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REVIEW ARTICLE

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Workplace violence and the risk of post-traumatic stress disorder and burnout among nurses: A systematic review and meta-analysis

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Abstract

Aim: This review examined the association between workplace violence and the risk of post-traumatic stress disorder (PTSD) and burnout among nurses.

Background: The extent to which workplace violence is associated with an increased risk of PTSD and burnout in nurses remains unclear.

Evaluation: We searched nine electronic databases (PubMed, Cochrane, Embase, Web of Science, CINAHL, PsycINFO, Chinese Biomedical, China National Knowledge Internet and WANFANG).

Key issues: Overall, 114 full-text studies were identified; 43 met the inclusion criteria, of which 10 were included in the meta-analysis. Compared to their counterparts with non-exposure to workplace violence, nurses experiencing it had 2.13 and 2.25 times higher odds of reporting PTSD and burnout after adjusting the confounding factors. Additionally, the moderator and mediator factors might help reduce the risk of both in this population.

Conclusion: This study indicated that workplace violence increases the risk of PTSD and burnout.

Implications for Nursing Management: Our review identified the magnitude of the association between exposure to workplace violence and the reported symptoms of PTSD and burnout in nurses. Furthermore, multi-targeted efforts directed at the identified social/organizational, task-related and individual resources might help mitigate their harmful impact in the aforementioned population.

KEYWORDS
burnout, meta-analysis, nurses, post-traumatic stress disorder, workplace violence

Jinfeng Wang, Qinglin Zeng and Yuqiang Wang are co-first authors.

1 | INTRODUCTION

In the health care section, workplace violence (WPV) is a universal and persistent problem of both developed and developing countries (Liu et al., 2019). The World Health Organization defines it as 'the incidents where staff is abused, threatened or assaulted in circumstances related to their work, involving an explicit or implicit challenge to their safety, well-being or health' (World Health Organization [WHO], 2021). Its presentation varies from physical to psychological harm, including attacks, verbal abuse, bullying and sexual and racial harassment (Wiskow, 2003). Furthermore, according to violence's origin, the National Institute for Occupational Safety and Health classified WPV into four types: criminal intent; employees by patients, their family members and visitors; violence between co-workers; and personal relationship.

The health care WPV's proportion has continued to increase sharply (Havaei et al., 2020; Shi et al., 2020; Xu, 2014). Most studies have reported that nurses are undoubtedly the most affected occupational group regarding all forms of WPV because of the work's busy nature and the complex and demanding working conditions (Aljohani, 2021; Hilton et al., 2022; Stahl-Gugger & Hämmig, 2022). Evidence has demonstrated that 55.7% to 95.5% of nurses are constantly exposed to at least one type of WPV. Furthermore, on average, over 70% of nurses encounter WPV's multiple types from various sources at least monthly (Havaei et al., 2020). Of these, the most common perpetrators are customers/clients, accounting for over 90% of the WPV towards nurses (Aljohani et al., 2021; Havaei et al., 2020).

Exposure to traumatic events such as WPV adversely affects the victims' physical outcomes and causes their psychological depletion; it puts them at a greater risk of developing mental health and performance issues (Lanctôt & Guay, 2014; May & Wisco, 2016; Spector et al., 2014). With a cumulative exposure to one or more types of WPV, the risk of mental health problems has also increased (Kobayashi et al., 2020). This cumulative effect results in occupational post-traumatic stress disorder (PTSD) and burnout, contributing to a lower quality of care and nurses leaving the profession (Akbolat et al., 2021; Choi & Lee, 2017; Kobayashi et al., 2020; Li et al., 2019; Na et al., 2019).

PTSD is defined as a protracted response to a stressful event or a life-threatening situation that can have an immediate or delayed onset (WHO, 2019). Maslach and Jackson have defined burnout as a 'response to prolonged and chronic stress in the workplace, characterized by three dimensions: emotional exhaustion, depersonalization, and reduction of personal abilities' (Maslach & Jackson, 1981). The available evidence has suggested the existence of the associations between WPV and the symptoms of PTSD and burnout among nurses (Giménez Lozano et al., 2021; Hilton et al., 2022); however, the extent to which WPV is associated with an increased risk of PTSD and burnout remains unclear. Moreover, two qualitative systematic reviews only partly explained WPV and the risk and protective factors for the nurses' PTSD and burnout (Giménez Lozano et al., 2021; Hilton et al., 2022); accordingly, no quantitative meta-analysis has been conducted thus far. Therefore, we aimed to qualitatively and quantitatively summarize the data on the categorical association between WPV and the risk of PTSD and burnout in nurses.

2 | METHODS

This systematic review and meta-analysis was designed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (Page et al., 2021; Yao et al., 2020). The protocol was registered in PROSPERO.

2.1 | Search strategies

Overall, nine electronic databases (PubMed, Cochrane, Web of Science, Embase, CINAHL, PsycINFO, CBM, CNKI and WANFANG) were searched from the database inception to 18 October 2021. Our search strategy used the identified keywords and index terms adapted to different databases: 'nurse', 'workplace violence', 'post-traumatic stress disorder' and 'burnout'. A supporting information file presents detailed search strategies (see Supplementary Information S1). Additionally, we manually scrutinized the reference lists of the eligible articles and conducted a free search in Google Scholar in an attempt to include all relevant studies.

2.2 | Eligibility criteria

The inclusion criteria were as follows:

i. Participants: Nurses, licenced practical nurses, nursing, nursing staff, nursing assistants and nurses' aides. If the groups had a mixed sample, the nurses accounting for more than 60% of the sample or stratified by occupation could be extracted separately;
ii. Exposure group: at least one type of WPV;
iii. Outcomes: Symptoms of PTSD and burnout, or met their diagnostic criteria;
iv. The publication language was limited to English or Chinese;
v. Observational studies.

The exclusion criteria were as follows:

i. Articles on qualitative reports, expert opinions, reviews (literature and systematic) and meta-analyses;
ii. Full-texts unavailable;
iii. Duplicate studies.

2.3 | Study selection and data extraction

The duplicates were removed using EndNote version 20. Subsequently, the remaining studies were imported into Rayyan (web application) for screening (Ouzzani et al., 2016). The reviewers double-

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blindly assessed each study based on the title and abstracts and carefully identified the full-text reviews. During this process, discrepancies were mutually discussed with a senior reviewer until a consensus was reached. Ultimately, the following information was extracted by two reviewers: descriptive information (author, year of publication, country, sample size, age, measurement tool, the WPV's prevalence and type, the prevalence and cut-offs of PTSD and burnout, exposure time and department), mediators and moderators. The odds ratios (*OR*) and the 95% confidence intervals (*CI*) were also calculated.

2.4 | Assessment of the quality

Several independent observers used the Agency for Healthcare Research and Quality recommended 11 items to assess the quality of the cross-sectional studies (Rostom et al., 2004; Zeng et al., 2015). Each of the 11 items were rated as yes, no or unclear (1, 0 and 0, scores respectively). The total score ranged from 0 to 11. A score of 8, 4–7 and <4 was defined as 'high', 'medium' and 'low', respectively. The Newcastle-Ottawa Quality Assessment Scale was employed to assess the cohort studies (Wells et al., 2000); it ranged from 0 to 9 points, with a score of ≥7 classified as high-quality (Lo et al., 2014). Two authors independently scored all studies; moreover, disagreements were resolved in a consensus meeting with a third reviewer.

2.5 | Data synthesis

We performed a qualitative evaluation according to the characteristics of the included studies, conducted this meta-analysis using the STATA software (version 16.0), and calculated a summary risk estimate across all studies grouped by violence exposure with the outcomes. The between-study heterogeneity was estimated using the I^2 statistic. The I^2 values of 0%–25%, 25%–50%, 50%–75%, and 75% and above were regarded as no, low, moderate, and high heterogeneity, respectively (Higgins et al., 2003).

3 | RESULTS

3.1 | Search results summary

Initially, 1236 relevant articles were obtained from the nine electronic databases. After screening 935 titles/abstracts and 114 full-text studies identified in the search, 43 articles were included in the current review, 10 of which were included in the meta-analyses. Figure 1 shows the PRISMA flowchart of the literature search process.

