Incivility towards nurses: A Systematic Review and Meta-analysis

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Abstract

Background

Creation and maintenance of a safe healthy work environment is one part of a nurse's role. Evidence shows there is a presence of negative behaviors like incivility and violence in the nursing profession. This systematic review and meta-analysis determined the rate of incivility towards nurses and the factors affecting it.

Methods

All observational studies that primarily investigated the rate of incivility towards nurses were selected regardless of sampling method. 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 the selected studies was assessed with Hoy's Critical Assessment Checklist. The study was undertaken using the random effects model. Data were analyzed with STATA14.

Results

Data on 61 articles, including data on 30801 individuals that were published during 1997–2019, entered the study. Prevalence of incivility was 50.10% (95%, CI: 48.05, 62.06).

Conclusion

Given the highly important role of nurses in care-giving, they deserve to have a safe working environment similar to other work milieus.

Background

Civility is defined as being polite and kind in mood 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 [2] 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 in the work environment compared to other extreme behaviors. A study by Bjorkqvist et al. (1994) showed that 32% of the participants had experienced incivility [3].

Incivility was first defined by Anderson & Pearson (1999) as "negative behaviors with low-intensity and unclear intention that damages the targeted person" [3]. Nonetheless, terms such as lateral violence, disruptive behavior, abuse, conflict, bullying, and aggression are used to describe incivility. These behaviors occur frequently in healthcare environments, lead to numerous negative consequences and can lead to more severe violence [5, 6].

Uncivil behaviors include verbal abuse, nonverbal abuse, sexual harassment, and passive aggressive behavior. Verbal abuse involves shouting, raising a voice, in a hostile manner or threatening a person verbally overt scolding or criticism, the use of insulting and disgracing words, disrespectful tones, impoliteness, sarcastic behavior, threatening,

and humiliation [7]. Nonverbal abuse includes raising the eyebrows, tightening the eyes, scowling, creating physical distance, excluding one from conversations, and/or invading someone's privacy [8].

Sexual harassment includes inappropriate behaviors that could be construed to have sexual intention, inappropriate sexual jokes, words that are sexual in nature, unwanted sexual advances, requests for sex, and accidental sexual contact [8]. Passive aggressive behaviors in the workplace can be as destructive as uncivil behaviors. Passive aggressive behaviors include lack of support for colleagues, planning to defeat the work opponent, refusing to communicate with an individual, impatience with other people's questions, and manifesting a negative attitude, all of which affect colleagues' confidence [9].

Studies on incivility in the work environment suggest that it is often produced by emotionally annoying interactions due to inappropriate demonstration of anger and anguish, being overworked, tension, lack of communication, heavy workload, occupational insecurity, organisational change, poor work organisation, differences in social power, and reciprocal relation of duties [2]. These variables, as stressors, may lead to depression and negative physical symptoms. Experience of incivility in the work environment is negatively correlated with psychosomatic health [3] and is recognised as the prerequisite for many aggressive behaviors and violence in work environment [6].

Generally, creation and maintenance of a safe work environment forms one part of the nursing role. Disruptive behaviors negatively affect patient outcomes and nursing performance. Nurses should support patients through dealing with disruptive behavior to create and maintain a safe environment for giving quality care.

Several studies examined prevalence of incivility in nurses in specific countries or regions, however, no studies have estimated the overall prevalence of nurses' incivility globally and only a few included meta-analysis. A review of previous studies showed that few studies have focused on incivility. Aazami et al.'s study (2018) investigated Iranian incivility towards nurses. The researcher in this study searched the databases "Magiran, Barakat Knowledge Network System, IranDoc, Regional Information Center for Science and Technology (RICST), Scientific Information Database (SID), Iranian National Library, PubMed/Medline, Cochrane Library, Scopus, Science Direct, ISI Web of Knowledge, CINAHL, and Google Scholar" up to 2017. In 26 studies, the rate of prevalence of variables under study including violence and verbal, physical, sexual, and racial threat in the work environment were 80.8%, 24.8%, 6.14%, and 44%, respectively [10].

The systematic review by Dalvand et al. (2018) was carried out to assess violence in Iranian nurses' work place. In addition, 22 studies were extracted from databases "IranMedex, Google Scholar, MagIran, SID, Scopus, Web of Science, PubMed, and Science Direct" and evaluated. The results showed that 74% of nurses are exposed to verbal violence and 28% to physical violence. Previous research showed high prevalence of workplace violence toward nurses [11].

The systematic review by D'ambra & Andrews (2013) was aimed at assessing the effect of incivility on recently-graduated nurses. The researchers searched CINAHL, PsychInfo, and MEDLINE-EBSCOhost to extract English papers published during 2002–2012. Sixteen papers were extracted indicating that incivility in workplace is an important predictor of low job satisfaction among beginner nurses [12].

The systematic review by Edward et al. (2017) was conducted on the correlation between workplace violence and nurses' anxiety. The databases "PsychInfo and MEDLINE-CINAHL" were searched up to 2013 and 53 papers were selected to be reviewed. The results demonstrated that nurses in emergency wards are more frequently exposed to verbal violence than other wards. The most frequent time of exposure to violence was at the point of direct care of

patients and violence was either by the patients or by their attendants. Nurses did not report the violence due to various organizational reasons [13].

The review study of sources by Hawkins et al. (2018) assessed beginner nurses' experiences with negative behaviors. The databases "CINAHL, MEDLINE, ProQuest, JBI, and Scopus" were searched for the 2007–2017 and eight qualitative and eight quantitative studies were assessed. The findings suggested that between 3% and 57% of the nurses experienced negative behaviors leading to depression, anxiety and work leave among nurses [14].

The systematic review by Zhu et al. (2019) aimed to explore incivility experience in nursing students. The databases "CINAHL, PubMed (MEDLINE), ProQuest Central, ProQuest Education Journals, ProQuest XML-Dissertations and Theses, Web of Science, Embase, EBSCO Discovery Service and PsycINFO" were searched for studies published during 1990–2018. The results showed that nursing students experienced incivility during their clinical training and the importance of the manager's role in reducing these behaviors [15].

Finally, the systematic review by Hodgins et al. (2013), aimed at assessing effective interventions for decreasing violence and incivility in workplace, was searched in "ASIA, Emerald, Ovid, JSTOR Web of Science, EBSCO: Academic Search Complete, Embase, Medline, Social Care Online, Science Direct, and Scopus". Twelve studies were investigated. The results revealed that weak interpersonal communication was one of the most important causes of incivility. Training and awareness of incivility and violence can be effective in reducing the incidence of these behaviors [16]. Consequently, our systematic review and meta-analysis answered the following question: What is the rate of incivility in Iranian nurses' workplace?

Methods

Design of the Study

This systematic review was conducted on observational studies concerning the prevalence of incivility towards nurses' workplace. To achieve the goals, the guideline "Meta-analysis of observational studies in epidemiology (MOOSE)" was used [17].

Inclusion Criteria

All observational studies (descriptive and analytical) focusing on investigation of the rate of prevalence of incivility towards nurses were selected, regardless of the sampling method they had used. 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, the studies that had used researcher-made instruments to examine incivility, repetitious studies, and non-reporting of prevalence incivility were excluded from the study. There were no limitations in the language of the studies, and free-of-charge translators like ImTranslator, Bing, Google Translate, and Applied Languages were used to translate papers into other languages.

