Workplace Bullying and Mental Health in Nurse Populations – A Meta-Analysis

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Abstract

Aim: Considering the vital role of nurses in healthcare, especially amidst the light of the COVID-19 pandemic and an aging society, understanding the implications of workplace bullying becomes crucial. This systematic review and meta-analysis aim to summarize the cross-sectional literature on the association between workplace bullying and mental health in nurses.

Methods: A systematic review of 37 relevant articles out of 8458 identified was conducted, using a random-effects model for statistical analysis, alongside assessments of moderating factors.

Results: The cross-sectional data showed a positive association between workplace bullying and mental health issues (r = 0.47, 95% *CI* = 0.418 – 0.53, $p < 0.001$, k = 40), more specifically depression, anxiety, burnout, stress-related complaints, post-traumatic stress disorder (PTSD), and general mental health complaints. In this study, r represents Pearson's correlation coefficient, *95% CI* signifies the 95% confidence interval, p the significance level and k denotes the number of studies. Geographic differences in the data, (r = - 0.01, *CI* = -0.06 – 0.04, p = 0.61, k = 40) and the onset of the COVID-19 pandemic (r = 0.05, *CI* = -0.09 – 0.19, p = 0.51, k = 32) were not associated with an impact on the association between workplace bullying and mental health. Gender (r = -0.004, *CI* = -0.01 – 0, p = 0.04, k = 37) and age (r = -0.01, *CI* = -0.02 - -0, p = 0.03, k = 30) had a small negative moderating effect on the relation.

Key conclusions: Workplace bullying significantly impacts nurses' mental health emphasizing the need for targeted interventions and robust support systems. Promoting a healthier work environment for nurses holds the potential to enhance both their well-being and overall patient care quality.

Introduction

The World Health Organization (WHO) estimated a shortage of 12.9 million skilled healthcare workers worldwide by 2035 (Campbell et al., 2013). This shortage is compounded by factors such as an ageing population and workforce in more developed countries (Haddad et al., 2023). The WHO report emphasizes the importance of maintaining a motivated healthcare workforce within an enabling environment to ensure the availability and accessibility of healthcare services (Campbell et al., 2013). A healthy workplace, as defined by the WHO, prioritizes the protection and promotion of the health, safety, and well-being of all employees (WHO, 2010). However, nurses, among many healthcare workers, often encounter workplace stressors including heavy workloads, leadership issues, professional conflict, and the emotional demands associated with the job (McVicar, 2003).

A major stressor for nurses, as well as other employees, is workplace bullying. Over the past years, an extensive body of research has been devoted to the issue of workplace bullying and the consequences thereof (Boudrias et al., 2021; Verkuil et al., 2015). Workplace bullying can be defined as situations in the workplace in which an employee persistently and for a prolonged period perceives themselves to be mistreated and abused by other organization members. The bullied employee finds it difficult to defend themselves against these actions (Nielsen & Einarsen, 2012; Verkuil et al., 2015). The prolonged exposure differentiates workplace bullying from workplace violence. Workplace violence has been previously defined as any threat or act of abuse, intimidation, and aggression and can be of physical and nonphysical nature, such as psychological and sexual harassment and violence (Al-Qadi, 2021; Mento et al., 2020). Patients and their families may also engage in workplace violence, with identified risk factors being nightshifts and lengthy waiting times (Ahmad et al., 2015).

In nurse populations, a review by Bambi et al. (2018) suggested a prevalence ranging from 2.4% to 81%. Compared to an estimated 14.6% in the general workplace, workplace bullying seems to be especially prevalent in the healthcare sector (Nielsen et al., 2010). In a meta-analysis based on 140 studies examining non-physical violence against healthcare workers, a 12-month prevalence rate of 42.5% was revealed, with verbal abuse being the most prevalent form (Liu et al., 2019). It should be noted that this figure encompasses violence by patients and visitors as well. The influence of gender on workplace bullying in nurses remains inconclusive. A cross-sectional study among healthcare workers demonstrated that females

experienced significantly higher levels of bullying than males (16.4% vs. 12.3%) (La Torre et al., 2022). Interestingly, studies have indicated a heightened risk of bullying in occupations where individuals belong to a gender minority (Salin, 2021). This may be relevant as nurse populations are largely female. For instance, a study reported higher prevalence rates of bullying among men working in female-dominated sectors like nursing (Eriksen & Einarsen, 2004). Additionally, a global study revealed that the onset of the COVID-19 pandemic led to an increase in COVID-19-related bullying, thereby elevating the bullying risk in the healthcare population as compared to non-healthcare workers (Dye et al., 2020).