3.2 | Characteristics of the included studies

Overall, 43 studies, including 19,571 participants, originated from 22 countries and regions; further, they were published between 2006 and 2022 (Table 1). Of these, 41 studies were cross-sectional in design and 2 (Sundin et al., 2011; Trépanier et al., 2015) were longitudinal cohort research. Psychiatric and emergency departments were the most common workplaces that reported violence occurring towards nurses ($N = 4966$, 25.37%). Approximately two-thirds of the participants ($N = 12{,}785$, 65.33%) were female; their mean age was 38.55 years.

Overall, 28 studies ($N = 16{,}218$, 82.87%) were based on the past-year exposure to violence among nurses. Furthermore, 18 articles used a self-administered questionnaire to assess WPV, followed by the Negative Acts Questionnaire-Revised scale ($K = 7$). Verbal violence was the most common type of WPV, with a prevalence ranging from 24.2% to 98.6%; it was followed by threats (4.9%–94.5%), bullying (13%–93.2%), physical violence (7.6%–74%), and sexual harassment (2.6%–72%). The least common was racial harassment (4.5%–15%).

PTSD and burnout in nurses were evaluated in 14 and 30 studies, respectively, while two (Havaei, 2021; Yin et al., 2018) examined both. Regarding the assessment of PTSD, seven (Chen, 2020; Hong, Kim, Nam, et al., 2021; Lee et al., 2015; Malik & Farooqi, 2014; Olashore et al., 2018; Opie et al., 2010; Yin et al., 2018), four (Gates et al., 2011; Guan et al., 2019; Hong, Kim, Choi, et al., 2021; Inoue et al., 2006) and three studies (Chen et al., 2008; Pai & Lee, 2011; Zerach & Shalev, 2015) used the PTSD Check List-Civilian Version, the Impact of Event Scale-Revised and the PTSD scale, respectively; however, only one research (Havaei, 2021) employed the Post-Traumatic Stress Syndrome 14-Questions Inventory. Of these, seven studies (Chen et al., 2008; Gates et al., 2011; Havaei, 2021; Inoue et al., 2006; Lee et al., 2015; Olashore et al., 2018; Yin et al., 2018) reported the prevalence of PTSD after exposure to WPV as ranging from 10% to 49.7%.

Most studies ($K = 27$) used the Maslach Burnout Inventory (Maslach & Jackson, 1981) to assess the burnout symptoms. Two articles (Kobayashi et al., 2020; Peng et al., 2021) utilized the Professional Quality of Life scale, while only one (Bae et al., 2021) used the Tedium Scale. Of these, 10 studies reported the prevalence of burnout among nurses after exposure to WPV. The burnout levels from high, medium and low were 3%–48.9%, 43.2%–62% and 10%–27.7%. Tables 1 and 2 summarize the basic characteristics of the 43 studies.

3.3 | Assessment quality of the studies

The majority of the included studies ($K = 34$, 79.1%) had a moderate score for the methodological quality assessment; nevertheless, nine (20.9%) had a high score. For the cross-sectional research, the top three main areas leading to an unsatisfactory literature quality were the follow-up of patients, handling of the missing data in the analysis, and the assessment of the potential confounders. Regarding the cohort studies, the representativeness of the exposed cohort, the exposure ascertainment, and the outcomes' assessment were the main causes (Tables S1 and S2).

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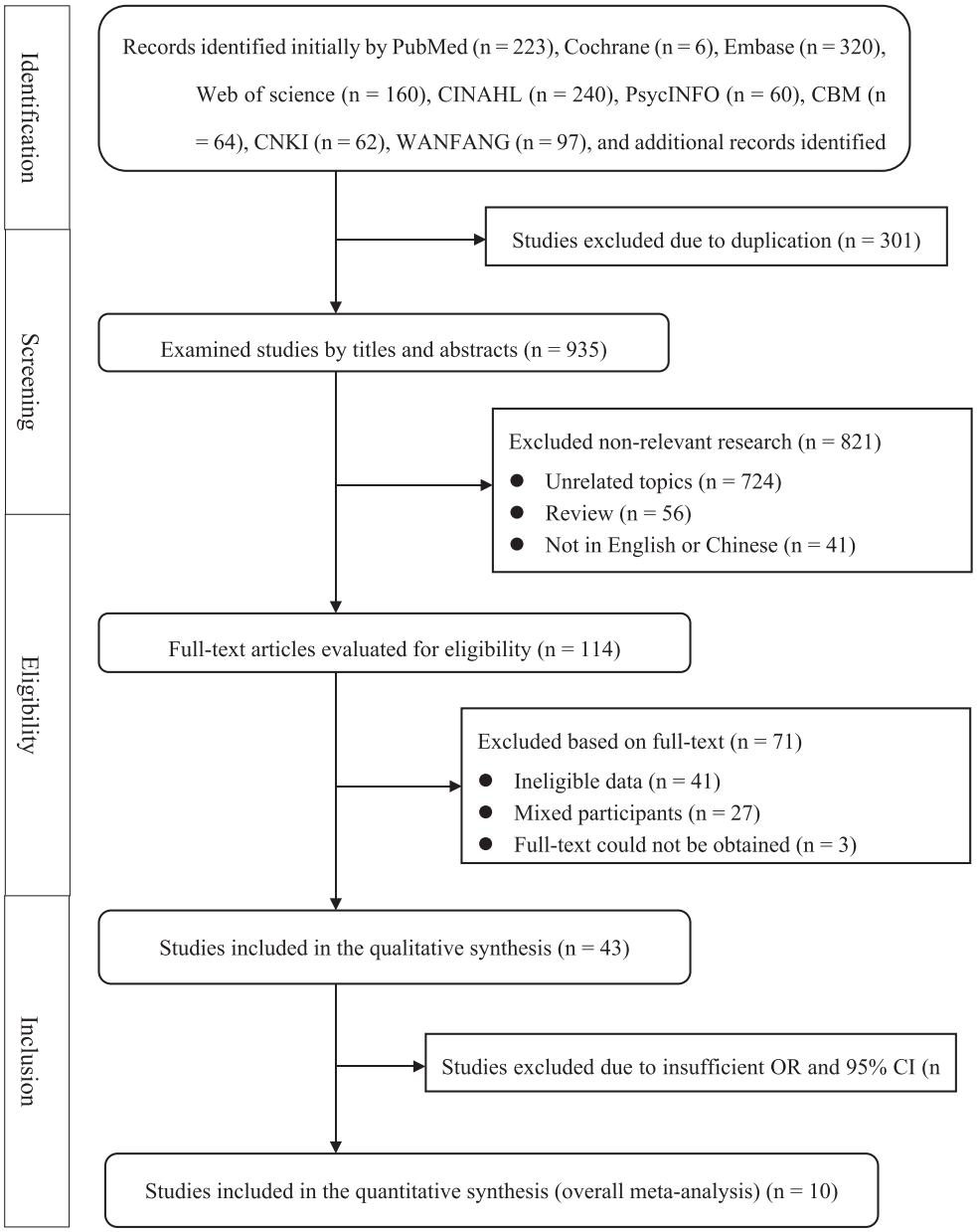


FIGURE 1 The process of the literature search based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement

3.4 | Results of the meta-analysis

Figure 2 shows the estimates for PTSD and burnout addressed in four (Chen, 2020; Havaei, 2021; Olashore et al., 2018; Yin et al., 2018) ($N = 3613$), and seven studies (Alameddine et al., 2015; Anwar & Elareed, 2017; Havaei, 2021; Kobayashi et al., 2020; Sá & Fleming, 2008; Sundin et al., 2011; Tsukamoto et al., 2021) ($N = 5501$), respectively. The pooled adjusted odds ratios (AOR) for PTSD after the imputation using a random-effects model was 2.13 (95% *CI* 1.01–3.27, $I^2 = 68.60\%$); further, the sociodemographic factors (age, gender and years of experience), work-related factors (professional designation and violence type) and symptom measures (burnout and depression) were adjusted. Further, two studies (Havaei, 2021; Olashore et al., 2018) reported the crude OR of PTSD as 2.03 (95% *CI* 1.34–2.71, $I^2 = 24.62\%$).