Search Strategy

In this study, the databases "Medline (via PubMed), Embase, Scopus, Web of Science, IranDoc, and Magiran" were searched for works published during January 1, 1996 to December 31, 2019. Moreover, the studies related to these, dissertations and conference papers were searched. The search strategy is given in Medline following 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, the two researchers (SM, FA) studied the full texts of papers supposed to have reported consequences in more detail. Then, the relevant papers were outlined in a checklist.

Data such as study features including author(s), publication date, and type of journal, setting of the study, goals, 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 that consists of 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 [18]. This assessment was completed by two people independently. Any conflict was solved by debate and consensus or finally by third party intervention.

Data Analysis

Data were analysed by STATA14.0 statistical package (College Station, TX: Stata Corp LLC). The prevalence data of the studies were pooled and using "*metaprop one*" command, a pooled prevalence with a 95% confidence interval (95% CI) was reported. I^2 was used for assessing heterogeneity. Subgroup analysis and meta-regression were used for finding the potential sources of heterogeneity. The funnel plot was used to assess the small study effect (Publication bias).

Results

Description of the Studies

Firstly, 6876 studies were identified from the electronic databases. After duplicate studies were removed and those not meeting inclusion criteria, finally 61 studies are covered in this review. The number of the extracted studies in terms of databases was 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, 189 studies entered the full text reading stage, of which 128 studies were excluded due to differences in participants (69 cases) and study design (60 cases) so that finally, 61 studies entered the study (Fig. 1).

Figure 1. The search flowchart for articles in databases based on the PRISMA 2009 checklist

The 61 studies were conducted between 1997 to 2019 used 30801 participants. Characteristics of the selected works are given in Table 1. The largest and smallest participants of the studies were 3835 and 80, respectively. Most studies pertained to Asian countries (n = 34) followed by America (n = 15), Africa (n = 8), and Europe (n = 4). Among the Asian countries, Iran and Taiwan (n = 5) had the greatest number of studies. The number of studies was 30 in developed and 31 in developing countries. 19 studies used random sampling, 5 studies census sampling and 15 studies convenient sampling. Seven studies have not explained the sampling method clearly. 45 studies used cross-sectional design and 16 studies were descriptive. The minimal rate of response was 3% and the maximal rate was 100%. Three studies had not reported response rate. 6 studies were performed on psychiatrics, 6 on emergency care, and 2 on ICU. Most studies (n = 47) involved general hospitals and all wards. The most frequently used instruments were “Workplace Violence in the Health Sector” established with the cooperation of the International Labor Organization (ILO), the WHO, the ICN, and the PSI in 2003 (27 cases) and “Negative Acts Questionnaire” (eight cases).

Table 1
Studies included in the systematic review (N = 61)

ID	Author	Year	Country	Design	Instrument	Sample. Size	Quality assessment
1	Sauer	2016	United states	descriptive survey	Negative Acts Questionnaire–Revised (NAQR)	2250	Low risk
2	Heydari	2015	Iran	descriptive, cross - sectional	Perceived workplace civility climate scale (PWCC)	200	Low risk
3	Budin	2013	United states	descriptive survey	Verbal Abuse Scale (VAS) developed by Manderino and Banton	2007	Low risk
4	Lu	2019	China	cross-sectional	workplace violence scale developed by Chen ZH's group	2124	Low risk
5	Tsukamoto	2019	Brazil	cross-sectional	Assessing violence in work suffered or witnessed by nursing staff developed by Bordignon and Monteiro	242	Low risk
6	Jaradat	2018	Palestine	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	372	Low risk
7	Cheung	2017	Hong Kong	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	16082	Low risk
8	Boafo	2015	Ghana	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	1021	Low risk
9	Alkorashy	2016	Saudi Arabia	cross-sectional	Workplace Violence/ Abuse conducted by the Massachusetts Nurses Association Congress	500	Low risk
10	Fute	2014	Ethiopia	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	660	Low risk
11	Baran Aksakal	2011	Turkey	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	650	Low risk
12	Abou-ElWafa	2015	Egypt	cross-sectional comparative	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	286	Low risk
13	Bambi	2014	Italy	cross-sectional	LH questionnaire developed by Alspach	1504	Low risk
14	Galián-Muñoz	2013	Spain	descriptive study	HABS-U scale (Hospital Aggressive Behavior Scale-User)	200	Low risk

ID	Author	Year	Country	Design	Instrument	Sample. Size	Quality assessment
15	Lemelin	2003	Canada	descriptive	Workplace Violence Events Questionnaire by Anderson (2002)	300	Low risk
16	Manderino	1997	United states	descriptive-correlational design	Verbal Abuse Scale (VAS)	300	Low risk
17	Chen	2012	Taiwan	descriptive-correlational design	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	1004	Low risk
18	Suhaila	2012	Malaysia	cross-sectional	Utara Sexual Harassment Questionnaire (USHQ) by Sabitha	455	Low risk
19	Khademloo	2013	Iran	cross-sectional	Staff Observation Scale Revised (SOAS-R) by Nijman and colleagues	440	Low risk
20	Fallahi Khoshknab	2011	Iran	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	200	Low risk
21	Berry	2011	United states	descriptive cross-sectional survey	Negative Acts Questionnaire–Revised (NAQR)	5000	Low risk
22	Ahmed	2012	Jordan	cross-sectional descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	500	Low risk
23	Pai	2011	Taiwan	cross-sectional descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	700	Low risk
24	AbuAlRub	2008	Jordan	descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	496	Low risk
25	Hsieh	2016	Taiwan	cross-sectional	Negative Acts Questionnaire–Revised (NAQR)	550	Low risk
26	Hampton	2018	United states	cross-sectional descriptive	Negative Acts Questionnaire–Revised (NAQR)	175	Low risk
27	Zhao	2015	China	multi-stage cross-sectional	Workplace Violence Scale (WVS) developed by Schat (Schat & Kelloway, 2003	1013	Low risk
28	Noorana Zahra	2018	Indonesia	cross-sectional descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	245	Low risk Low risk
29	Zhang	2014	China	cross-sectional descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	4123	Low risk

ID	Author	Year	Country	Design	Instrument	Sample. Size	Quality assessment
30	Karatza	2013	Greece	cross-sectional descriptive	Negative Acts Questionnaire–Revised (NAQR)	1000	Low risk
31	Jafree	2013-4	Pakistan	cross-sectional descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	804	Low risk
32	Ridenour	2015	United states	cross-sectional descriptive	Negative Acts Questionnaire–Revised (NAQR)	284	Low risk
33	Estes	2013	United states	anonymous mail survey	Organizational deviance scale developed by Bennett and Robinson (2000)	1524	Low risk
34	Esmaeilpour	2011	Iran	cross-sectional descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	196	Low risk
35	Fujishiro	2011	Philippines	cross-sectional	(ANA's) 2001 Health and Safety Survey	1000	Low risk
36	Abbas	2010	Egypt	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	1600	Low risk
37	Shiao	2010	Taiwan	cross-sectional	Rosenberg et al. (1992) and the National Crime Victimization Survey (NCVS) (Warchol	1228	Low risk
38	Yildirim	2009	Turkey	cross-sectional	Nurses' Perception of Bullying In the Workplace, Developed By Dilek & Aytolan (2008)		Low risk
39	Joubert	2005	South Africa.	cross-sectional	Verbal Abuse Scale developed by Manderino	120	Low risk
40	Honarvar	2017-8	Iran	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	420	Low risk
41	Yun	2012	Korea	cross-sectional	Negative Act Questionnaire-Revised (NAQ-R)	170	Low risk
42	Maio T	2015	Azorean Island	descriptive-correlational design	Negative Act Questionnaire-Revised (NAQ-R)		Low risk
43	Jiao	2013	China	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	700	Low risk
44	park M, Choi J.S	2018	Korea	cross-sectional	farley wokplace cyberbullying measuremennt	260	Low risk

