Incivility toward nurses: a systematic review and meta-analysis

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Abstract

One important part of a nurse's job is to create and help maintain a safe work environment. Evidence shows that negative behaviors such as incivility are not uncommon in the nursing profession. This systematic review and meta-analysis aimed to examine the prevalence of incivility toward nurses. For this purpose, all observational studies that primarily investigated the rate of incivility toward nurses were selected. The electronic databases PubMed, Embase, Web of Sciences, Magiran, IranDoc, and Scopus were searched for studies published during the period of January 1, 1996 to December 31, 2019. The quality of studies was assessed using Hoy's Critical Assessment Checklist. The study was undertaken using the random effects model, and data were analyzed using STATA14.

Data on 60 articles, including data on 30801 individuals, published between 1997 and 2019, entered the study. The findings showed the prevalence of incivility to be 55.10% (95%, CI: 48.05, 62.06).

Due to the high prevalence of uncivil behavior, especially of the verbal type, nursing managers should identify risk factors in the workplace. Planners should develop programs to increase workplace safety, especially in centers that are most exposed to these behaviors. It is also recommended that future studies focus on implementation of effective evidence-based interventions based on organizational culture.

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Introduction

Civility is defined as being polite and kind in disposition and speech. Civil behavior refers to polite behavior toward others and ensuring that their dignity is maintained. On the contrary, incivility is defined as the negative behavior of insulting others or violating the common norms of behavior in the workplace (1). Incivility is a new concept in the psychology of occupational health (1) with most of the related literature being published at the beginning of the current century. In recent years, the increasing number of publications on this topic indicates that incivility occurs more frequently than other extreme behaviors in the work environment. A study by Bjorkqvist et al., showed that 32% of university employees had experienced incivility (2). A study conducted by Duncan reported the rate of incivility toward nurses to be higher than 46% and stated that one-third of nurses had been exposed to physical violence. This study reported that 100% of ER nurses had been exposed to verbal violence and more than 80% to physical violence (3).

Incivility was first defined by Anderson and Pearson as "negative behaviors with low-intensity and unclear intention that damage the targeted person" (4). Some of the terms used to describe incivility are lateral violence, disruptive behavior, abuse, conflict, bullying and aggression. These behaviors occur frequently in healthcare environments, lead to numerous negative consequences and can lead to more severe violence (4, 5).

Uncivil behaviors include verbal abuse, nonverbal abuse, sexual harassment, and passive aggressive behavior. Verbal abuse involves shouting, raising one's voice in a hostile manner, threatening a person verbally and overtly scolding or criticizing them, as well as using insulting and disgracing words, disrespectful tones, impoliteness, sarcastic behavior and humiliation (6). Nonverbal abuse includes raising the eyebrows, screwing up the eyes, scowling, creating physical distance, excluding someone from conversations, and/or invading someone's privacy (7).

Sexual harassment may be manifested in the form of inappropriate behaviors that could be construed to have sexual intention, offensive sexual jokes, words that are sexual in nature, unwanted sexual advances, requests for sex and accidental sexual contact (7).

Passive aggressive behaviors in the workplace are among uncivil behaviors that can be particularly destructive. They include lack of support for colleagues, plotting against work rivals, refusing to communicate with an individual, impatience with other people's questions and manifesting a negative attitude, all of which affect colleagues' confidence (8).

Studies on incivility in the work environment suggest that it is often produced by emotionally annoying interactions due to inappropriate demonstrations of anger and anguish, tension, heavy workload, lack of communication, occupational insecurity, organizational change, poor task management, differences in social power

and reciprocal relation of duties (1). These variables, as stressors, may lead to depression and undesirable physical symptoms. Experience of incivility in the work environment is negatively correlated with psychosomatic health (2) and is recognized as the prerequisite for aggressive behaviors and violence in the workplace (5).

Individuals enter the workplace with experiences related to their family life, personal values, communication styles, cultural or ethnic prejudices and other events that can affect their attitudes and practices and lead to destructive behaviors in the workplace (9,10). In addition, organizational factors such as power position and a number of irregularities and even some performance improvement schemes such as feedback and incentive systems may lead to non-civil behavior by increasing competition (11). On the other hand, an individual experience of incivility can lead to the continuation of this chain and its expansion by creating a motivation for retaliation (12,13). Generally, creation and maintenance of a safe work environment is included in the nursing role. Disruptive behaviors negatively affect patient outcomes and nursing performance. Therefore, nurses should support patients and help them deal with disruptive behavior to create and maintain a safe environment for giving quality care.

A review of previous studies showed that few studies have focused on incivility. Azami et al.'s study investigated incivility toward nurses in Iran; they found that in 26 studies, the rate of prevalence of examined variables including violence and verbal, physical, sexual and racial threat in the work environment were 80.8%, 24.8%, 6.14%, and 44%, respectively (14).

A systematic review was carried out by Dalvand et al., to assess violence in Iranian nurses' work environment. The results showed that 74% of the nurses had been exposed to verbal, and 28% to physical violence. Previous research had also showed a high prevalence of workplace violence toward nurses (15).

The systematic review by D'ambra and Andrews was aimed at assessing the effect of incivility on recently-graduated nurses. In this study, sixteen papers were extracted that demonstrated incivility in the workplace to be an important predictor of low job satisfaction among beginner nurses (16).

The systematic review by Edward et al. was conducted on the correlation between workplace violence and nurses' anxiety. The results demonstrated that nurses in emergency wards were more frequently exposed to verbal violence than other wards. The most frequent time of exposure to violence was reported to be the point of direct care of patients, and violence was committed either by the patients or their attendants. As a rule, nurses did not report the violence due to various organizational reasons (17).

The review study of sources by Hawkins et al. assessed beginner nurses' experiences of negative behaviors. The findings suggested that between 3% and 57% of the nurses had

experienced negative behaviors leading to depression, anxiety and work leave (18).

The systematic review by Zhu et al. aimed to explore the experience of incivility in nursing students. The results showed that nursing students experienced incivility during their clinical training and confirmed the importance of the managers' role in reducing these behaviors (19).

Finally, a systematic review was conducted by Hodgins et al. to assess effective interventions for decreasing violence and incivility in the workplace. The results revealed that weak interpersonal communication was one of the most important causes of incivility, and that training and awareness of incivility and violence can be effective in reducing the incidence of these behaviors (20).

In summary, a review of previous studies shows that systematic reviews on incivility toward nurses are few. Several studies have examined the prevalence of incivility toward specific groups of nurses or in certain countries, regions and limited wards. However, to the best of our knowledge, there have been no studies on the global prevalence of incivility toward nurses. Also, non-civil behavior in the workplace leads to negative outcomes such as low productivity, conflict, reduced job satisfaction and less organizational commitment; therefore, awareness of this ethical problem can help with the assessment of the current situation as well as effective and realistic planning to prevent and also follow up on the consequences. Subsequently, our systematic review and meta-analysis aimed to determine the prevalence of incivility toward nurses.