Using a fixed-effects model, the pooled crude and adjusted OR estimates of burnout were found to be 1.72 (95% *CI* 1.37–2.06, $I^2 = 12.34\%$) and 2.25 (95% *CI* 1.58–2.93, $I^2 = 0.00\%$), respectively, after adjusting for the sociodemographic factors (age, gender, years of experience, occupation and ward type), work-related factors (work shift, violence type) and symptom measures (well-being, quality of life perception, psychological distress, alcohol use, anger, low level of compassion satisfaction and secondary traumatic stress) (Figure 2). Of these, for the association between verbal violence and burnout, the pooled crude and adjusted OR estimates of burnout were generated as 1.93 (95% *CI* 1.40–2.47, $I^2 = 23.33\%$) and 2.84 (95% *CI* 1.62–4.06, $I^2 = 0.00\%$), respectively (Figure S1).

The subgroup analysis showed the pooled estimates of age and gender for PTSD and burnout (OR = 0.99, 95% *CI* 0.98–1.00, $I^2 = 0\%$; OR = 1.78, 95% *CI* 0.26–3.31, $I^2 = 90.52\%$; OR = 0.98, 95% *CI* 0.96–1.00, $I^2 = 52.82\%$; OR = 0.99, 95% *CI* 0.76–1.22,

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TABLE 1 Characteristics of the included studies

Study	Country	Sample	Age (in years)	WPV			PTSD			BO		
				Measure	Type	Prevalence (%)	Measure	Cut-off	Prevalence (%)	Measure	Cut-off	Prevalence (%)
Alameddine et al. (2015)	Lebanon	593	18–54	A four-point frequency scale	VV PV	62% 10%	—	—	—	MBI-HSS	NR	High EE: 54.1% High DP: 28.8% Low PA: 49.3%
Amini et al. (2022)	Iran	184	31.01 ± 4.84	Workplace Bullying Questionnaire	Bullying	75.50%	—	—	—	MBI	High EE: 37–54 High DP: 19–30 Low PA: 0–12	High BO: 10.3% Moderate BO: 62% Low BO: 27.7%
Anwar and Elareed (2017)	Egypt	227	28.9 ± 7.8	A self-administered questionnaire	VV EV Both	24.2% 29.5% 13.7%	—	—	—	MBI	High BO: ≥68 Moderate BO: 61–67 Low BO: ≤60	High BO: 32.6% Moderate BO: 43.2%
Bae et al. (2021)	South Korea	166	NR	WPBN-TI	Bullying	37.30%	—	—	—	Tedium Scale	NR	NR
Chen et al. (2008)	Taiwan	200	18–60	A self-administered questionnaire	VV PV Bullying SH RH	50.9% 35.1% 15.8% 9.5% 4.5%	PTSD scale (DSM-IV)	>14	10%	—	—	—
Chen (2020)	China	65	31.26 ± 1.48	A self-administered questionnaire	NR	NR	PCL-C	NR	NR	—	—	—
Converso et al. (2021)	Italy	247	44.4	Violent Incident Form (VIF)	VV; PV; Threats	23.8%	—	—	—	MBI	NR	NR
de Looff et al. (2018)	Netherlands	105	35.2 ± 9.7	Modified Overt Aggression Scale	VV; PV; SH	NR	—	—	—	MBI-GS	EE: ≥2.2 DP: ≥2 PA: ≤3.66	NR
Fan et al. (2022)	China	402	18–60	NAQ-R	Bullying	NR	—	—	—	MBI-GS	NR	NR
Galián-Muñoz et al. (2016)	Spain	1489	42.09 ± 9.75	HABS-U	PV; VV	NR	—	—	—	MBI-GS	NR	NR
Gates et al. (2011)	USA	230	NR	A self-administered questionnaire	NR	NR	IES-R	≥33	17%	—	—	—
Goussinsky and Livne (2018)	Israel	217	45.8 ± 10.6	A four-item scale	VV	NR	—	—	—	aMBI	NR	NR
Goussinsky (2019)	Israel	105	37.7 ± 8.9	A six-item scale	VV	NR	—	—	—	aMBI	NR	NR

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TABLE 1 (Continued)

Study	Country	Sample	Age (in years)	WPV			PTSD			BO		
				Measure	Type	Prevalence (%)	Measure	Cut-off	Prevalence (%)	Measure	Cut-off	Prevalence (%)
Guan et al. (2019)	China	444	28.0 ± 6.1	A self-administered questionnaire	VV	96.8%	IES-R	NR	NR	—	—	—
					PV	43.2%						
					SH	4.3%						
					Threats	32.0%						
Havaei (2021)	Canada	2958	38.5 ± 11.2	A self-administered questionnaire	EV	86%	PTSS-14	>45	49.70%	MBI-HSS	High EE: 27–54	36.30%
					PV	74%						
					SH	72%					High DP: 13–30	
					Threats	83%					Low PA: 0–31	
Hong, Kim, Nam, et al. (2021)	South Korea	319	18–60	NAQ-R	Bullying	NR	PCL-C	≥56	NR	—	—	—
Hong, Kim, Choi, et al. (2021)	South Korea	233	18–60	WPBN-TI	Bullying	80.30%	IES-R	NR	NR	—	—	—
Hu et al. (2015)	China	424	18–60	A self-administered questionnaire	PV; Bullying; Threats; SH	NR	—	—	—	MBI	NR	NR
Inoue et al. (2006)	Japan	225	40.1 ± 12.3	A self-administered questionnaire	VV; PV	62.20%	IES-R	≥25	21.30%	—	—	—
Jia (2014)	China	458	18–60	WVS	VV	62.2%	—	—	—	MBI	High EE: ≥27	NR
											Moderate EE: 19–26	
											Low EE: ≤ 18	
					PV	7.6%					High DP: ≥10	
											Moderate DP: 6–9	
											Low DP: ≤ 5	
					Threats	61.5%					High PA: ≥40	
											Moderate PA: 34–39	
											Low PA: ≤33	
Jin et al. (2019)	China	309	28 ± 6	HVQ	VV; Threats; PV; SH	NR	—	—	—	MBI-HSS	NR	NR
Kim et al. (2020)	USA	1781	NR	A self-administered questionnaire	VV; PV	NR	—	—	—	aMBI	NR	NR

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TABLE 1 (Continued)

Study	Country	Sample	Age (in years)	WPV			PTSD			BO		
				Measure	Type	Prevalence (%)	Measure	Cut-off	Prevalence (%)	Measure	Cut-off	Prevalence (%)
Kobayashi et al. (2020)	Japan	599	47.1 ± 13.2	A self-administered questionnaire	VV PV SH	62.3% 60.4% 2.6%	—	—	—	ProQOL	≥33	10.90%
Lang et al. (2021)	Australia	298	47.56 ± 11.4	WBI	Bullying	61%	—	—	—	MBI-GS	≥29	47%
Laschinger et al. (2010)	Canada	415	27.24 ± 4.63	NAQ-R	Bullying	33%	—	—	—	MBI-GS	High BO: >3	High: 48.90%
Lee et al. (2015)	Australia	196	40.77 ± 11.3	POPAS	VV; PV; Threats; SH	NR	PCL-C (DSM-IV)	≥44	14%	—	—	—
Malik and Farooqi (2014)	Pakistan	100	20–49	WHS; SHEQ	SH	NR	PCL-C (DSM-IV)	NR	NR	—	—	—
Merecz et al. (2009)	Poland	1163	38.8 ± 8.5	EWAQ	VV PV	NR	—	—	—	MBI	NR	NR
Olashore et al. (2018)	Botswana	158	32	A self-administered questionnaire	PV	73.1%	PCL-C (DSM-IV)	NR	18.4%	—	—	—
Opie et al. (2010)	Australia	349	44.0 ± 11.0	A self-administered questionnaire	VV PV SH Threats	79.5% 28.6% 25.1% 4.9%	PCL-C	NR	NR	—	—	—
Pai and Lee (2011)	Taiwan	521	36.2 ± 7.9	WVQ	VV PV Bullying SH	51.6% 19.6% 29.8% 12.9%	PTSD scale (DSM-IV-R)	≥14	NR	—	—	—
Peng et al. (2021)	China	493	30.6 ± 7.5	NAQ-R	Bullying	52.10%	—	—	—	ProQOL	NR	NR
Rayan and Baker (2019)	Saudi Arabia	118	29.14	A self-administered questionnaire	Bullying RH Threats PV	61% 15% 12% 12%	—	—	—	MBI	High EE: ≥26 High DP: ≥12 Low PA: ≥38	NR
Read and Laschinger (2015)	Canada	342	28.1 ± 6.6	NAQ-R	Bullying	NR	—	—	—	MBI-GS	NR	NR