ID	Author	Year	Country	Design	Instrument	Sample. Size	Quality assessment
45	Niu	2019	Taiwan	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	480	Low risk
46	Obeidat	2018	Amman	cross-sectional	Negative Act Questionnaire-Revised (NAQ-R)	340	Low risk
47	Pandey	2018	Nepal	descriptive cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	200	Low risk
48	Al-Shamlan	2015	Saudi Arabia	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	450	Low risk
49	Sisawo	2014	Gambia	quantitative and qualitative designs	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	223	Low risk
50	Chang	2012-3	Korea	a cross-sectional survey	Copenhagen Psychosocial Questionnaire (COPSOQ II)	391	Low risk
51	Sauer	2016	United States	cross-sectional descriptive	Negative Acts Questionnaire–Revised (NAQR)	2250	Low risk
52	An	2014	Korea	descriptive correlational	Negative Acts Questionnaire-Revised (NAQ-R)	380	Low risk
53	Tiruneh	2015	Ethiopia	hospital based cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	428	Low risk
54	Fafliora	2014	Greece	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	120	Low risk
55	Kwok	2003-4	Hong Kong	Cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	1650	Low risk
56	Rowe	2005	United States	descriptive	Verbal Abuse Scale (VAS)	307	Low risk
57	Campbell	2011	united States	cross-sectional	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	4165	Low risk
58	Hanrahan	2010	united states	cross-sectional	Practice Environment Scale–Nursing Work Index (PES-NWI	688	Low risk
59	May	2002	united states	descriptive, comparative	Hospital Assault Survey for Nurses was developed for this study by Deborah	125	Low risk

ID	Author	Year	Country	Design	Instrument	Sample. Size	Quality assessment
60	Dehghan-Chaloshtari	2014	Iran	descriptive	Workplace Violence in the Health Sector by ILO/ICN/WHO/PSI/2003	100	Low risk
61	Cook	2001	united states	descriptive	Verbal Abuse Scale	200	Low risk

Risk of Bias and Publication Bias

The qualitative assessment of the studies by Hoy et al.'s instrument showed low rate of statistical bias in the studies (Table 2). As shown in Fig. 2,3,4 and based on Egger test, there was no publication bias among the studies ($P > 0.05$).

Table 2
Subgroup analysis of incivility prevalence

Total	Subgroup	Number of studies	Prevalence	(95% CI)	Heterogeneity % (p- value)
	Country classification				
	Developed	**33**	**52.14**	**42.77, 61.44**	**% 99.24 (< 0.001)**
	Developing	**19**	**60.19**	**49.58, 70.34**	**% 99.25 (< 0.001)**
	Instrument				
	WHO	**22**	**60.68**	**50.49, 70.42**	**99.31 (< 0.001) %**
	NAQ	**11**	**39.68**	**26.24, 53.96**	**98.59 (< 0.001) %**
	Verbal scale	**5**	**74.47**	**48.23, 93.67**	**98.81 (< 0.001) %**
	Other	**14**	**51.16**	**36.46, 65.76**	**99.39 (< 0.001) %**
	Setting				
	General	**40**	**47.47**	**40.57, 45.42**	**%99.07 (< 0.001)**
	Emergency/acute care	**8**	**77.90**	**59.81, 91.77**	**% 98.38 (< 0.001)**
	Psychiatric	**6**	**80.50**	**75.12, 85.37**	**% 89.53 (< 0.001)**
	Sampling methods				
	Random	**27**	**87.58**	**52.49, 92.67**	**%99.36 (< 0.001)**
	Convenience	**20**	**10.53**	**53.41,50.64**	**99.02 (< 0.001)%**
	Not reported	**5**	**58.42**	**42.11,52.77**	**99.59 (< 0.001) %**
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)

CI: Confidence interval

	Psychiatric	6	60.25	41.67, 77.43	%99.12 (< 0.001)
	Sampling methods				
	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 methods				
	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)

CI: Confidence interval

	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 methods				
	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					

However, there was some publication bias regarding the prevalence of incivility in sexual incivility and mobbing ($P < 0.05$) (Fig. 5, 6).

Fig.5. Forest plot based on the population studied the prevalence of sexual incivility in the range of 95% confidence interval

Fig.6. Forest plot based on the population studied the prevalence of mobbing in the range of 95% confidence interval

Results Of Meta-analysis Of The Studies

Based on the results displayed in Table 2, there was high heterogeneity of the studies. Hence, the random effects model with reverse variance was used. In this way, the total prevalence of incivility was 55.10% (95% CI: 48.5, 62.06), the prevalence of verbal, physical, and sexual incivility and mobbing behavior was 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 (Fig. 7, 8, 9, 10, and 11).

Figure 7 – Funnel plot of publication bias of studies of the prevalence of incivility

Figure 8 – Funnel plot of publication bias of studies of the prevalence of verbal incivility

Figure 9– Funnel plot of publication bias of studies of the prevalence of physical incivility

Figure 10 – Funnel plot of publication bias of studies of the prevalence of sexual incivility

Figure 11 . Funnel plot of publication bias of studies of the prevalence mobbing

The results of heterogeneity of the studies are presented in Table 2. Since there was an expressive heterogeneity among the studies, the subgroups were analysed. The results demonstrated that the greatest and smallest prevalence rates of incivility pertained to the verbal and sexual aspects. The prevalence of incivility was higher in the

studies that used random sampling than other studies, in psychiatric wards than other wards, and more so in developing countries than developed countries. The accumulation curve of the studies is displayed in Figs. 7, 8, 9, 10, and 11. The meta-regression test indicated a correlation between publication date and prevalence of incivility, so that its prevalence has decreased over the recent decades (Fig. 12).

Discussion

This systematic review and meta-analysis assessed the prevalence of incivility and violence in nurses using 61 studies. The findings of the study showed a higher than average rate of incivility among nurses. The highest rate belonged to violence and verbal abuse, experienced by almost all nurses during their work experience. Moreover, the prevalence of incivility as mental violence was greater than physical violence and threat. The least rate belonged to sexual violence. The search process showed that studies targeting nurses were more numerous than those targeting other health professions and that the number of studies on other health professions was significantly smaller than the studies on nurses. The number of studies on nursing students was greater than the studies on other groups. The studies showed a higher prevalence of incivility among nurses than other healthcare staff. It appears that the more time the staff spends with patients and other individuals, the greater the rate of incivility will be [19]. The study by Li et al. (2018) suggested that although the rate of violence against physicians and nurses is high, the rate of incivility towards nurses is higher than that among physicians [20].