Methods

Design of the Study

This systematic review and meta-analysis was conducted on observational studies concerning the prevalence of incivility in nurses' workplace. In this systematic review and meta-analysis, observational studies were selected based on Condition, Context, Population (CoCoPop) (21). The review question was: What is the prevalence of incivility toward nurses working in health centers? To achieve the goals, the guideline "Meta-Analysis of Observational Studies in Epidemiology (MOOSE)" was used (22).

Inclusion Criteria

All observational studies (descriptive and analytical) focusing on investigation of the rate of prevalence of incivility toward nurses were selected, regardless of the sampling method they had used.

Exclusion Criteria

Letters to the editor, protocols, review studies, case series, case reports and studies with sample volumes less than 25 were excluded from the study. In addition, studies were excluded if they used researcher-made instruments to examine incivility, were repetitious, or involved non-reporting of incivility. There were no limitations in the language of the studies as we used free translators like ImTranslator, Bing, Google Translate, and Applied Languages to translate papers into other languages.

Search Strategy

In this study, the databases including

Medline (via PubMed), Embase, Scopus, Web of Science, IranDoc, and Magiran were searched for works published from January 1, 1996 to December 31, 2019. Moreover, related studies, dissertations and conference papers were searched. The search strategy is given in the following Medline Script:

((Incivility[Title/Abstract] OR Uncivil Behavior*[Title/Abstract] OR Workplace Incivility [Title/Abstract] OR Rudeness [Title/Abstract] OR Bullying[Title/Abstract] OR abuse [Title/Abstract] OR lateral violence [Title/Abstract] OR horizontal violence [Title/Abstract] OR relational aggression [Title/Abstract] OR workplace violence [Title/Abstract] OR negative act* [Title/Abstract] OR negative behavior* [Title/Abstract] OR disruptive behavior* [Title/Abstract] OR horizontal hostility [Title/Abstract])) OR incivility [MeSH Terms])) AND (Nurs* [Title/Abstract] OR Personnel Nurs* [Title/Abstract] OR Registered Nurs* [Title/Abstract] OR caregiver* [Title/Abstract])) AND (prevalence [Title/Abstract] OR incidence [Title/Abstract] OR frequency [Title/Abstract] OR occurrence [Title/Abstract] OR burden [Title/Abstract] OR epidemiology [Title/Abstract]))

Data Extraction

Two independent researchers (SM, AB) completed the initial screening of the studies based on titles and abstracts. In the next stage, two researchers (SM, FA) studied the full texts of papers presumed to have reported consequences in more detail. Then, the relevant papers were outlined in a checklist.

Only studies that examined the prevalence of non-civil behavior were included. Data such as study features including author(s), publication date and type of journal, setting of the study, goal(s), design and type of study, sample volume, sampling method, and characteristics of the participants such as age, gender, ward and work experience were extracted. In all of these stages, any disagreement or conflict between the two researchers was settled by consensus via bilateral debate or by a third party.

Qualitative Assessment

The selected studies were assessed qualitatively using Hoy's Critical Assessment Checklist in 10 items. Items 1 - 4 assess external validity (target population, sampling framework, sampling method, and bias of lack of responding), items 5 - 9 assess internal validity (data collection method, case definition, and instruments), and item 10 evaluates analytical bias. Each question is given a score of "0" (Yes) or "1" (No), which indicate low risk and high risk, respectively. An overall score between 0 and 3 indicates low risk, a score between 4 and 6 indicates moderate risk, and a score between 7 and 9 indicates high risk (23).

## Result

Description of the Studies

At first, 6876 studies were identified across electronic databases. After removing duplicate studies and those not meeting the inclusion criteria, a total of 60 studies remained, which were covered in this

review. The numbers of the extracted studies categorized by database were as follows: PubMed: 1391; Web of Science: 225; Scopus: 3190; and EMBASE: 2070. After omitting 3451 repetitious studies, 3425 studies entered the screening phase and 3235 irrelevant studies were excluded. Next, 190 studies entered the full text reading stage, of which 130 studies were excluded due to differences in participants (70 cases) and study design (60 cases), so that finally, 60 studies entered the study (Figure 1).
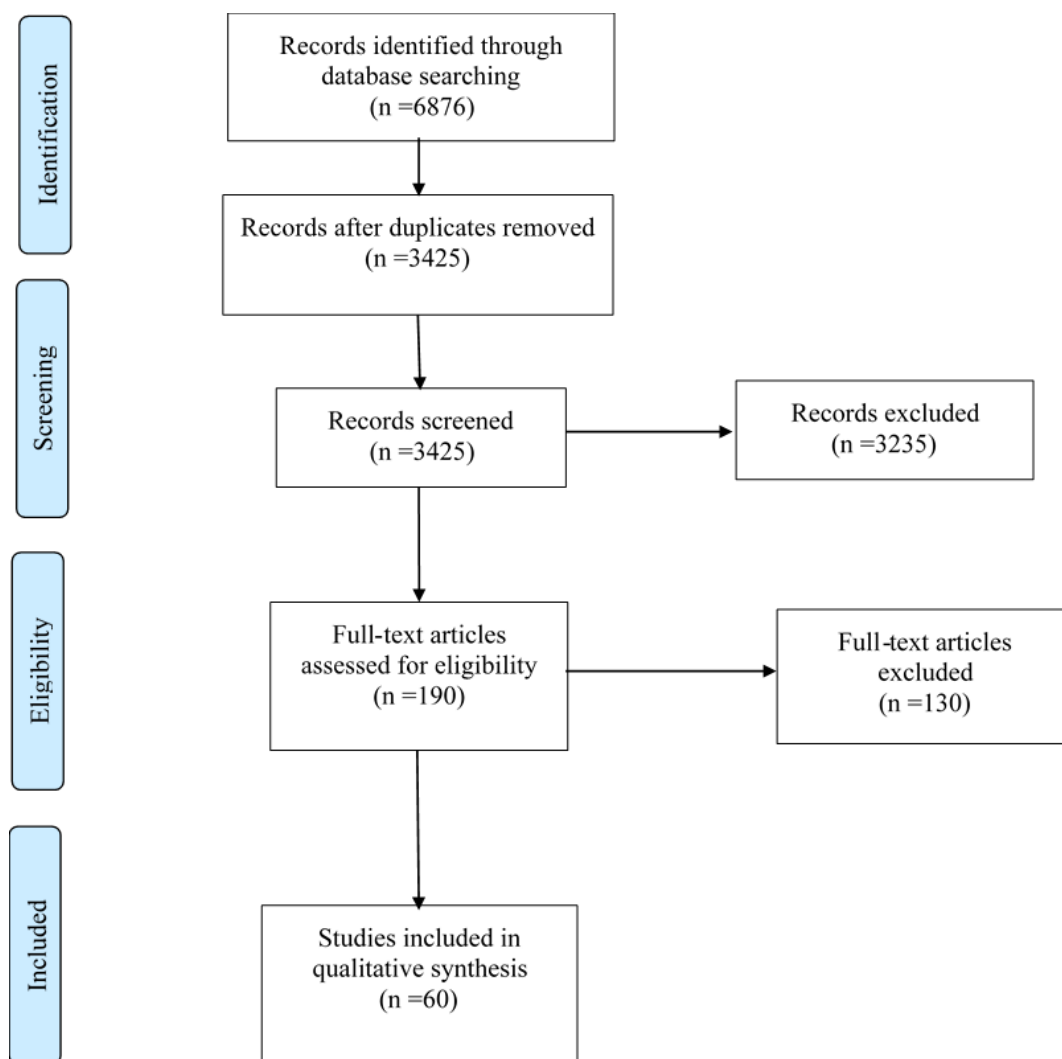
Fig. 1- The search flowchart for articles in databases based on the PRISMA 2009 checklist