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TABLE 1 (Continued)

Study	Country	Sample	Age (in years)	WPV			PTSD			BO		
				Measure	Type	Prevalence (%)	Measure	Cut-off	Prevalence (%)	Measure	Cut-off	Prevalence (%)
Sá and Fleming (2008)	Portugal	107	32	NAQ-R	Bullying	13%	—	—	—	MBI-HSS	NR	High BO: 3% Moderate and low BO: 10%
Sundin et al. (2011)	Sweden	775	42.37 ± 10.33	SWES	AV; PV; Threats	NR	—	—	—	MBI	High EE: ≥27 High DP: ≥10	High EE:18.9% High DP: 13%
Trépanier et al. (2015)	Canada	508	43.99 ± 10.54	NAQ-R	Bullying	NR	—	—	—	MBI-GS	NR	NR
Tsukamoto et al. (2021)	Brazil	242	43.3 ± 9.4	A self-administered questionnaire	VV; PV; SH	NR	—	—	—	MBI-GS	NR	NR
Vincent-Höper et al. (2020)	Germany	582	NR	A self-administered questionnaire	VV; PV	NR	—	—	—	MBI	NR	NR
Viotti et al. (2015)	Italy	522	38.0 ± 8.8	CSS	VV	NR	—	—	—	MBI	NR	NR
Yin et al. (2018)	China	432	NR	A self-administered questionnaire	VV PV SH Threats	63.70%	PCL-C (DSM-IV)	≥45	21.80%	MBI-GS	NR	NR
Zaczyk et al. (2018)	Poland	74	16–60	A self-administered questionnaire	VV Threats Bullying SH PV	98.6% 94.5% 93.2% 71.7% 67.6%	—	—	—	MBI	NR	High BO: 26% Moderate BO: 54% Low BO: 20%
Zerach and Shalev (2015)	Israel	196	47.3 ± 9.7	A self-administered questionnaire	VV; PV	NR	PTSD scale (DSM-IV)	NR	NR	—	—	—

Abbreviations: aMBI, abbreviated version of the Maslach Burnout Inventory; BO, Burnout; CSS, Customer-Related Social Stressors; DP, Depersonalization; EE, Emotional exhaustion; EV, Emotional violence; EWAQ, Exposure to Workplace Aggression Questionnaire; HABS-U, Hospital Aggressive Behaviour Scale–Users; HVQ, Hospital Violence Questionnaire; IES-R, Impact of Event Scale-Revised version; MBI, Maslach Burnout Inventory; MBI-GS, Maslach Burnout Inventory-General Survey; MBI-HSS, Maslach Burnout Inventory-Human Services Survey; NAQ-R, Negative Acts Questionnaire-Revised; NR, Not reported; PA, Personal accomplishment; PCL-C, PTSD Check-List Civilian Version; POPAS, Perception of Prevalence of Aggression Scale; ProQOL, Professional Quality of Life; PTSS-14, Post-Traumatic Stress Syndrome 14-Questions Inventory; PV, Physical violence; RH, Racial harassment; SH, Sexual harassment; SHEQ, Sexual Harassment Experience Questionnaire; SWES, Swedish Work Environment Survey; VV, Verbal violence; WBI, Workplace Bullying Inventory; WHS, Work Harassment Scale; WPBN-TI, Workplace Bullying in Nursing-Type Inventory; WVQ, Workplace Violence Questionnaire; WVS, Workplace Violence Scale.

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TABLE 2 Descriptive results

Variable	Categories	*K*	*N* (= 19,571)	%
Design	Cross-sectional	41	18,288	93.44%
	Cohort	2	1283	6.56%
Gender	Female	33	12,785	65.33%
	Male	32	1767	9.03%
	Not reported	10	4975	25.64%
Department	Emergency	5	3924	20.05%
	Psychiatry	6	1042	5.32%
	Various healthcare settings	22	14,605	74.63%
Exposure time	In the past 12 months	20	12,647	64.62%
	In the past 6 months	7	1790	9.15%
	In the past 3 months	1	1781	9.1%
	Not reported	15	3353	17.13%

$I^2 = 14.02\%$) among nurses involved in seven studies (Alameddine et al., 2015; Chen, 2020; Havaei, 2021; Kobayashi et al., 2020; Olashore et al., 2018; Sá & Fleming, 2008; Tsukamoto et al., 2021), respectively. The subgroup analysis showed that there was no difference in age and gender for PTSD and burnout among the nurses. In addition, a subgroup analysis regarding the high-quality articles was performed (Alameddine et al., 2015; Kobayashi et al., 2020; Tsukamoto et al., 2021) (AOR = 1.95, 95% *CI* 1.50–2.40, $I^2 = 2.64\%$) (Table 3 and Figures S2 and S3).

3.5 | Moderators and mediators

The association between WPV, PTSD and burnout among nurses may be affected by a multitude of moderators and mediators (Table 4). Nine studies (Converso et al., 2021; de Looff et al., 2018; Fan et al., 2022; Galián-Muñoz et al., 2016; Goussinsky, 2019; Goussinsky & Livne, 2018; Jin et al., 2019; Vincent-Höper et al., 2020; Viotti et al., 2015) indicated that various factors moderate or mediate the WPV's effects on professional burnout among nurses; only one study (Guan et al., 2019) illustrated the mediators between violence exposure and PTSD. According to the conservation of resources theory (Goussinsky & Livne, 2018; Hobfoll, 2001), these moderators and mediators of burnout are described by three classes of resources: social/organizational (supervisor support, co-worker support, follow-up counselling, and fairness), task-related (job autonomy, work meaning, role clarity, skill discretion, job satisfaction and job stress) and individual resources (stress management skills, self-efficacy, self-compassion and workplace spirituality). Individual resources (general disapproval and family disapproval) were considered as the potential mediators of PTSD in the nurses.

4 | DISCUSSION

In this systematic review and meta-analysis, we quantitatively assessed WPV and the risk of PTSD and burnout among nurses and comprehensively analysed the possible mediating and moderating variables in the relationship between these variables. The strengths of the study were as follows: (1) we included all relevant studies in the literature published before 18 October 2021; (2) nine electronic literature databases were retrieved; and (3) the majority of the included articles were of medium to high quality. Hence, despite the likelihood of imprecision in the measurement method and potential bias, the subgroup analyses of the high-quality studies from an extensive literature search may have contributed to the robustness of our meta-analysis results.

4.1 | The magnitude of association between the exposure to WPV and the reported symptoms of PTSD and burnout in nurses

Our meta-analysis showed that those experiencing exposure to WPV had two times higher AOR for reporting PTSD and burnout, as compared to their counterparts without any exposure (all *ps* < 0.01). A prospective study with a large sample size of social educators demonstrated that incidents of WPV increased the risk of PTSD (AOR = 4.0, 95% *CI* 1.0–16.3), as compared to the non-exposed group (Pihl-Thingvad et al., 2019). Compared with the risk of burnout in a systematic review among the general occupational population (AOR = 1.60, 95% *CI* 1.25–2.05) (Rudkjoebing et al., 2020), our findings presented a considerably higher OR regarding the burnout symptoms among the nurses. This may be due to the variety in the occupational nature, severity and frequency of exposure to WPV, as well as the difference in the self-reported symptoms having different degrees of impact on the mental health (Pihl-Thingvad et al., 2019).