Taylor et al. asserted that more than 80% of nurses render their workplace as unsafe and that the prevalence of verbal and physical threat is high among nurses [21]. A study conducted by Duncan study reported incivility towards nurses higher than 46% and stated that one-third of nurses have been exposed to physical violence. This study reported that 100% of ER nurses have been exposed to verbal violence and more than 80% to physical violence [22].

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 decreased in recent years can be attributed to increased nurses' awareness of their professional rules and regulations and legal mitigation and pursuit. Awareness of rules and law enables nurses to defend their own rights and therefore diminishing incivility. Nonetheless, the rate of prevalence of verbal violence has not decreased tangibly. The study by Pompeii et al. (2015) and Hsieh et al. (2017) revealed that the greatest rate of incivility belonged to violence and verbal threat [23]. It appears that poor communication skills, devoting insufficient time, and lack of prompt sharing of information may foster the incidence of verbal incivility. The findings of the study showed that most primary studies were carried out on general hospitals and nurses in various wards; yet, the prevalence of incivility and violence was greater in psychiatric wards than other wards. Furthermore, the incidence of physical incivility was greater in these wards compared to other types of incivility. Verbal incivility was more frequent in the ER and ICU wards compared to other behaviors because ER patients are experiencing a critical situation and it is highly important to settle their situation as quickly and efficiently as possible. The nature and sensitivity of ER means that any shortcoming in organisational and manpower factors would lead to disastrous consequences. Chaotic situation, unpredictable situations, stressful atmospheres, limitations in therapeutic processes for evaluating the effect of therapeutic interventions and care given may predispose ER staff to verbal incivility. Some studies report that nurses in pediatrics, ER, mental health inpatient units, neurology and neurosurgery departments are more frequently exposed to violence. This may result in diminishing intent young nurses to work in such environments [24].

Our findings suggested the greater prevalence of incivility in developing countries; yet, the prevalence of verbal, physical, and sexual incivility was higher in developed countries. Decreasing reports of sexual violence in these countries may be attributed to cultural reasons. The variety and great number of studies in different countries show

that most clinical environments are exposed to the prevalence of incivility and violence among healthcare providers and caregivers. Still, the findings of the study demonstrated that the Asian countries, especially Iran and Taiwan, had the greatest number of studies in this field. This may be attributed to personal factors as well as heavy workload, shortage of manpower, low skills for team work, or lack of management programs for healthcare violence [21].

Publication bias in studies of sexual harassment can be due to socio-cultural factors. Physical and psychological problems, decreased motivation and commitment to the workplace, consequently leaving work are the consequences of sexual harassment. Organisational factors such as social support and workplace reporting systems, as well as the vulnerability of people such as race, marital status, age, etc. can affect the reporting of this event. Studies show that the atmosphere of the organisation, the sensitivity of the organisation, its support in reducing sexual harassment and encouraging reporting of sexual harassment are effective [25].

Incivility not only creates a hostile milieu for nurses, but forms a dangerous environment for patients leading to diminished patient satisfaction [8]. Clark and Springer concluded that inappropriate behaviors may predispose the incidence of 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, the spread of hostile environments can affect employment in the organisation and the nurse victims may seek legal consultation possibly affecting the financial affairs, reputation, and credibility of the center [8].

Consequently, incivility is associated with overwhelming costs of healthcare, increased compensatory payments related to tension with the staff, increased number of legal pursuits, and reduced quality of care given to patients [26]. The results of studies demonstrate that incivility is the most important factor in nurses' occupational satisfaction [24] resulting in reduced responsibility, reduced commitment, increased work leave in nurses that finally influences quality of care, costs and organisational reputation both directly and indirectly. The personnel that experience incivility in workplace deliberately reduce the quality of their work leading to diminished efficacy [27, 28]. However, some parameters such as social support, organisational support, presence of transparent rules, enhanced communicative skills, increased level of skills and power in nurses can attenuate the rate of incivility [21].

In many cases, nurses cannot persue the problems due to absence of centers, committees for managing and recording the incident violence, or due to individuals' request for pursuit of the problem. Finally, studies report that many nurses stated that there is no site or place in the organisation to report incivility and they are puzzled where to turn to in such conditions. So, many of incivility cases remain unreported. Specifically, junior nurses that experience higher rates of incivility cannot take any appropriate measures in these conditions due to lack of support by coworkers, organisation and poor communication skills. Hence, the incidence of such behaviors is substantiated in the organisational culture.

Limitations Of The Study

One limitation was inaccessibility of full texts of some papers that was resolved through communicating with the author(s). In addition, the use of different and diverse terms to assess the extent of non-civil behavior has made the studies heterogeneous in this area. Nurses' perceptions of the concept of non-civic behavior were very different.

Conclusion

The findings of this systematic review and meta-analysis showed that there was a higher than average rate of incivility among nurses. Given the wide range of studies regarding various time, setting, and environments, it

appears, that planners and policy-makers should develop programs to decrease violence and increase workplace safety. The healthcare managers and supervisors are aware that disruptive and threatening behavior is a serious problem in the healthcare system. Verbal abuse, refusing to contribute to determined duties and physical threats induce failure of teamwork, interaction and the cooperation required for care provision. Given the highly significant role of nurses in care giving, they deserve to have a safe work environment, similar to other workplaces. Consequently, nursing managers ought to identify the risk factors in the workplace and pay due attention to nurses' concerns in this regard. Finally, future studies should focus on identification and implementation of effective evidence-based interventions based on organisational culture.

Systematic review and meta-analysis findings showed that the prevalence of incivility behaviors among nurses was the higher than average rate. Given the high prevalence of non-verbal behavior and its non-reduction in recent years, nursing managers should identify risk factors in the workplace, especially in the emergency department. Verbal, physical, sexual, and psychological abuse leads to failure in teamwork, interaction and collaboration to provide care to the patient. Given the crucial role nurses play in caring for themselves, they, like other workplaces, have the right to a safe environment. Considering that creating a responsive and supportive organisational environment can help prevent and reduce non-civil behavior and even encourage staff to report a variety of behaviors. To support and plan for empowering and educating nurses to deal with violence and report violence created. Studies should also be designed and implemented to identify and evaluate evidence-based interventions and organisational culture.

Abbreviations

Not applicable

Declarations

There is no conflict of interest to disclose. We did not have the funds. All authors, were in close collaboration and responsible for critical revisions of the manuscript.

Ethics approval and consent to participate

In this study consent to participate not applicable. The research was approved by the organisational ethics committee of Shahid Beheshti University of Medical Sciences (no. IR.SBMU.REC.1398.143).

Availability of data and materials

The authors declare that data supporting the findings of this study are available within the article and its supplementary information files.

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Conflict of interest

There is no conflict of interest in this study.

Competing interests

The authors have no competing interests to declare.

Authors' Contribution

SM and FA did the planning and design of the study. Electronic search in databases was done by SM, and AB rechecked search terms and syntaxes. GR, contributed significant text and native translation. All authors, FA, SM, AB, GR, were in close collaboration and responsible for critical revisions of the manuscript. All authors read and approved the final manuscript.