These studies had been conducted between 1997 and 2019 on 30801 participants. The characteristics of the selected works are presented in Table 1. The largest and smallest numbers of participants were 3835 and 80, respectively. Most studies pertained to Asian countries (n = 31) (24 - 54), followed by the United States (n = 15) (55-69), Africa (n = 8) (71 - 78), Europe (n = 2) (79 - 80), and Eurasia (n = 4) (81 - 84). Among the Asian countries, Iran (n = 6) (25,26,33,36,41,54) and Taiwan (n = 5) (24, 27,29,35,50) had the greatest number of studies. It should be added that 30 studies had

been conducted in developed, and 30 in developing countries. 21 studies used random sampling (26,27,30-33,36,37,41,42,47,54-56,58,59,60,63,70,71,73,74,79), eight used census sampling (35,53,65,66,72,76), and 23 used convenient sampling (24,28,29,34,39,44-47,49,51,52,61,62,64,67,69,75,77,78,81-83). Eight studies did not announce which sampling method they had used (25,38,40,43,50,57,68,80). Forty studies used cross-sectional design (25-27,29,31-40,42-47,49-51,53,57,61,62,66,68,70,70-73,77,78,80-83), and twenty studies were descriptive (24,28,30,41,52,54-56,58-60,63-

65,67,69,74-76,79). The minimal rate of response was 3% and the maximal rate was 100%. Three studies did not report the response rate. Six studies were performed in the psychiatric ward, 6 in emergency care, and 2 in ICU. Most studies (n = 46) involved general hospitals and all wards. The most frequently used instruments were "Workplace Violence in the Health Sector" developed through the collaboration of the International Labor Organization (ILO), the WHO, the ICN, and the PSI in 2003 (27 cases), and "Negative Acts Questionnaire" (10 cases).

Table 1- Studies dated 1997 - 2019 included in the systematic review (n = 60)

ID	Author Year Country	S.size	Objective	Results	Quality. A**
1	Sauer& McCoy 2016 U.S.A	2250	the impact of nurses' resilience on the health-related consequences of bullying	40% had been bullied, and had lower physical and mental health.	Low Risk
2	Heydari et al. 2015 Iran	200	the frequency of incivility between nurses and head nurses	28.8% had observed non-civil behaviors at least once.	Low Risk
3	Budin et al. 2013 U.S.A	2007	the relationship between verbal abuse and demographic characteristics	The level of verbal abuse from nurse colleagues was higher.	Low Risk
4	Lu et al. 2019 China	2124	the prevalence of verbal and physical violence against nurses in psychiatric ward	Verbal violence was 84.2% and physical violence was 57.9%.	Low Risk
5	Tsukamoto et al. 2019 Brazil	242	the prevalence of and factors associated with occupational violence among members of the nursing team	Prevalence of physical violence 20.2%; verbal abuse 59.1%; sexual harassment 12.8%.	Low Risk
6	Jaradat et al. 2018 Palestine	372	workplace aggression and its association with psychological distress and reduced job satisfaction	27.1% reported exposure to workplace aggression of some sort.	Low Risk
7	Cheung & Yip 2017 Hong Kong	16082	the socio-economic and psychological correlates of workplace violence	44.6% had experienced workplace violence	Low Risk
8	Boafo et al. 2015 Ghana	1021	the incidence, sources and effects of workplace verbal abuse and sexual harassment	12% had experienced sexual harassment, 52.2% verbal abuse at least once.	Low Risk
9	Alkorashy & Al Moalad 2016/Saudi	500	the prevalence rate of workplace violence against nursing professionals	Half of the participants had experienced violence.	Low Risk

ID	Author Year Country	S.size	Objective	Results	Quality. A**
	Arabia				
10	Fute et al. 2014 Ethiopia	660	and associated factors of workplace violence among nurses	Workplace violence 29.9%, physical 18.22%, verbal 89.58%, sexual 13.02%.	Low Risk
11	Baran Aksakal et al. 2011 Turkey	650	The frequency of and risk factors for physical violence, verbal violence and mobbing.	Physical violence, verbal violence and mobbing were 13.9%, 41.8%, and 17.1%, respectively.	Low Risk
12	Abou-ElWafa 2015 Egypt	286	the prevalence and associated risk factors for different types of violence against nurses	28.1% of emergency, and 46.9% of non-emergency ward nurses reported violence.	Low Risk
13	Bambi et al. 2014 Italy	1504	the extent of lateral hostility and its effects on the quality of life	79.1% had experienced some form of lateral hostility.	Low Risk
14	Galián-Muñoz et al. 2013 Spain	200	how exposure to this kind of violence affects the onset of burnout	Extrinsic job satisfaction influences the relationship between nonphysical violence and emotional exhaustion.	Low Risk
15	Lemelin et al. 2003 Canada	300	the prevalence, origins and forms of workplace violence	86.5% of the nurses had been victims of violent behavior.	Low Risk
16	Manderino & Berkey 1997 U.S.A	300	the prevalence and consequences of verbal abuse	90% of the nurses in the sample reported abuse.	Low Risk
17	Chen et al. 2012 Taiwan	1004	the prevalence, types and sources of violence	81.5% reported having suffered from workplace violence.	Low Risk
18	Suhaila & Rampal 2012/ Malaysia	455	the prevalence of sexual harassment	The prevalence of sexual harassment among these nurses was 51.2%.	Low Risk
19	Khademloo et al. /2013/ Iran	440	the prevalence of verbal and physical abuse	29.1% had experienced physical, 95.9% verbal abuse.	Low Risk
20	Fallahi Khoshknab et al. 2011/ Iran	200	the prevalence of violence in psychiatric wards	The prevalence of violence was 71%.	Low Risk
21	Berry et al. 2011 U.S.A	5000	the prevalence and effects of workplace bullying	72.6% of novice nurses had reported a workplace bullying	Low Risk
22	Ahmed AS 2012 Jordan	500	the prevalence and sources of verbal and physical workplace abuse	Verbal and physical abuse 37.1%, 18.3%, were respectively.	Low Risk
23	Pai & Lee 2011 Taiwan	700	the risk factors and mental health consequences of physical and psychological violence	The prevalence rates of physical violence, verbal, mobbing and sexual were 19.6%, 51.4%, 29.8% and 12.9%, respectively.	Low Risk
24	AbuAlRub & AL-Asmar 2008 Jordan	496	the incidence of psychological violence, explore the reactions of nurses to this type of violence, and identify the factors	70% of the participants had been exposed to verbal abuse.	Low Risk
25	Hsieh et al. 2016 Taiwan	550	the relationship between workplace bullying, mental health and an intention to	Bullying was negatively correlated with self-efficacy and mental health.	Low Risk