The theoretical model of trauma (May & Wisco, 2016) links the exposure to traumatic events with the risk of post-traumatic stress symptoms and burnout. Furthermore, according to the conservation of resources theory (Laeeque et al., 2018), exposure to WPV may deplete the nurses' energy and activate a loss cycle that could lead to emotional exhaustion and depersonalization. In addition, based on the job demands-resources model (Demerouti et al., 2001), WPV has been

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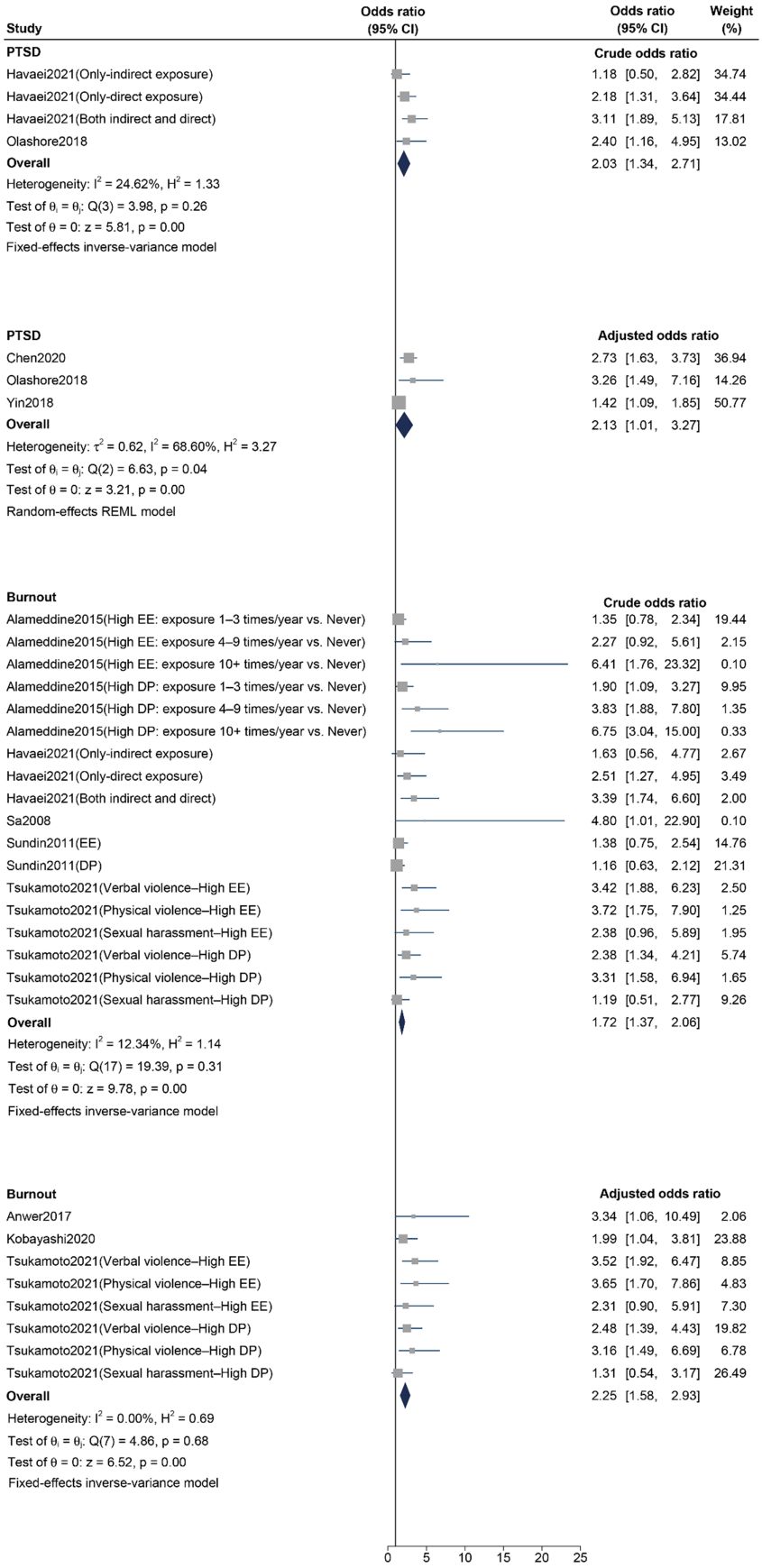


FIGURE 2 Meta-analysis for the group exposed to workplace violence vs. the non-exposed group and the risk of PTSD and burnout. *CI*, confidence interval

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TABLE 3 Subgroup analyses on workplace violence and PTSD and burnout

Estimate	Subgroup	*K*	*N*	OR	95% *CI* OR	Q_{within}	I^2(%)	Tau	Tau^2
PTSD	Age	2	3116	0.99	0.98–1.00	0.06	0.00	0.00	0.00
	Gender	3	3548	1.78	0.26–3.31	22.14	90.52	1.27	1.61
Burnout	Age	2	3557	0.98	0.96–1.00	2.12	52.82	0.00	0.00
	Gender	4	4257	0.99	0.76–1.22	3.49	14.02	0.00	0.00
	High quality	3	1434	1.95	1.50–2.40	12.33	2.64	0.00	0.00

Note: Age: ≤30 years versus >30 years; gender: female versus male; *K* = number of studies; *N* = number of respondents; OR = odds ratio; 95% *CI* = 95% confidence interval.

TABLE 4 Moderators and mediators examined in the studies

		Social/Organizational resources		Task-related resources		Individual resources	
Study	Outcomes	Moderators	Mediators	Moderators	Mediators	Moderators	Mediators
Guan et al. (2019)	PTSD	—	—	—	—	—	General disapproval; family disapproval
Converso et al. (2021)	Burnout	—	—	—	Work ability	—	—
de Looff et al. (2018)		—	—	—	Job stress	Stress management skill	—
Fan et al. (2022)		—	—	—	—	—	Workplace spirituality
Galián-Muñoz et al. (2016)		—	—	—	Job satisfaction	—	—
Goussinsky and Livne (2018)		Supervisor support	—	Job autonomy	—	—	—
Goussinsky (2019)		Co-worker support	—	—	—	Self-efficacy	—
Jin et al. (2019)		—	—	—	—	Self-compassion	—
Vincent-Höper et al. (2020)		Follow-up counselling	—	—	—	—	—
Viotti et al. (2015)		Supervisor support; fairness	—	Work meaning; role clarity; skill discretion	—	—	—

regarded as a job demand and exposure to violence may cause burnout among the nursing staff (Balducci et al., 2014; Demerouti et al., 2001). Our findings support this theoretical argument by empirically establishing that WPV can increase the nurses' odds of PTSD and burnout.

Our subgroup analysis revealed that there was no significant difference in the risk of PTSD and burnout between those aged ≤30 and >30 years. Although previous research has revealed that male nurses experience more WPV than their female counterparts (Cheung & Yip, 2017; Li et al., 2020), studies (Alameddine et al., 2015; Chen, 2020; Havaei, 2021; Kobayashi et al., 2020; Olashore et al., 2018; Sá & Fleming, 2008; Tsukamoto et al., 2021) that focused on the gender of the nurses suffering from PTSD and burnout symptoms did not show a significant difference. This might be attributed to the small sample size and the limited number of studies included.

4.2 | Mediating and moderating variables in the relationship between WPV and PTSD and burnout

Of the 43 studies included in the current review, only 10 (Converso et al., 2021; de Looff et al., 2018; Fan et al., 2022; Galián-Muñoz et al., 2016; Goussinsky, 2019; Goussinsky & Livne, 2018; Guan et al., 2019; Jin et al., 2019; Vincent-Höper et al., 2020; Viotti et al., 2015) explored the moderating or mediating effects in the relationship between WPV and the symptoms of PTSD and burnout. This research classified the mediating and moderating factors that may influence the programme effects into three categories based on the conservation of resources theory (Laeeque et al., 2018). It further complemented and extended the previous studies that revealed several protective and risk factors for the health care professionals (Giménez Lozano et al., 2021; Hilton et al., 2022).

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According to the conservation of resources theory, the social/organizational resources can enhance the individuals' resilience beliefs that yields further personal resources and counteracts the energy depletion spiral (Hobfoll, 2001). Seeking these resources is a frequently used mechanism for coping with stress resulting from violence as well as minimizing the adverse effects of exposure to workplace aggression on PTSD and burnout (Cusack et al., 2016; Liyanage et al., 2022). The task-related resources are viewed as coping means that have the potential to lessen the negative effects of job stressors, because they allow workers to shape their work environment and limit their exposure to stressors (Portoghese et al., 2014). In addition, the individual resources such as self-efficacy and self-compassion seem to help nurses find positive meaning in their work, a feeling of connectedness expressed in the interrelationships between colleagues, and a healthy workplace atmosphere; they also help in identifying, processing and effectively managing emotions to successfully handle difficult situations. By assessing the potential impact of the three categories of variables in the WPV process, we could develop effective interventions to reduce the PTSD and burnout symptoms and mitigate the negative effects of exposure to WPV in nurses.