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Figures

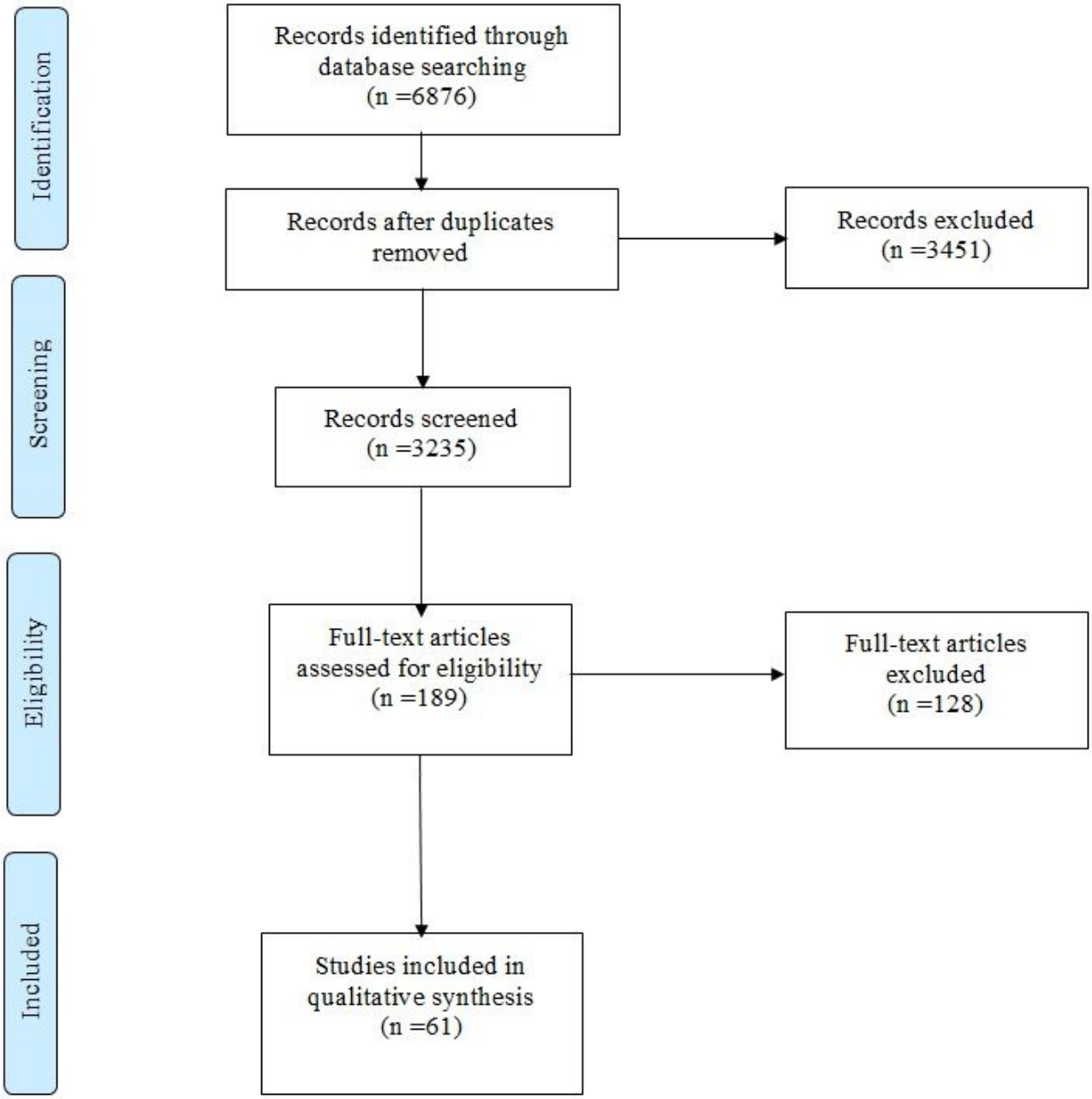

Figure 1

The search flowchart for articles in databases based on the PRISMA 2009 checklist

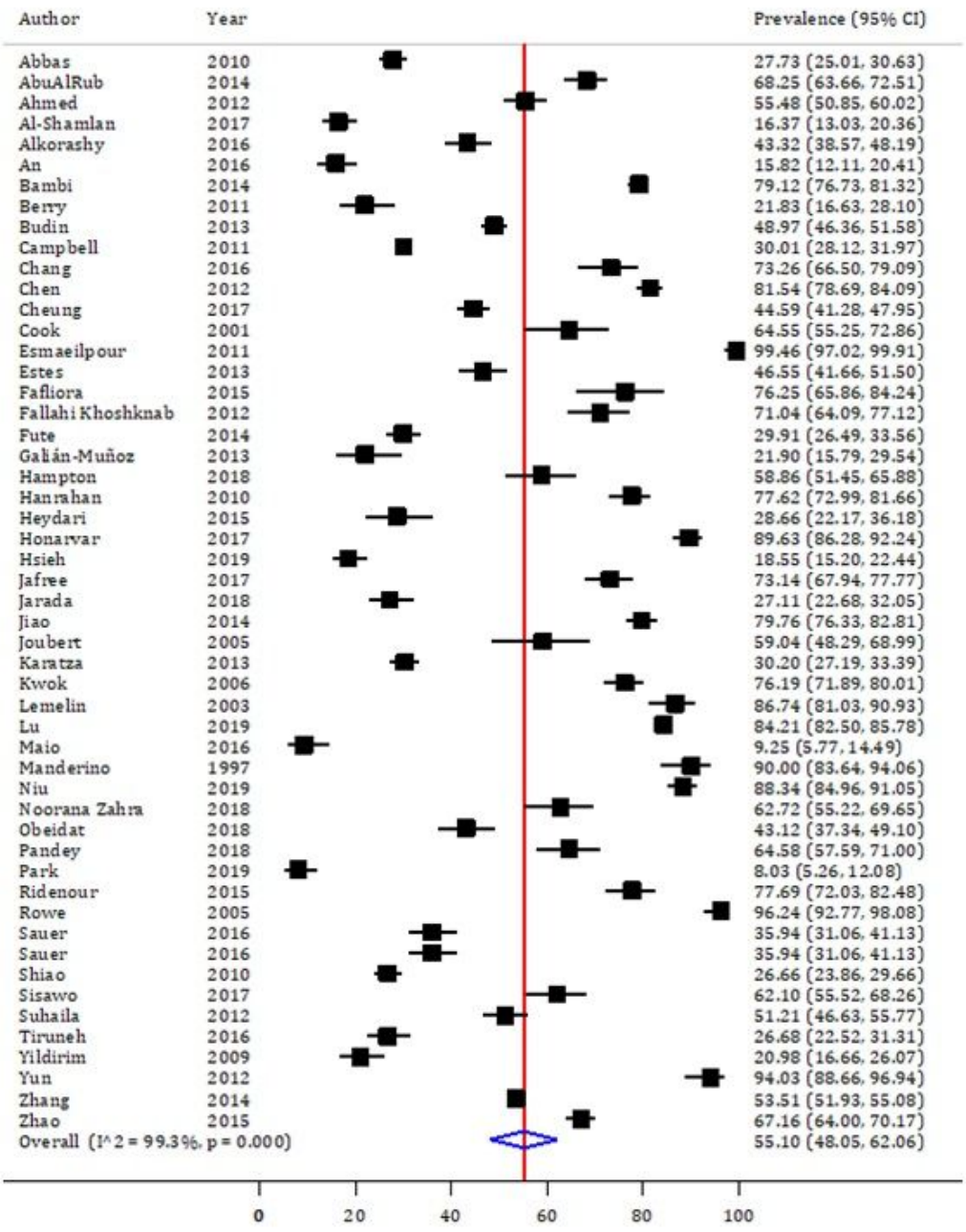

Figure 2

Forest plot based on the population studied the prevalence of incivility in the range of 95% confidence interval