ID	Author Year Country	S.size	Objective	Results	Quality. A**
			leave		
26	Hampton et al. 2018 U.S.A	175	the exposure of nurse leaders in manager, director, or executive level roles to bullying	60% had experienced bullying, 26% severe workplace bullying.	Low Risk
27	Zhao et al. 2015/ China	1013	the prevalence of workplace violence	67.2% had been exposed workplace violence.	Low Risk
28	Noorana Zahra & Feng 2018/ Indonesia	245	the experiences of violent incidents	10% of the emergency nurses had experienced physical, 54.6% non-physical violence	Low Risk
29	Zhang et al. 2014/ China	4123	the prevalence of workplace violence	25.77% reported experiencing physical violence, 63.65% non-physical, 2.76% sexual	Low Risk
30	Karatza et al. 2013/ Greece	1000	the relationship between workplace bullying and general health status	30.2 % reported that they had been psychologically harassed.	Low Risk
31	Jafree 2013-4/ Pakistan	804	the prevalence and patterns of workplace violence	73.1% reported experiencing some sort of violence.	Low Risk
32	Ridenour et al. 2015/ U.S.A	284	the risk factors associated with patient aggression toward the nursing staff	60% reported verbal, and 19% physical aggression.	Low Risk
33	Estes 2013/ U.S.A	1524	the influence of abusive supervision on nursing performance	The incidence of abusive supervision was 46.6%.	Low Risk
34	Esmaeilpour et al.2011/ Iran	196	the frequency and nature of physical and verbal workplace violence	19.7% of the nurses had faced physical violence.	Low Risk
35	Fujishiro et al. 2011 Philippines	1000	workplace aggression was associated with self-rated health and work-related injury and illness	Verbal abuse was associated with poor general health. Physical assault and verbal abuse with work-related injury.	Low Risk
36	Abbas/ 2010 Egypt	1600	the prevalence and nature of workplace violence	27.7% reported abuse of some sort, 69.5% verbal abuse, and 9.3% physical	Low Risk
37	Shiao et al. 2010/ Taiwan	1228	the incidence of assaults and their effects	28.1% had experienced physical and/or verbal	Low Risk
38	Yildirim 2009/ Turkey		the workplace and the bullying of nurses	21% of the nurses had been exposed to bullying.	Low Risk
39	Joubert et al. 2005/ South Africa	120	whether private sector physicians verbally abuse nurses	79% of the nurses admitted that sort of verbal abuse	Low Risk
40	Honarvar et al./2017 – 2018/ Iran	420	the various aspects of violence against nurses	89.6% of the nurses had been exposed to at least one kind of violence.	Low Risk
41	Yun et al. 2012/ Korea	170	the relationship between perceived work environment and workplace bullying	94.0% of the ICU nurses had experienced at least one negative act	Low Risk
42	Johnson & Rea/2009/ U.S.A	249	nurses' experiences of and the characteristics related to workplace bullying	27.3% had experienced workplace bullying.	Low Risk
43	Jiao et al. 2013/ China	700	the prevalence of workplace violence	7.8% experienced physical, 71.9% nonphysical	Low Risk
44	Park et al.	1027	the prevalence and	Verbal abuse was 63.8%,	Low Risk

ID	Author Year Country	S.size	Objective	Results	Quality. A**
	2014 Korea		perpetrators of workplace violence	threats of violence 41.6%, physical 22.3%, and sexual 19.7%.	
45	Niu et al. 2019 Taiwan	480	the prevalence of workplace violence	physical and psychological violence were 55.7% and 82.1%,	Low Risk
46	Obeidat et al. 2018 Amman	340	the prevalence of workplace bullying and its relationship with perceived competence	43% of the participants to be victims of severe workplace bullying.	Low Risk
47	Pandey et al. 2018/ Nepal	200	The prevalence of workplace violence and its associated factors	64.5% of the nurses had experienced some sort of violence.	Low Risk
48	Al-Shamlan 2015/ Saudi Arabia	450	the prevalence of verbal abuse	30.7% of the nurses experienced verbal abuse.	Low Risk
49	Sisawo et al. 2014 Gambia	223	the prevalence and perpetrators of workplace violence and the factors associated with it	verbal abuse, physical violence and sexual harassment were 59.8%, 17.2% and 10%,	Low Risk
50	Chang & Chong 2012 2013 Korea	391	the prevalence of workplace violence	Verbal abuse was 59.6%, threats of violence 36.9%, physical 27.6%, bullying 25.6%, sexual 22.4%.	Low Risk
51	An & Kang 2014 Korea	380	the relationship between organizational culture and experience of workplace bullying	The prevalence of workplace bullying was 15.8%.	Low Risk
52	Tiruneh et al. 2015 Ethiopia	428	The prevalence of workplace violence and its associated factors among the study population.	The prevalence of workplace violence was 26.7 %.	Low Risk
53	Fafliora et al. 2014 Greece	120	the workplace violence encountered by nurses	76% of the nurses experienced workplace violence.	Low Risk
54	Li et al. 2003 -2004 Hong Kong	1650	the prevalence and nature of workplace violence	76% had experienced abuse: verbal abuse 73%; bullying 45%; physical abuse 18%; and sexual harassment 12%.	Low Risk
55	Rowe & Sherlock 2005 U.S.A	307	the types and frequency of verbal abuse against nurses	Verbal abuse against nurses is quite costly to individual nurses, hospitals and patients.	Low Risk
56	Campbell et al. 2011 U.S.A	4165	the prevalence of workplace violence and demographic, work-related, adult and childhood abuse histories as risk factors	30% had workplace violence (19.4% physical, 19.9% psychological).	Low Risk
57	Hanrahan et al. 2010 U.S.A	688	the occurrence of adverse events	The rate of verbal abuse toward registered nurses was 79%.	Low Risk
58	May & Grubbs 2002 U.S.A	125	nurse perceptions of the incidence and nature of verbal and physical assault or abuse	100% reported verbal, and 82.1% physical assault.	Low Risk
59	Dehghan-Chaloshtari & Ghodousi/2014 Iran	100	all forms of violence against nurses	All nurses had experienced at least one type of violence	Low Risk
60	Cook et al.	200	the incidence and impact of	91% had experienced some sort	Low Risk