Antecedents of Workplace Bullying

Antecedents of workplace bullying among nurses span demographics, personality, organizational culture, work characteristics, and leadership (Goh et al., 2022). At the individual level, age and length of work experience have been found to be negatively associated with workplace bullying (Karatuna et al., 2020). This implies that younger and less experienced nurses are more likely subjected to workplace bullying. The findings regarding age and gender in relation to workplace bullying in the general population remain inconclusive (Feijó et al., 2019). The majority of studies have discovered no correlation between workplace bullying and factors such as gender, education, or marital status (Karatuna et al., 2020). Personality characteristics have been shown to generally serve as antecedents for workplace bullying, albeit varying across cultural clusters (Karatuna et al., 2020). For instance, powerlessness and high affectivity are predictive of workplace bullying in Anglo countries (Demir & Rodwell, 2012; Myers et al., 2016). In the Confucian Asia cluster however, lower self-assertiveness, high negative affectivity, and individualism have been identified as predictors (Fang et al., 2020; Oh et al., 2016). Organizational factors contribute significantly, with competition valuations, gossip tolerance, and unjust work environments fostering bullying (Trépanier et al., 2016). Work characteristics, such as work overload, and stressful working conditions may serve as additional bullying antecedents. The issue of staff shortages, which aligns with the WHO's report on the projected shortage of 12.9 million healthcare workers, has been implicated as a contributing factor (Campbell et al., 2013; Goh et al., 2022; Trépanier et al., 2016). Additionally, workplace bullying negatively correlates with factors such as job control, promotion opportunities, rewards, and structural empowerment (Trépanier et al., 2016). Lower income and shift work have also been

associated with an increased likelihood of experiencing bullying (Feijó et al., 2019; Tsuno et al., 2015). Lastly, leadership styles like authoritarian and laissez-faire leadership have been strongly linked to bullying (Hoel et al., 2009; Johan Hauge et al., 2007).

Consequences of Workplace Bullying

Workplace bullying yields multifaceted outcomes in the general working population, extending beyond the workplace. Selected consequences will be discussed in the following section. Workplace bullying impacts occupational outcomes, leading to turnover intention or actual turnover, meaning leaving their current employment, or long-term sickness absence (Boudrias et al., 2021). Additionally, workplace bullying often does not only cause conflicts at the workplace but extends to other areas. However, research in that area is still emerging. It was found that the victim's stress experience can spill over into the family domain, with conflicts at home and decreased relationship satisfaction. Further, workplace bullying was found to be associated with psychological health outcomes, specifically depression, anxiety, distress, burnout, and suicidal ideation (Boudrias et al., 2021; Verkuil et al., 2015). Finally, physical health outcomes span musculoskeletal disorders, physical stress reactions, or psychosomatic complaints in the general working population (Boudrias et al., 2021). In conclusion, workplace bullying's repercussions extend well beyond the workplace, encompassing diverse domains and exerting profound impacts on occupational, familial, psychological, and physical well-being.

Extensive research has examined the consequences of workplace bullying in nurse populations, encompassing various areas similar to the general working population. Goh et al. (2022) categorize these consequences into five types: organizational impact, work performance, patient outcomes, physical well-being, and psychosocial well-being. Firstly, a significant focus has been placed on the relationship between bullying and the intention to leave (Armmer & Ball, 2015; Oh et al., 2016; Simons, 2008). Bullied individuals report an increased intention to leave across cultural clusters (Al Zamel et al., 2020; Karatuna et al., 2020). Intention to quit can be generally associated with increased staff turnover and attrition rates and even leaving the nurse profession altogether (Bambi et al., 2018). Secondly, workplace bullying affects work performance, such as job motivation, energy level and work commitment (Yildirim, 2009). As a consequence, reduced performance in the healthcare sector poses a threat to effective and safe care (Hutchinson & Jackson, 2013; Laschinger,

2014). The third consequence pertains to patient safety and satisfaction, which can deteriorate due to workplace bullying (Goh et al., 2022). A review revealed an association between workplace bullying and different aspects of patient safety such as patient falls, treatment and medication errors, delayed care, and patient mortality (Houck & Colbert, 2017; Laschinger, 2014). Fourthly, a study demonstrated the detrimental impact of being bullied on general physical health (Sauer & McCoy, 2017). Specifically, workplace bullying has been associated with several different symptoms and illnesses, including insomnia, abdominal pain, headaches, rheumatoid arthritis, and back pain (Bambi et al., 2018).