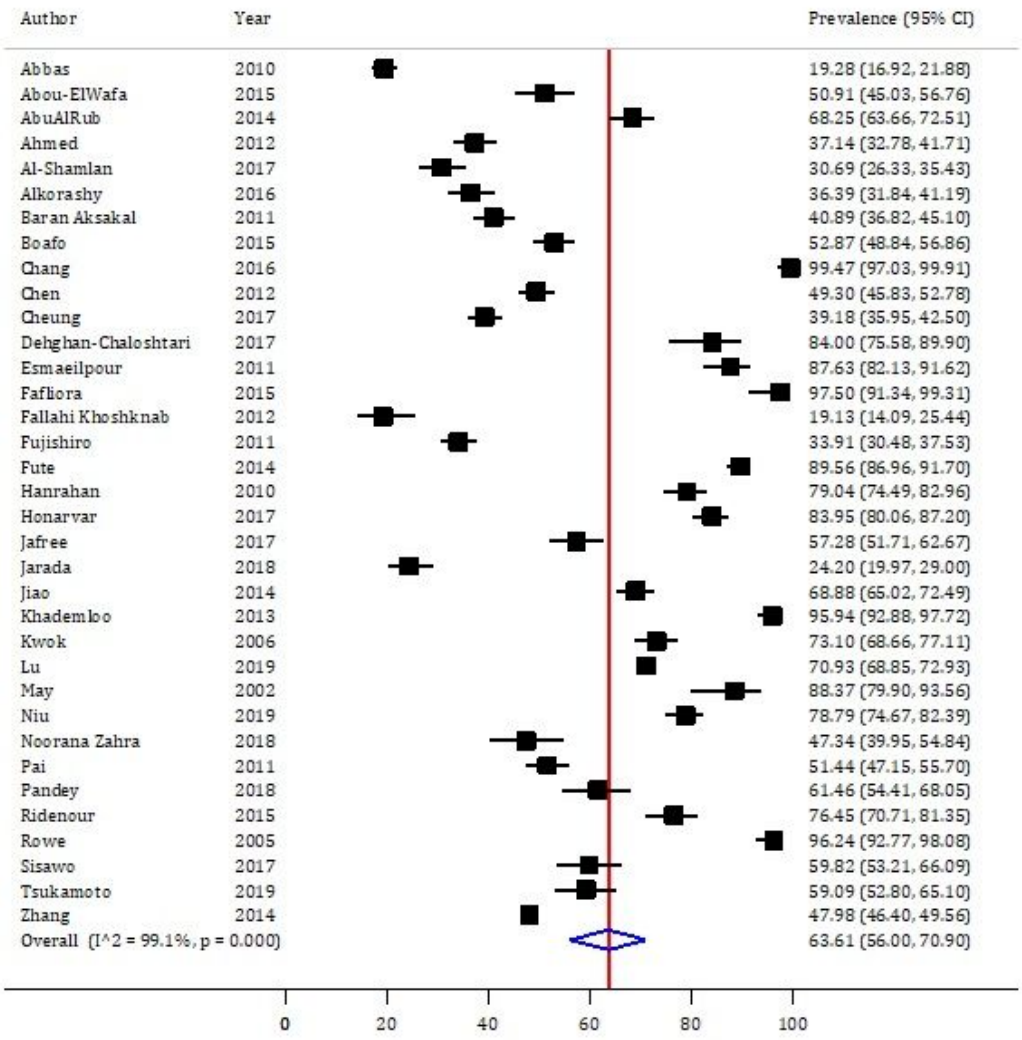

Figure 3

Forest plot based on the population studied the prevalence of verbal incivility in the range of 95% confidence interval

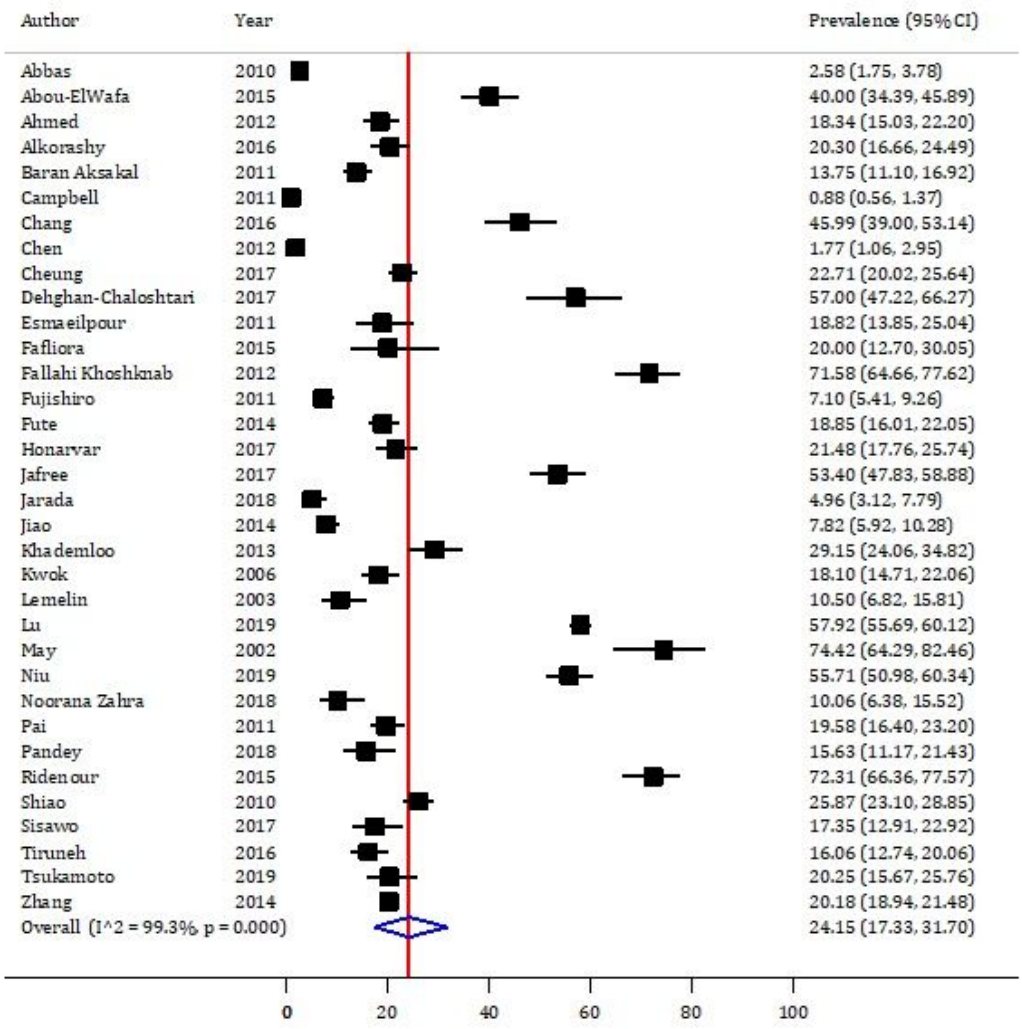

Figure 4

Forest plot based on the population studied the prevalence of physical incivility in the range of 95% confidence interval