ID	Author Year Country	S.size	Objective	Results	Quality. A**
	2001 U.S.A		physicians' verbal abuse on perioperative nurses	of verbal abuse	

* by ILO/ICN/WHO/PSI/2003
** Quality Assessment: An overall score between 0 and 3 indicates low risk

Risk of Bias and Publication Bias

The qualitative assessment of the studies by Hoy et al.'s instrument showed a low rate of statistical bias in the studies (Table 1).

As shown in Figures 2, and based on the Egger test, there was no publication bias in the studies.
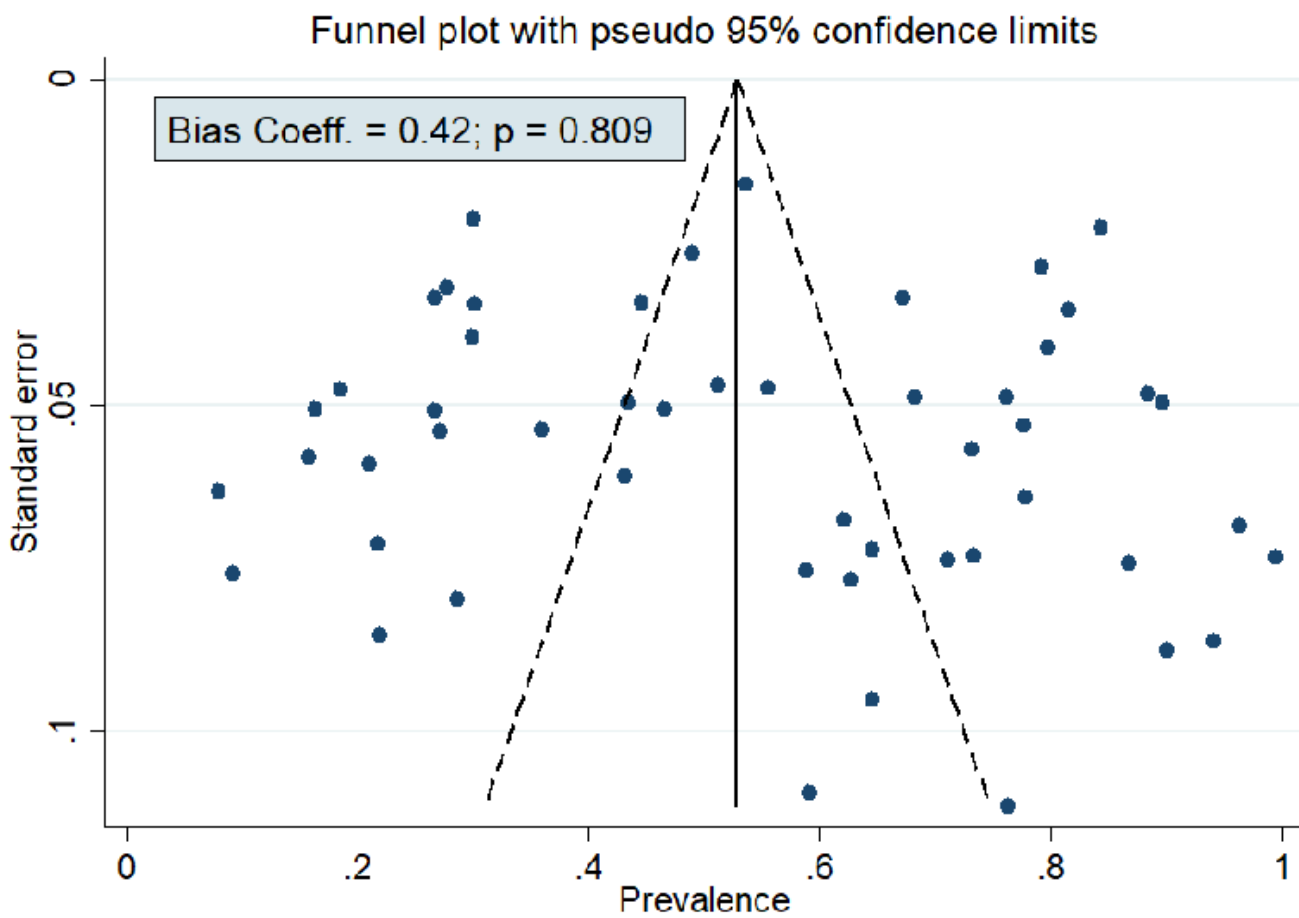

Figure 2 - Funnel plot of publication bias of studies of the prevalence of incivility

Table 2- Subgroup analysis of incivility prevalence according to characteristics of included studies