4.3 | Limitations

Although this study was rigorously designed, it has certain limitations. First, most of the included studies were based on cross-sectional designs and non-randomized samples; thus, causality remains unelucidated. Second, the majority of the relationship between WPV and mental health outcomes reported in the original studies was based on self-reported data. The data were vulnerable to recall, response and social desirability biases. Hence, more prospective studies are warranted to integrate an understanding of the WPV's pattern and characteristics in the future studies. Specifically, we proposed the use of the WPV's frequency and intensity, its type and forms, and the individuals' proximity to violent behaviour (direct, indirect or both) as additional factors in targeting the nurses at risk of developing PTSD and burnout. Furthermore, intervention strategies focusing on social/organizational, task-related and individual resources should be the main objective of future research.

Our systematic review indicated that WPV increased the risk of PTSD and burnout. The meta-analysis showed that among the nurses, those experiencing exposure had two times higher AOR for reporting PTSD and burnout, as compared to their non-exposed counterparts. For the subgroup of verbal violence at work, those experiencing exposure had a 2.84 times higher AOR for reporting burnout than their non-exposed counterparts. The subgroup analysis demonstrated no difference in age and gender for PTSD and burnout among the nurses. The association between WPV and PTSD and burnout among nurses may be affected by three classes of resources (social/organizational resources, task-related resources and individual resources).

5 | IMPLICATIONS FOR THE NURSING MANAGEMENT

Our review identified the magnitude of the association between exposure to WPV and the reported symptoms of PTSD and burnout in nurses. Furthermore, the multi-targeted efforts directed at the social/organizational, task-related and individual resources identified in this review might help mitigate the harmful impact of PTSD and burnout and promote the professional quality of life and well-being of the nurses.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICS STATEMENT

Not applicable; no original data.

PROSPERO ID

The review was registered on PROSPERO (registration number: CRD42021285196).

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REFERENCES

Akbolat, M., Sezer, C., Ünal, Ö., Amarat, M., & Durmuş, A. (2021). The effects of direct violence and witnessed violence on the future fear of violence and turnover intention: A study of health employees. *Current Psychology*, *40*(9), 4684–4690. https://doi.org/10.1007/s12144-019-00410-x

Alameddine, M., Mourad, Y., & Dimassi, H. (2015). A national study on nurses' exposure to occupational violence in Lebanon: Prevalence, consequences and associated factors. *PLoS ONE*, *10*(9), e0137105. https://doi.org/10.1371/journal.pone.0137105

Aljohani, B., Burkholder, J., Tran, Q. K., Chen, C., Beisenova, K., & Pourmand, A. (2021). Workplace violence in the emergency department: A systematic review and meta-analysis. *Public Health*, *196*, 186–197. https://doi.org/10.1016/j.puhe.2021.02.009

Aljohani, K. A. (2021). Violence and abuse against nurses in Saudi Arabia: A narrative review. *Journal of Nursing Management*, *1–7*. https://doi.org/10.1111/jonm.13468

Amini, K., Miyanaji, H., & Din Mohamadi, M. (2022). Bullying and burnout in critical care nurses: A cross-sectional descriptive study. *Nursing in Critical Care*, *1–9*. https://doi.org/10.1111/nicc.12744

Anwar, M. M., & Elareed, H. R. (2017). Burnout among Egyptian nurses. *Journal of Public Health*, *25*(6), 693–697. https://doi.org/10.1007/s10389-017-0831-2

Bae, S. R., Hong, H. J., Chang, J. J., & Shin, S. H. (2021). The association between Korean clinical nurses' workplace bullying, positive psychological capital, and social support on burnout. *International Journal of Environmental Research and Public Health*, *18*(21), 11583. https://doi.org/10.3390/ijerph182111583

13652834, 2022, 7, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/jonm.13809 by University Of Twente Finance Department, Wiley Online Library on [07/01/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Balducci, C., Avanzi, L., & Fraccaroli, F. (2014). Emotional demands as a risk factor for mental distress among nurses. *La Medicina del Lavoro*, *105*(2), 100–108. https://europepmc.org/article/med/24909042

Chen, M. (2020). Investigation on the status and influencing factors of post-traumatic stress reaction among pre-hospital emergency nurses. *Journal of Clinical Nursing*, *19*(4), 65–68. https://doi.org/10.3969/j.issn.1671-8933.2020.04.023

Chen, W. C., Hwu, H. G., Kung, S. M., Chiu, H. J., & Wang, J. D. (2008). Prevalence and determinants of workplace violence of health care workers in a psychiatric hospital in Taiwan. *Journal of Occupational Health*, *50*(3), 288–293. https://doi.org/10.1539/joh.L7132

Cheung, T., & Yip, P. S. (2017). Workplace violence towards nurses in Hong Kong: Prevalence and correlates. *BMC Public Health*, *17*(1), 196. https://doi.org/10.1186/s12889-017-4112-3

Choi, S. H., & Lee, H. (2017). Workplace violence against nurses in Korea and its impact on professional quality of life and turnover intention. *Journal of Nursing Management*, *25*(7), 508–518. https://doi.org/10.1111/jonm.12488

Converso, D., Sottimano, I., & Balducci, C. (2021). Violence exposure and burnout in healthcare sector: Mediating role of work ability. *La Medicina del Lavoro*, *112*(1), 58–67. https://doi.org/10.23749/mdl.v112i1.9906

Cusack, L., Smith, M., Hegney, D., Rees, C. S., Breen, L. J., Witt, R. R., Rogers, C., Williams, A., Cross, W., & Cheung, K. (2016). Exploring environmental factors in nursing workplaces that promote psychological resilience: Constructing a unified theoretical model. *Frontiers in Psychology*, *7*, 600. https://doi.org/10.3389/fpsyg.2016.00600

de Looff, P., Nijman, H., Didden, R., & Embregts, P. (2018). Burnout symptoms in forensic psychiatric nurses and their associations with personality, emotional intelligence and client aggression: A cross-sectional study. *Journal of Psychiatric and Mental Health Nursing*, *25*(8), 506–516. https://doi.org/10.1111/jpm.12496

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://doi.org/10.1037/0021-9010.86.3.499

Fan, Y., Cao, M., Zhou, Y., Duan, P., & Xing, L. (2022). Relationship between workplace bullying, spirituality and job burnout in pediatric nurses: A cross-sectional study, 1–19. https://doi.org/10.21203/rs.3.rs-1348279/v1

Galián-Muñoz, I., Ruiz-Hernández, J. A., Llor-Esteban, B., & López-García, C. (2016). User violence and nursing staff burnout: The modulating role of job satisfaction. *Journal of Interpersonal Violence*, *31*(2), 302–315. https://doi.org/10.1177/0886260514555367

Gates, D. M., Gillespie, G. L., & Succop, P. (2011). Violence against nurses and its impact on stress and productivity. *Nursing Economics*, *29*(2), 59–67.