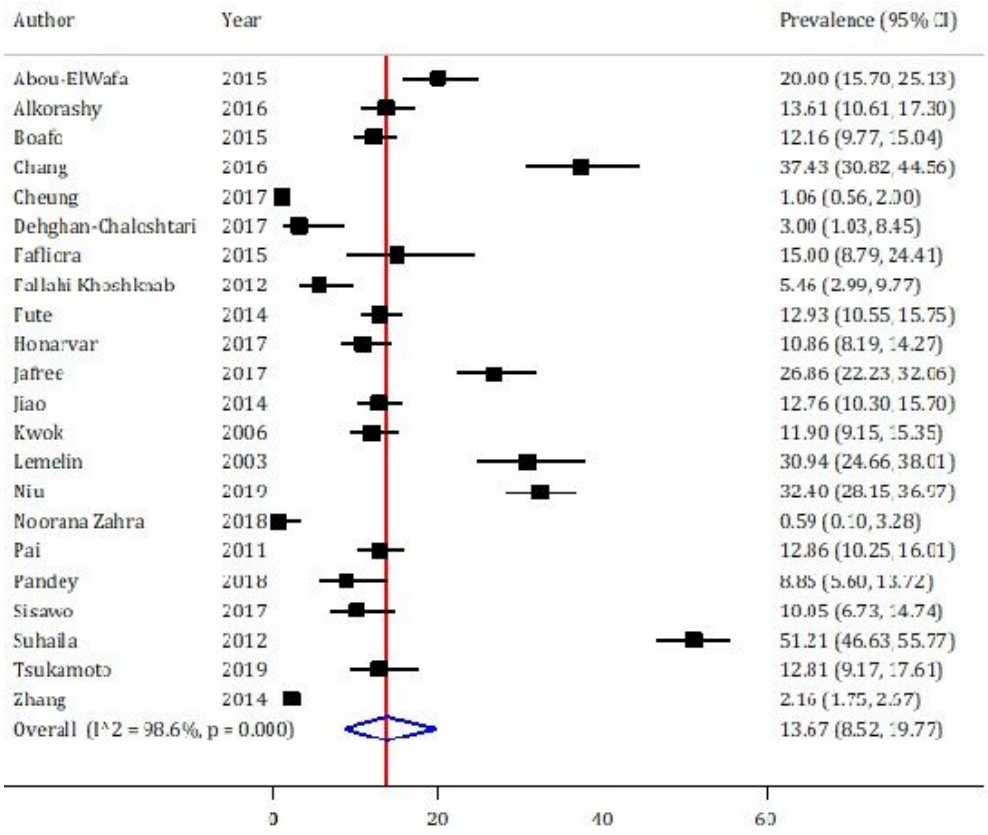

Figure 5

Forest plot based on the population studied the prevalence of sexual incivility in the range of 95% confidence interval

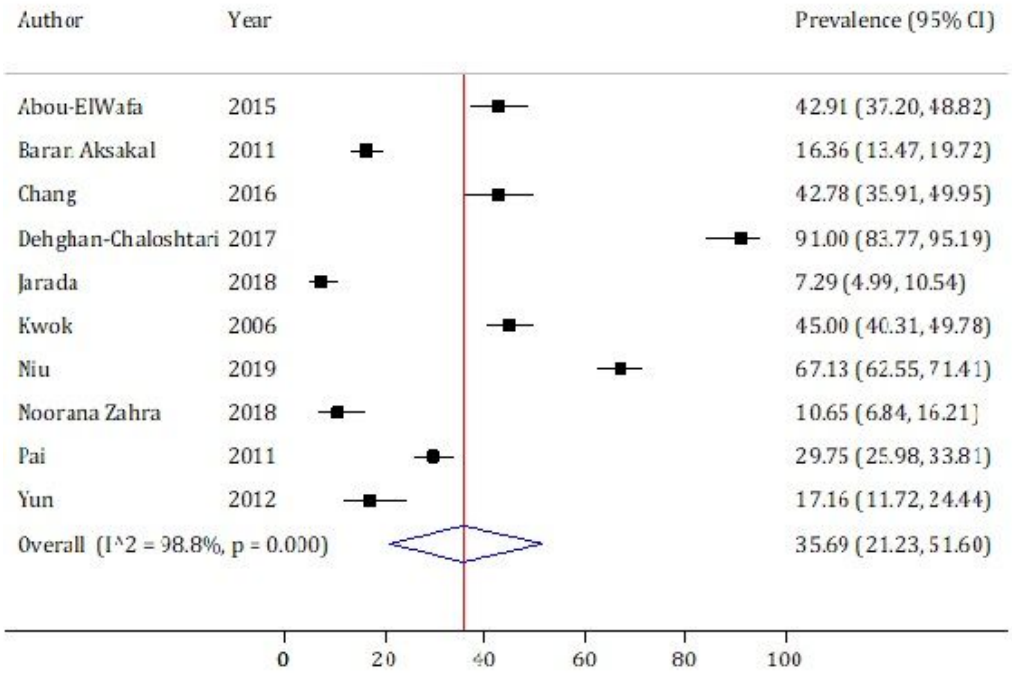

Figure 6

Forest plot based on the population studied the prevalence of mobbing in the range of 95% confidence interval