Type of Incivility	Subgroup	Number of Studies	Prevalence	(95% CI)	Heterogeneity % (P- Value)
Verbal	*Country Classification*				
	Developed	14	15.70%	29.57, 58.81	98.99% (< 0.001)
	Developing	21	15.59%	49.26, 68.69	99.17% (< 0.001)
	Instrument				
	WHO	25	75.57%	49.22, 65.87	98.93% (< 0.001)
	NAQ	1	76.45%	70.71, 81.35	0% (< 0.001)
	Verbal scale	1	24.96%	92.77, 98.08	0% (< 0.001)
	Other	8	17.74%	55.98, 88.86	99.24% (< 0.001)
	Setting				
	General	25	62.69%	53.48, 71.45	99.15% (< 0.001)
	Emergency/Acute Care	4	74.29%	47.20, 93.97	98.18% (< 0.001)
	Psychiatric	6	60.25%	41.67, 77.43	99.12% (< 0.001)
	Sampling Method				
	Random	18	66.22%	55.28, 76.35	99.28% (< 0.001)
	Convenience	10	60.99%	49.36, 72.02	98.09% (< 0.001)
	Not Reported	7	60.29%	38.19, 80.39	99.23% (< 0.001)
Physical	*Country Classification*				
	Developed	14	25.54%	14, 39.13	99.29% (< 0.001)
	Developing	20	21.23%	15, 32.38	99.17% (< 0.001)
	Instrument				
	WHO	24	20.15%	13.71, 27.46	99.06% (< 0.001)
	NAQ	1	72.31%	66.36, 77.57	0% (< 0.001)
	Verbal scale	-	-	-	-
	Other	9	30.58%	16.28, 47.11	99.21% (< 0.001)
	Setting				
	General	24	20.18%	14.36, 26.69	98.89% (< 0.001)
	Emergency/Acute Care	5	19%	8.78, 31.91	94.91% (< 0.001)
	Psychiatric	5	51.42%	24.91, 77.51	99.54% (< 0.001)
	Sampling Method				
	Random	20	24.54%	15.52, 34.85	99.44% (< 0.001)
	Convenience	9	24.12%	11.01, 40.32	99.03% (< 0.001)
	Not Reported	5	22.75%	7.73,42.68	98.83% (< 0.001)
Sexual	*Country Classification*				
	Developed	9	20.67%	9.26, 35.12	98.91% (< 0.001)
	Developing	13	9.57%	5.41, 14.74	97.42% (< 0.001)
	Instrument				
	WHO	17	10.25%	6.11, 15.28	97.97% (< 0.001)
	NAQ	-	-	-	-
	Verbal scale	-	-	-	-
	Other	5	28.04%	13.28, 45.73	97.99% (0.00)
	Setting				
	General	16	13.18%	7.53,20.10	98.71% (0.00)
	Emergency/Acute Care	4	14.09%	2.71, 31.93	96.85% (0.00)
	Psychiatric	2	22.61%	19.37, 26.02	0% (0.00)
	Sampling Method				
	Random	14	13.48%	8.23, 19.77	98.02% (0.00)
	Convenience	6	11.63%	0.89, 31.42	98.02% (0.00)
	Not Reported	1	24.63%	21.43, 27.97	0% (0.00)
Mobbing	No Subgroup	10	35.69%	21.23, 51.60	98.77% (0.00)
Psychological	No Subgroup	7	54.27%	30.65,76.92	99.58% (0.00)

Table 3- Subgroup analysis of incivility prevalence according to type of incivility

Type of Incivility	Subgroup	Number of Studies	Prevalence	(95% CI)	Heterogeneity % (P-Value)
Verbal	*Country Classification*				
	Developed	14	15.70%	29.57, 58.81	98.99% (< 0.001)
	Developing	21	15.59%	49.26, 68.69	99.17% (< 0.001)
	Instrument				
	WHO	25	75.57%	49.22, 65.87	98.93% (< 0.001)
	NAQ	1	76.45%	70.71, 81.35	0% (< 0.001)
	Verbal scale	1	24.96%	92.77, 98.08	0% (< 0.001)
	Other	8	17.74%	55.98, 88.86	99.24% (< 0.001)
	Setting				
	General	25	62.69%	53.48, 71.45	99.15% (< 0.001)
	Emergency/Acute Care	4	74.29%	47.20, 93.97	98.18% (< 0.001)
	Psychiatric	6	60.25%	41.67, 77.43	99.12% (< 0.001)
	Sampling Method				
	Random	18	66.22%	55.28, 76.35	99.28% (< 0.001)
	Convenience	10	60.99%	49.36, 72.02	98.09% (< 0.001)
	Not Reported	7	60.29%	38.19, 80.39	99.23% (< 0.001)
Physical	*Country Classification*				
	Developed	14	25.54%	14, 39.13	99.29% (< 0.001)
	Developing	20	21.23%	15, 32.38	99.17% (< 0.001)
	Instrument				
	WHO	24	20.15%	13.71, 27.46	99.06% (< 0.001)
	NAQ	1	72.31%	66.36, 77.57	0% (< 0.001)
	Verbal scale	-	-	-	-
	Other	9	30.58%	16.28, 47.11	99.21% (< 0.001)
	Setting				
	General	24	20.18%	14.36, 26.69	98.89% (< 0.001)
	Emergency/Acute Care	5	19%	8.78, 31.91	94.91% (< 0.001)
	Psychiatric	5	51.42%	24.91, 77.51	99.54% (< 0.001)
	Sampling Method				
	Random	20	24.54%	15.52, 34.85	99.44% (< 0.001)
	Convenience	9	24.12%	11.01, 40.32	99.03% (< 0.001)
	Not Reported	5	22.75%	7.73,42.68	98.83% (< 0.001)
Sexual	*Country Classification*				
	Developed	9	20.67%	9.26, 35.12	98.91% (< 0.001)
	Developing	13	9.57%	5.41, 14.74	97.42% (< 0.001)
	Instrument				
	WHO	17	10.25%	6.11, 15.28	97.97% (< 0.001)
	NAQ	-	-	-	-
	Verbal scale	-	-	-	-
	Other	5	28.04%	13.28, 45.73	97.99% (0.00)
	Setting				
	General	16	13.18%	7.53,20.10	98.71% (0.00)
	Emergency/Acute Care	4	14.09%	2.71, 31.93	96.85% (0.00)
	Psychiatric	2	22.61%	19.37, 26.02	0% (0.00)
	Sampling Method				

Type of Incivility	Subgroup	Number of Studies	Prevalence	(95% CI)	Heterogeneity % (P-Value)
	Random	*14*	*13.48%*	*8.23, 19.77*	*98.02% (0.00)*
	Convenience	*6*	*11.63%*	*0.89, 31.42*	*98.02% (0.00)*
	Not Reported	*1*	*24.63%*	*21.43, 27.97*	*0% (0.00)*
Mobbing	*No Subgroup*	*10*	*35.69%*	*21.23, 51.60*	*98.77% (0.00)*
Psychological	*No Subgroup*	*7*	*54.27%*	*30.65, 76.92*	*99.58% (0.00)*