Giménez Lozano, J. M., Martínez Ramón, J. P., & Morales Rodríguez, F. M. (2021). Doctors and nurses: A systematic review of the risk and protective factors in workplace violence and burnout. *International Journal of Environmental Research and Public Health*, *18*(6), 3280. https://doi.org/10.3390/ijerph18063280

Goussinsky, R. (2019). The combined moderating effects of coworker support and occupational coping self-efficacy on the relationship between mistreatment by patients and burnout. *Journal of Aggression, Maltreatment & Trauma*, *29*(4), 479–497. https://doi.org/10.1080/10926771.2019.1692982

Goussinsky, R., & Livne, Y. (2018). The role of coping resources in the relationship between mistreatment and job burnout: Evidence across two healthcare settings. *Journal of Aggression, Maltreatment & Trauma*, *28*(10), 1250–1268. https://doi.org/10.1080/10926771.2018.1473905

Guan, R., Gao, J., Liu, G., Cheng, F., & Ge, B. (2019). The mediating effect of perceived social acknowledgment on the relationship between patient assaults and posttraumatic stress reactions in emergency nurses. *Journal of Interpersonal Violence*, *34*(18), 3833–3849. https://doi.org/10.1177/0886260516673627

Havaei, F. (2021). Does the type of exposure to workplace violence matter to nurses' mental health? *Healthcare*, *9*(1), 41. https://doi.org/10.3390/healthcare9010041

Havaei, F., MacPhee, M., & Ma, A. (2020). Workplace violence among British Columbia nurses across different roles and contexts. *Healthcare*, *8*(2), 98. https://doi.org/10.3390/healthcare8020098

Higgins, J. P. T., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ*, *327*(7414), 557–560. https://doi.org/10.1136/bmj.327.7414.557

Hilton, N. Z., Addison, S., Ham, E., C. Rodrigues, N., & Seto, M. C. (2022). Workplace violence and risk factors for PTSD among psychiatric nurses: Systematic review and directions for future research and practice. *Journal of Psychiatric and Mental Health Nursing*, *29*(2), 186–203. https://doi.org/10.1111/jpm.12781

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology*, *50*(3), 337–421. https://doi.org/10.1111/1464-0597.00062

Hong, S., Kim, H., Choi, E. K., & Park, C. G. (2021). Workplace bullying and different levels of post-traumatic stress symptoms of nurses: A quantile regression approach for effective coping strategies. *Journal of Nursing Management*, *1–9*. https://doi.org/10.1111/jonm.13388

Hong, S., Kim, H., Nam, S., Wong, J. Y. H., & Lee, K. (2021). Nurses' post-traumatic stress symptoms and growth by perceived workplace bullying: An online cross-sectional study. *Journal of Nursing Management*, *29*(5), 1338–1347. https://doi.org/10.1111/jonm.13275

Hu, S. X., Luk, A. L., & Smith, G. D. (2015). The effects of hazardous working conditions on burnout in Macau nurses. *International Journal of Nursing Sciences*, *2*(1), 86–92. https://doi.org/10.1016/j.ijnss.2015.01.006

Inoue, M., Tsukano, K., Muraoka, M., Kaneko, F., & Okamura, H. (2006). Psychological impact of verbal abuse and violence by patients on nurses working in psychiatric departments. *Psychiatry and Clinical Neurosciences*, *60*(1), 29–36. https://doi.org/10.1111/j.1440-1819.2006.01457.x

Jia, L. (2014). Relationship between hospital workplace violence and job satisfaction, job burnout and organizational commitment in nurses. Shanxi Medical University. https://chn.oversea.cnki.net/KCMS/detail

Jin, G., Luo, X., & Li, D. (2019). Relationship between workplace violence experience and occupational burnout and self-compassion among nurses in a psychiatric specialty hospital. *Chinese Mental Health Journal*, *33*(10), 795–797. https://kns.cnki.net/kcms/detail/11.1873.R.20190909.1539.030.html

Kim, S., Mayer, C., & Jones, C. B. (2020). Relationships between nurses' experiences of workplace violence, emotional exhaustion and patient safety. *Journal of Research in Nursing*, *26*(1–2), 35–46. https://doi.org/10.1177/1744987120960200

Kobayashi, Y., Oe, M., Ishida, T., Matsuoka, M., Chiba, H., & Uchimura, N. (2020). Workplace violence and its effects on burnout and secondary traumatic stress among mental healthcare nurses in Japan. *International Journal of Environmental Research and Public Health*, *17*(8), 2747. https://doi.org/10.3390/ijerph17082747

Laeeque, S. H., Bilal, A., Babar, S., Khan, Z., & Ul Rahman, S. (2018). How patient-perpetrated workplace violence leads to turnover intention among nurses: The mediating mechanism of occupational stress and burnout. *Journal of Aggression, Maltreatment & Trauma*, *27*(1), 96–118. https://doi.org/10.1080/10926771.2017.1410751

Lanctôt, N., & Guay, S. (2014). The aftermath of workplace violence among healthcare workers: A systematic literature review of the consequences. *Aggression and Violent Behavior*, *19*(5), 492–501. https://doi.org/10.1016/j.avb.2014.07.010

13652834, 2022, 7, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/jonm.13809 by University Of Twente Finance Department, Wiley Online Library on [07/01/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Lang, M., Jones, L., Harvey, C., & Munday, J. (2021). Workplace bullying, burnout and resilience amongst perioperative nurses in Australia: A descriptive correlational study. *Journal of Nursing Management*, *1–12*. https://doi.org/10.1111/jonm.13437

Laschinger, H. K., Grau, A. L., Finegan, J., & Wilk, P. (2010). New graduate nurses' experiences of bullying and burnout in hospital settings. *Journal of Advanced Nursing*, *66*(12), 2732–2742. https://doi.org/10.1111/j.1365-2648.2010.05420.x

Lee, J., Daffern, M., Ogloff, J. R., & Martin, T. (2015). Towards a model for understanding the development of post-traumatic stress and general distress in mental health nurses. *International Journal of Mental Health Nursing*, *24*(1), 49–58. https://doi.org/10.1111/inm.12097

Li, M., Liu, J., Zheng, J., Liu, K., Wang, J., Miner Ross, A., Liu, X., Fu, X., Tang, J., & Chen, C. (2020). The relationship of workplace violence and nurse outcomes: Gender difference study on a propensity score matched sample. *Journal of Advanced Nursing*, *76*(2), 600–610. https://doi.org/10.1111/jan.14268

Li, N., Zhang, L., Xiao, G., Chen, J., & Lu, Q. (2019). The relationship between workplace violence, job satisfaction and turnover intention in emergency nurses. *International Emergency Nursing*, *45*, 50–55. https://doi.org/10.1016/j.ienj.2019.02.001

Liu, J., Gan, Y., Jiang, H., Li, L., Dwyer, R., Lu, K., Yan, S., Sampson, O., Xu, H., Wang, C., Zhu, Y., Chang, Y., Yang, Y., Yang, T., Chen, Y., Song, F., & Lu, Z. (2019). Prevalence of workplace violence against healthcare workers: A systematic review and meta-analysis. *Occupational and Environmental Medicine*, *76*(12), 927–937. https://doi.org/10.1136/oemed-2019-105849

Liyanage, S., Addison, S., Ham, E., & Hilton, N. Z. (2022). Workplace interventions to prevent or reduce post-traumatic stress disorder and symptoms among hospital nurses: A scoping review. *Journal of Clinical Nursing*, *31*(11–12), 1477–1487. https://doi.org/10.1111/jocn.16076

Lo, C. K., Mertz, D., & Loeb, M. (2014). Newcastle-Ottawa scale: Comparing reviewers' to authors' assessments. *BMC Medical Research Methodology*, *14*, 45. https://doi.org/10.1186/1471-2288-14-45

Malik, S., & Farooqi, Y. N. (2014). General and sexual harassment as predictors of posttraumatic stress symptoms among female health professionals. *World Journal of Medical Sciences*, *10*(1), 43–49.

