyer - Ahmad, and Chaharmahal and Bakhtiari; Region 3: West Azerbaijan, East Azerbaijan, Ardabil, Zanjan, Gilan, and Kurdistan; Region 4: Kermanshah, Ilam, Lorestan, Hamadan, Markazi, and Khuzestan; Region 5: Razavi Khorasan, North Khorasan, South Khorasan, Kerman, Yazd, and Sistan and Baluchestan.

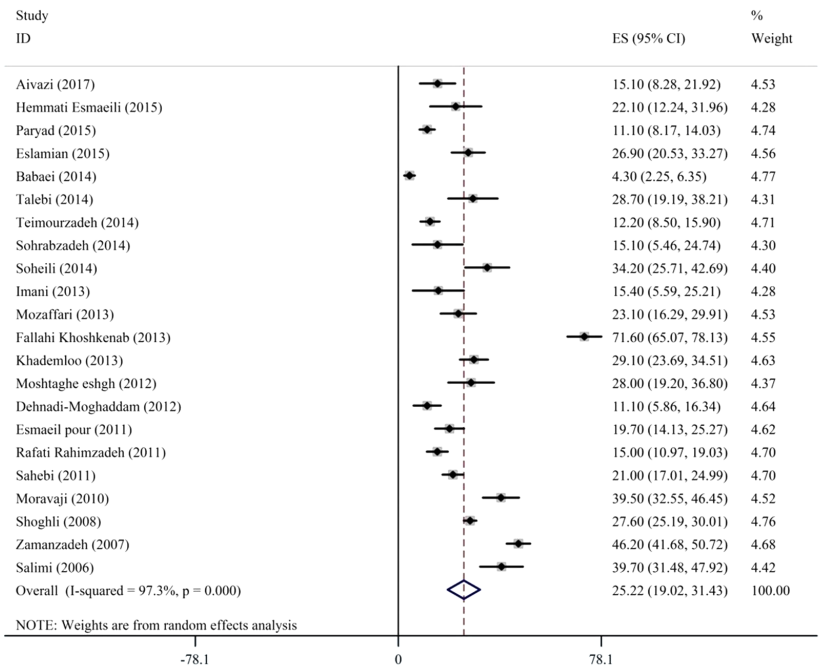

Figure 3. The prevalence of physical violence based on the database. CI of 95% for each study is represented by horizontal lines near the main mean; dashed line at the middle of the chart indicates the total mean point; and the rhomboid represents CI of the prevalence of the disorder.

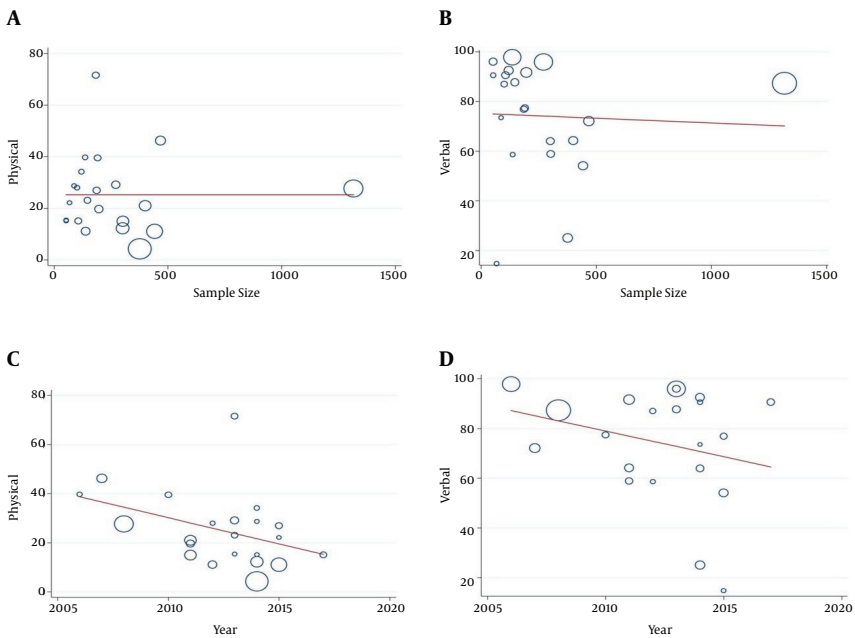

Figure 4. Meta - Regression of the Prevalence of Physical and Verbal Violence Based on the Sample Size (A & B) and the Year of Publication (C & D)

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Footnotes

Conflict of Interests: There was no conflict of interest in the current research.

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