CI: Confidence Interval

Results

Based on the results displayed in Table 3, there was high heterogeneity in the studies, and therefore the random effects model with reverse variance was used. Thus, the total prevalence of incivility was 55.10% (95% CI: 48.5, 62.06), and the prevalence rates of verbal, physical and sexual incivility and mobbing behavior were 61.63% (95% CI: 56, 95, 70), 15.24% (95% CI: 33.17, 70.31), 67.13% (95% CI: 52.8, 77.19), and 69.35% (95% CI: 23.21, 60.51), respectively (Figures 3).
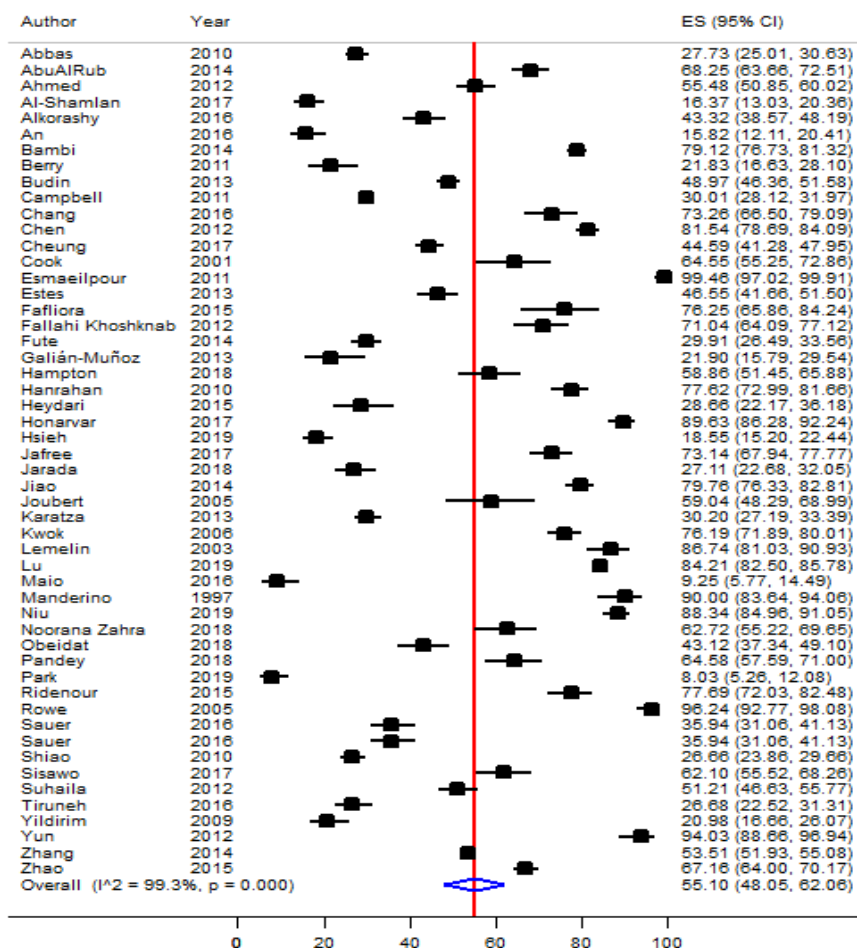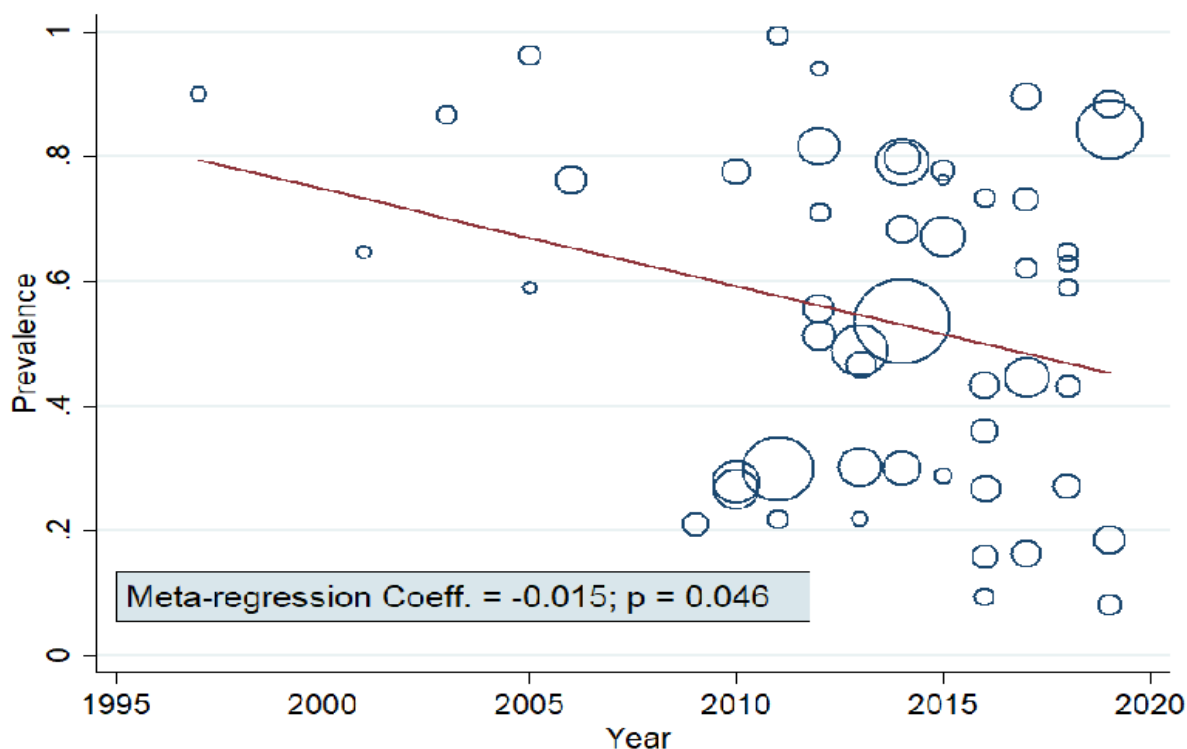

Fig. 3- Forest plot based on the population studied for the prevalence of incivility in the range of 95% confidence interval

The results of heterogeneity of the studies are presented in Tables 3 and 4. Since there

was an expressive heterogeneity in the studies, the subgroups were analyzed according to country classification, instrument, setting and sampling methods. The results demonstrated that the greatest and smallest prevalence rates of incivility pertained to verbal and sexual aspects, respectively. The prevalence of incivility was higher in studies that used random sampling, in psychiatric wards, and in developing countries. The meta-regression test indicated a correlation between publication date and the prevalence of incivility, in that the latter decreased over the recent decades (Figure 4).

Fig. 4- Forest plot based on the population studied for the prevalence of physical incivility in the range of 95% confidence interval

Discussion

This systematic review and meta-analysis assessed the prevalence of incivility and violence toward nurses by examining 60 studies. The findings of the study showed a higher-than-average rate of incivility toward nurses. The highest rate pertained to violence and verbal abuse, experienced by almost all nurses, and the lowest rate pertained to sexual violence. Moreover, the prevalence of incivility in the form of mental abuse was greater than physical violence and threat. The study by Li et al. suggested that although the rate of violence against physicians and nurses is high, the rate of incivility toward nurses is higher than physicians (84). Taylor and Rew asserted that more than 80% of nurses consider their

workplace unsafe and believe the prevalence of verbal and physical threat to be high (85). The study by Pompeii et al. revealed that the greatest rate of incivility pertained to violence and verbal threat (86). It appears that poor communication skills, devoting insufficient time to one's duties, and delay in sharing information may foster the incidence of verbal incivility. The search process showed that there were more studies targeting nurses compared to other health professionals. Even the number of studies on nursing students was greater than the studies on other groups of students. The studies showed a higher prevalence of incivility toward nurses than other healthcare staff. It seems that the more time the staff spend with patients and other individuals, the greater will the rate of incivility be (87). The behavioral patterns of managers and supervisors can also affect both employees and those who monitor their actions and help to spread the prevalence of uncivil behavior. Other possible reasons may be job insecurity or high workload along with low autonomy, which exposes a person to non-civil behavior (88).