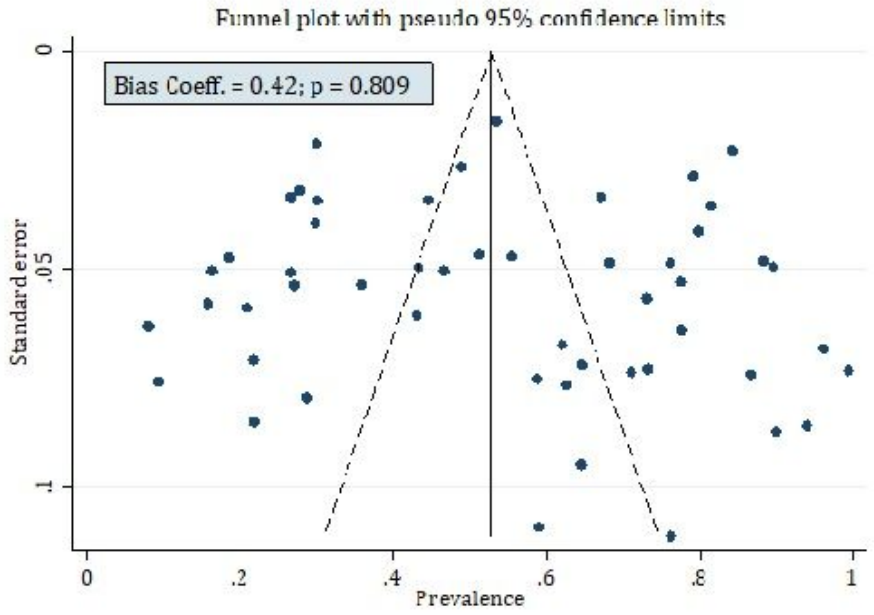

Figure 7

Funnel plot of publication bias of studies of the prevalence of incivility

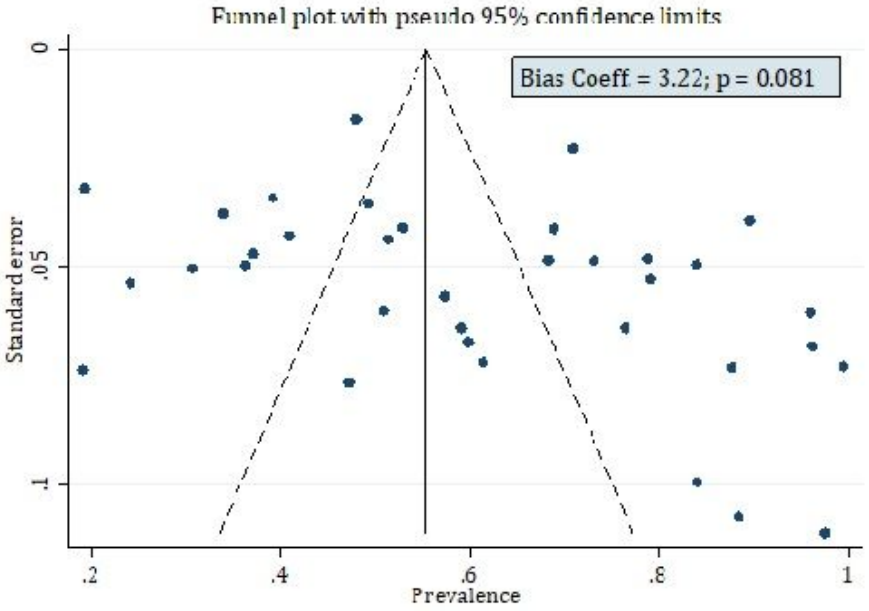

Figure 8

Funnel plot of publication bias of studies of the prevalence of verbal incivility

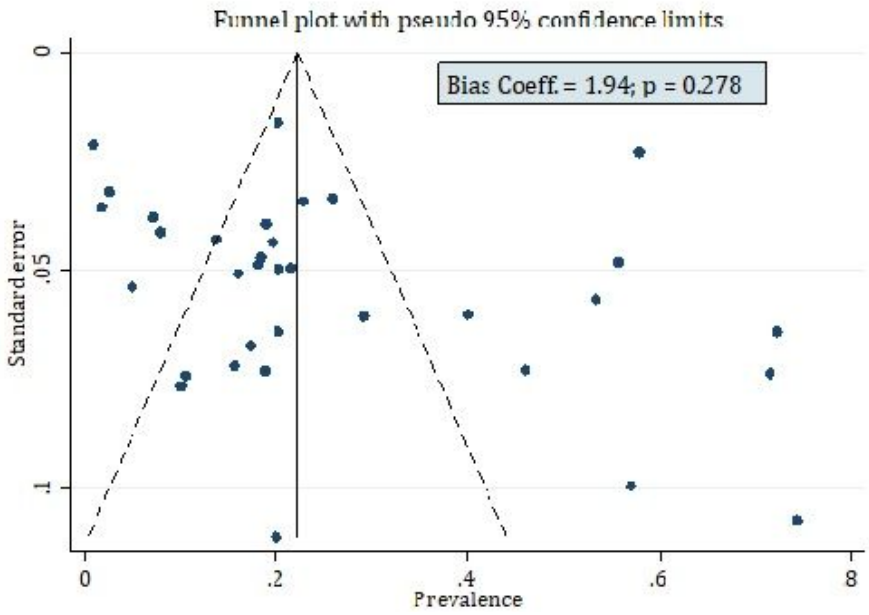

Figure 9

Funnel plot of publication bias of studies of the prevalence of physical incivility

Figure 10

Funnel plot of publication bias of studies of the prevalence of sexual incivility

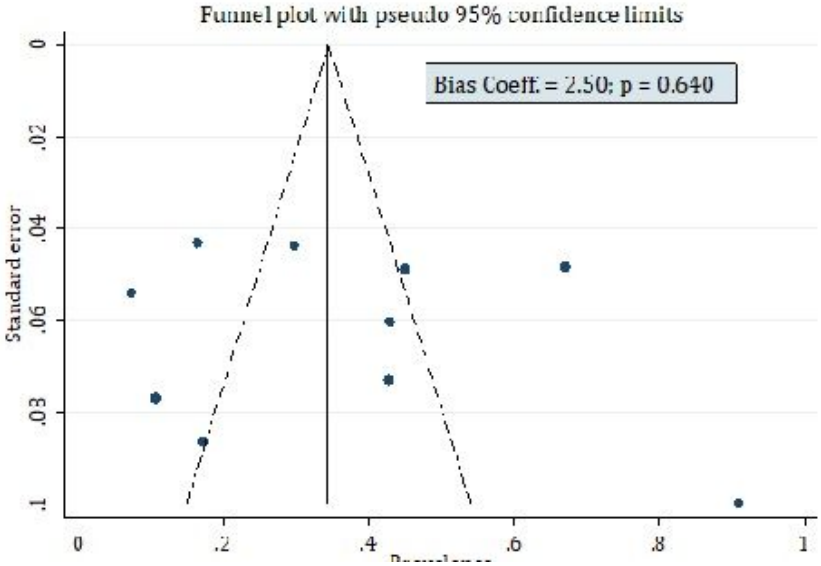

Figure 11

Funnel plot of publication bias of studies of the prevalence mobbing

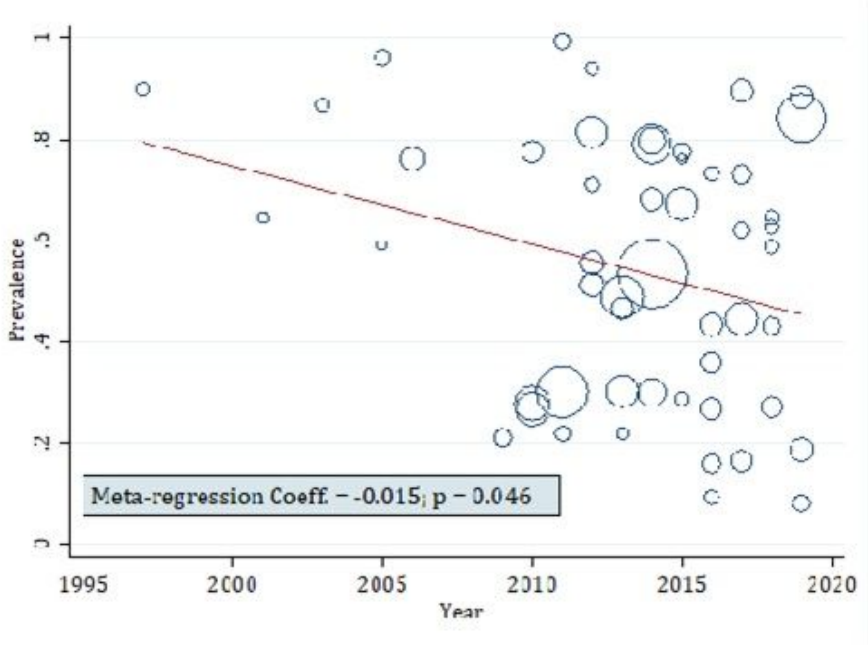

Figure 12

Metaregression of Prevalence of incivility based on year of publication