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. https://doi.org/10.1002/job.4030020205

May, C. L., & Wisco, B. E. (2016). Defining trauma: How level of exposure and proximity affect risk for posttraumatic stress disorder. *Psychological Trauma Theory Research Practice and Policy*, *8*(2), 233–240. https://doi.org/10.1037/tra0000077

Merecz, D., Drabek, M., & Mościcka, A. (2009). Aggression at the workplace--psychological consequences of abusive encounter with coworkers and clients. *International Journal of Occupational Medicine and Environmental Health*, *22*(3), 243–260. https://doi.org/10.2478/v10001-009-0027-2

Na, L., Lichuan, Z., Guangqing, X., Jie, C., & Qian, L. (2019). The relationship between workplace violence, job satisfaction and turnover intention in emergency nurses. *International Emergency Nursing*, *45*, 50–55. https://doi.org/10.1016/j.ienj.2019.02.001

Olashore, A. A., Akanni, O. O., Molebatsi, K., & Ogunjumo, J. A. (2018). Post-traumatic stress disorder among the staff of a mental health hospital: Prevalence and risk factors. *South African Journal of Psychiatry*, *24*, a1222. https://doi.org/10.4102/sajpsychiatry.v24i0.1222

Opie, T., Lenthall, S., Dollard, M., Wakerman, J., MacLeod, M., Knight, S., Dunn, S., & Rickard, G. (2010). Trends in workplace violence in the remote area nursing workforce. *Australian Journal of Advanced Nursing*, *27*(4), 18–23. https://doi.org/10.3316/informit.207404584689045

Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan-a web and mobile app for systematic reviews. *Systematic Reviews*, *5*(1), 210. https://doi.org/10.1186/s13643-016-0384-4

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

Pai, H. C., & Lee, S. (2011). Risk factors for workplace violence in clinical registered nurses in Taiwan. *Journal of Clinical Nursing*, *20*(9–10), 1405–1412. https://doi.org/10.1111/j.1365-2702.2010.03650.x

Peng, J., Luo, H., Ma, Q., Zhong, Y., Yang, X., Huang, Y., Sun, X., Wang, X., He, J., & Song, Y. (2021). Association between workplace bullying and nurses' professional quality of life: The mediating role of resilience. *Journal of Nursing Management*, *1–10*. https://doi.org/10.1111/jonm.13471

Pihl-Thingvad, J., Andersen, L. L., Brandt, L. P. A., & Elklit, A. (2019). Are frequency and severity of workplace violence etiologic factors of posttraumatic stress disorder? A 1-year prospective study of 1,763 social educators. *Journal of Occupational Health Psychology*, *24*(5), 543–555. https://doi.org/10.1037/ocp0000148

Portoghese, I., Galletta, M., Coppola, R. C., Finco, G., & Campagna, M. (2014). Burnout and workload among health care workers: The moderating role of job control. *Safety and Health at Work*, *5*(3), 152–157. https://doi.org/10.1016/j.shaw.2014.05.004

Rayan, A., & Baker, O. (2019). Stress, workplace violence, and burnout in nurses working in king Abdullah Medical City during Al-hajj season. *The Journal of Nursing Research*, *27*(3), e26. https://doi.org/10.1097/jnr.0000000000000291

Read, E., & Laschinger, H. K. (2015). Correlates of new graduate nurses' experiences of workplace mistreatment. *The Journal of Nursing Administration*, *45*(10), S28–S35. https://doi.org/10.1097/NNA.0000000000000250

Rostom, A., Dubé, C., Cranney, A., Saloojee, N., Sy, R., Garritty, C., Sampson, M., Zhang, L., Yazdi, F., & Mamaladze, V. (2004). Celiac disease: Summary. In *AHRQ Evidence Report Summaries*. https://www.ncbi.nlm.nih.gov/sites/books/NBK11885/

Rudkjoebing, L. A., Bungum, A. B., Flachs, E. M., Eller, N. H., Borritz, M., Aust, B., Rugulies, R., Rod, N. H., Biering, K., & Bonde, J. P. (2020). Work-related exposure to violence or threats and risk of mental disorders and symptoms: A systematic review and meta-analysis. *Scandinavian Journal of Work, Environment & Health*, *46*(4), 339–349. https://doi.org/10.5271/sjweh.3877

Sá, L., & Fleming, M. (2008). Bullying, burnout, and mental health amongst Portuguese nurses. *Issues in Mental Health Nursing*, *29*(4), 411–426. https://doi.org/10.1080/01612840801904480

Shi, L., Li, G., Hao, J., Wang, W., Chen, W., Liu, S., Yu, Z., Shi, Y., Ma, Y., Fan, L., Zhang, L., & Han, X. (2020). Psychological depletion in physicians and nurses exposed to workplace violence: A cross-sectional study using propensity score analysis. *International Journal of Nursing Studies*, *103*, 103493. https://doi.org/10.1016/j.ijnurstu.2019.103493

Spector, P. E., Zhou, Z. E., & Che, X. X. (2014). Nurse exposure to physical and nonphysical violence, bullying, and sexual harassment: A quantitative review. *International Journal of Nursing Studies*, *51*(1), 72–84. https://doi.org/10.1016/j.ijnurstu.2013.01.010

Stahl-Gugger, A., & Hämmig, O. (2022). Prevalence and health correlates of workplace violence and discrimination against hospital employees - a cross-sectional study in German-speaking Switzerland. *BMC Health Services Research*, *22*(1), 291. https://doi.org/10.1186/s12913-022-07602-5

Sundin, L., Hochwälder, J., & Lisspers, J. (2011). A longitudinal examination of generic and occupational specific job demands, and work-related social support associated with burnout among nurses in Sweden. *Work*, *38*(4), 389–400. https://doi.org/10.3233/wor-2011-1142

Trépanier, S. G., Fernet, C., & Austin, S. (2015). A longitudinal investigation of workplace bullying, basic need satisfaction, and employee

13652834, 2022, 7, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/jonm.13809 by University Of Twente Finance Department, Wiley Online Library on [07/01/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

functioning. *Journal of Occupational Health Psychology*, *20*(1), 105–116. https://doi.org/10.1037/a0037726

Tsukamoto, S., Galdino, M., Barreto, M., & Martins, J. T. (2021). Burnout syndrome and workplace violence among nursing staff: A cross-sectional study. *São Paulo Medical Journal*, *140*(1), 101–107. https://doi.org/10.1590/1516-3180.2021.0068.R1.31052021

Vincent-Höper, S., Stein, M., Nienhaus, A., & Schablon, A. (2020). Workplace aggression and burnout in nursing—The moderating role of follow-up counseling. *International Journal of Environmental Research and Public Health*, *17*(9), 3152. https://doi.org/10.3390/ijerph17093152

Viotti, S., Gilardi, S., Guglielmetti, C., & Converso, D. (2015). Verbal aggression from care recipients as a risk factor among nursing staff: A study on burnout in the JD-R model perspective. *BioMed Research International*, *2015*, 215267. https://doi.org/10.1155/2015/215267

Wells, G. A., Shea, B., O'Connell, D., Peterson, J., Welch, V., Losos, M., & Tugwell, P. (2000). The Newcastle-Ottawa scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses. http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp

Wiskow, C. (2003). Guidelines on workplace violence in the health sector. World Health Organization/international labour Office, 40.

World Health Organization. (2019). International statistical classification of diseases and related health problems (11th rev.). Retrieved August 8 from https://icd.who.int/browse10/2019/en#/F43

World Health Organization. (2021). Violence and injury prevention. Retrieved from: https://www.who.int/violence_injury_prevention/violence/activities/workplace/background/en/

Xu, W. (2014). Violence against doctors in China. *Lancet*, *384*(9945), 745. https://doi.org/10.1016/s0140-6736(14)61438-0

Yao, X., Florez, I. D., Zhang, P., Zhang, C., Zhang, Y., Wang, C., Liu, X., Nie, X., Wei, B., & Ghert, M. A. (2020). Clinical research methods for treatment, diagnosis, prognosis, etiology, screening, and prevention: A narrative review. *Journal of Evidence-Based Medicine*, *13*(2), 130–136. https://doi.org/10.1111/jebm.12384

Yin, Y., Wang, A., Zhang, J., Zhang, L., & Zhang, J. (2018). Study on the influence factors of post-traumatic stress disorder. *The Journal of Nursing Education*, *33*(07), 587–592. https://doi.org/10.16821/j.cnki.hsjx.2018.07.004

Zaczyk, I., Młocek, M., Wilczek-Rużyczka, E., & Kwak, M. (2018). Patient aggression on inpatient psychiatric wards and professional burnout among nurses. *Pielegniarstwo Polskie*, *70*(4), 339–345.

Zeng, X., Zhang, Y., Kwong, J. S., Zhang, C., Li, S., Sun, F., Niu, Y., & Du, L. (2015). The methodological quality assessment tools for preclinical and clinical studies, systematic review and meta-analysis, and clinical practice guideline: A systematic review. *Journal of Evidence-Based Medicine*, *8*(1), 2–10. https://doi.org/10.1111/jebm.12141

Zerach, G., & Shalev, T. B. (2015). The relations between violence exposure, posttraumatic stress symptoms, secondary traumatization, vicarious post traumatic growth and illness attribution among psychiatric nurses. *Archives of Psychiatric Nursing*, *29*(3), 135–142. https://doi.org/10.1016/j.apnu.2015.01.002

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