Meta-regression based on publication date indicated that the rate of incivility and violence has decreased over time. One of the reasons that the prevalence of violence has diminished in recent years may be nurses' increased awareness of the rules and regulations in the profession, and legal mitigation and pursuit. Awareness of rules and laws enables nurses to defend their own rights and therefore reduce incivility. Nonetheless, the rate of prevalence of verbal violence has not decreased tangibly. One reason for conducting research on the

subject is raising the awareness of nurses and managers in this regard. Managers' and policymakers' awareness about their importance as role models in reinforcing polite behavior can also be effective in reducing the prevalence of non-civil behavior. Jenkins et al. found that training in the subject of incivility and its importance and consequences, as well as teaching stress management and coping strategies can help reduce the prevalence of incivility (89).

Our findings showed that most primary studies had been carried out in general hospitals on nurses in various wards, but the prevalence of incivility and violence was greater in psychiatric wards. Furthermore, the incidence of physical incivility was greater in these wards compared to other types of non-civil behavior. Verbal incivility occurred more frequently than other behaviors in the ER and ICU because ER patients experience critical situations, and it is highly important to settle their anxiety as quickly and efficiently as possible. The nature and sensitivity of the ER is such that any shortcoming in organizational and manpower factors can lead to disastrous consequences. Chaotic situations, unpredictable conditions, stressful atmospheres, and limitations in therapeutic processes for evaluating the effect of interventions and care may expose the ER staff to verbal incivility. Some studies report that nurses in the ER, mental health inpatient units, and pediatric, neurology and neurosurgery departments are subject to violence more frequently. This may well deter young nurses from working in such environments (90). It seems that the critical condition of patients admitted to these

wards, as well as the stress and anxiety of their companions, causes verbal abuse and increases the incidence of incivility in these wards.

While our findings suggested a great prevalence of incivility in developing countries, the prevalence of verbal, physical and sexual incivility was higher in developed countries. Decreased reports of sexual violence in some countries may be attributed to cultural reasons. The variety and great number of studies in different countries show that incivility and violence toward healthcare providers and caregivers are quite common in most clinical environments. Our findings demonstrated that Asian countries, especially Iran and Taiwan, had the greatest number of studies in this field. This can be due to the high prevalence of non-civil behavior in these countries, which may be attributed to personal factors as well as heavy workload, shortage of manpower, poor team-work skills, or lack of programs to manage healthcare violence (85).

In studies on sexual harassment, publication bias can occur as a result of socio-cultural factors. Physical and psychological problems, decreased motivation and commitment to the workplace, and work leave are among the consequences of sexual harassment. Organizational factors such as social support and workplace reporting systems, as well as people's vulnerability in terms of race, marital status, age, etc. can affect the reporting of this event. Studies have shown the importance of an organization's atmosphere, its sensitivity to

the issue, and its support in reducing sexual harassment and encouraging the reporting of its incidence (91).

Incivility not only creates a hostile workplace for nurses, but also forms a dangerous environment for patients, leading to diminished patient satisfaction (7). Clark and Springer concluded that inappropriate behaviors might result in medical and nursing errors and poor patient outcomes (9). On the other hand, legal mitigation by victims in hostile environments may impose some costs on hospitals. Additionally, work leave, nurse transfer and hostile environments can affect employment in the organization, and the nurse victims may seek legal consultation, possibly affecting the financial affairs, reputation and credibility of the center (7).

Consequently, incivility is associated with overwhelming healthcare costs, compensatory payments related to tension among the staff, increased numbers of legal lawsuits, and poor-quality care (91). The results of studies demonstrate that incivility is the most important factor that negatively affects occupational satisfaction among nurses (90), resulting in lack of commitment and more frequent work leaves, finally influencing quality of care, costs and organizational reputation both directly and indirectly. Members of the staff that experience incivility in the workplace deliberately reduce the quality of their work, which will lead to diminished efficacy (92,93). However, parameters such as social and organizational support, transparent rules, enhanced communication skills, increased

level of abilities and empowerment of nurses can attenuate the rate of incivility (85).

In many cases, nurses cannot pursue issues related to incivility due to absence of centers and committees for recording and managing violence, or due to individuals' request for non- pursuit of the problem. Finally, studies report that many nurses stated there was no particular place within the organization to report incivility and they were puzzled who to turn to in such conditions. Therefore, many incivility cases remain unreported. Also, junior nurses experience higher rates of incivility but cannot take appropriate action due to poorer communication skills and lack of support from their coworkers and the organization. Hence, the incidence of such behaviors is seldom substantiated in the organizational culture.

Limitations of the Study

One limitation was inaccessibility of the full texts of some of the papers, which was resolved through communication with the author(s). In addition, the diverse terms used to assess the extent of non-civil behavior have made the studies heterogeneous in this area. Lastly, the nurses' perceptions of the concept of non-civil behavior were very different.

Conclusion

The findings of the systematic review and meta-analysis showed that the prevalence of incivility toward nurses was higher than the average rate. Given the wide range of studies in terms of time, setting and environment, it appears that planners and policy-makers need to develop programs to decrease violence and increase workplace safety.

Healthcare managers and supervisors should be aware that disruptive and threatening behaviors are a serious problem in the healthcare system. For instance, verbal abuse, refusal to help the staff perform their specified duties and physical threats induce failure of teamwork and harm the interaction and cooperation required for care provision. Nurses play a highly significant role in caregiving, and therefore deserve to have a safe work environment. Consequently, nursing managers ought to identify the risk factors in the workplace and pay due attention to nurses' concerns in this regard.

In view of the high prevalence of non-verbal incivility in recent years, nursing managers should identify the risk factors in the workplace, especially in critical wards. In addition, creating a responsive and supportive organizational environment can help prevent or reduce incivility and even encourage staff to report such behaviors. Managers and policy makers should also support nurses and plan for their empowerment and education to deal with non-civil behavior and report violence. Finally, future studies should focus on identification and implementation of effective evidence-based interventions in keeping with the respective organizational culture.

Conflict of Interests

There is no conflict of interests to declare. All authors worked in close collaboration and were responsible for critical revision of the manuscript.

Competing Interests

The authors have no competing interests to declare.

Ethics Approval

Consent to participate was not applicable in this study. The research was approved by the Organizational Ethics Committee of Shahid Beheshti University of Medical Sciences (No. IR.SBMU.REC.1398.143).

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