Lastly, workplace bullying was found to be associated with mental health issues in nurses, similar to the general working population. A comprehensive review by Karatuna et al. (2020) revealed the presence of anxiety, burnout symptoms, depression, and psychological distress across various global clusters in response to bullying experiences. Specifically in the healthcare setting, a study highlighted the significant impact of workplace bullying on the depression levels of physicians and nurses (Ekici & Beder, 2014). Notably, more nurses than physicians exhibited depression symptoms and the association between bullying and depression was stronger for nurses (33%) than for physicians (27%). This association between workplace bullying and depression was further supported by a recent study conducted on female Taiwanese nurses (Ko et al., 2020). Furthermore, a longitudinal study involving 1582 participants confirmed the bidirectional relationship between anxiety and workplace bullying in nurses, even after adjusting for baseline anxiety or baseline workplace bullying (Reknes et al., 2014). Originally, burnout was primarily associated with professionals who provide care to individuals, and it still is a large psychosocial risk in the occupational realm (Edú-valsania et al., 2022). Workplace bullying exhibited positive correlations with emotional exhaustion and depersonalization, both of which are subdomains of burnout (Kim et al., 2019). Next to these debilitating mental health issues, a large cross-sectional study with 1205 hospital nurses revealed a positive association between workplace bullying and post-traumatic stress disorder symptomatology (PTSD) (Spence Laschinger & Nosko, 2015). The association between PTSD and workplace bullying has been confirmed in the general workplace population (Balducci et al., 2011). Additionally, a study performed in China revealed an association between workplace bullying and suicidal ideation and suicide in nurses, posing a large potential life threat to them (Y. Lu et al., 2022). Taken together, workplace bullying is associated with several debilitating mental health issues in nurses that are a burden to the

individual. In conclusion, the consequences of workplace bullying within nursing are broad-ranging and interconnected, extending to occupational, patient, physical, and mental health domains.

The literature reviewed thus far aligns with a theoretical model proposed by Nielsen and Einarsen (2012) that elucidates the relationship between workplace bullying and its consequences. According to this model, exposure to workplace bullying triggers chronic cognitive activation. This sustained cognitive activation can potentially evolve into prolonged physiological activation, which in turn can manifest as various health impairments. The severity of outcomes resulting from workplace bullying is contingent upon the dynamic interaction between the nature and severity of the bullying behaviour, the individual's inherent characteristics, and their coping mechanisms. This interplay directly influences the extent of cognitive and physiological activation experienced by the targeted individual. Furthermore, the model accounts for the role of cognitive incongruity – discrepancies between the perception of the self and how the individual is treated by bullies. Such incongruity intensifies health problems among victims of bullying, exacerbating the negative effects. The framework also introduces the concept of lasting negative emotional and attitudinal reactions triggered by the failure to cope with workplace bullying. These may be reduced job satisfaction, decreased commitment, and intentions to leave. Additionally, adverse health outcomes include mental and physical problems, somatization, sleep disturbances, strain, and core self-evaluations, which is in line with the findings described above. These reactions, in turn, contribute to broader behavioural outcomes such as absenteeism and reduced work performance, which may perpetuate exposure to workplace bullying. The model illustrates a feedback loop, highlighting the dynamic interrelation between the outcomes and the exposure to bullying, emphasizing the reciprocal relation. Consequently, the outcomes of bullying may also impact an individual's likelihood of being exposed to or reporting instances of bullying. Therefore, it is important to investigate the bi-directional association between workplace bullying and mental health. In conclusion, this integrated theoretical framework provides a comprehensive insight into the intricate dynamics of workplace bullying, encompassing cognitive and physiological processes, individual traits, coping mechanisms, and cognitive incongruity, ultimately offering a nuanced understanding of its effects on individuals within organizational contexts.

Covid-19 Pandemic and the Healthcare System

The recent impact of the COVID-19 pandemic should be taken into consideration, as it has had a profound global impact on healthcare systems, with nurses serving at the frontlines of the crisis. Since the emergence of the COVID-19 pandemic in Wuhan, China in 2019, the WHO has reported more than 767 million confirmed cases of COVID-19, including 6.9 million deaths (WHO, 2020, last cited: 19.06.2023). Given the critical role of healthcare workers, particularly nurses, in maintaining essential healthcare services, their well-being and emotional resilience are of utmost importance (Almaghrabi et al., 2020). Throughout the pandemic, nurses faced various stressors and unfavourable working conditions, some of which have previously been identified as antecedents to workplace bullying. These challenges encompassed severe staff shortages and, limited availability of beds and medical supplies, including personal protective equipment (Al Thobaity & Alshammari, 2020). Furthermore, reviews have highlighted the psychological shifts and concerns regarding infection among nursing staff as prominent issues in this situation. Stigmatization emerged as an additional obstacle for nurses, as they were perceived as a potential source of infection (Bagcchi, 2020). Consequently, they experienced avoidance by their family or community which could exacerbate the individual's situation due to a lack of adequate support. These circumstances have created an environment conducive to the occurrence of bullying behaviours. A large cross-sectional study conducted in Wuhan, China, found that frontline nurses experienced various mental health challenges, including high levels of burnout, anxiety, depression, and fear (Hu et al., 2020). A review of 100 articles reported prevalence rates for anxiety, depression, and stress among healthcare workers during the pandemic between 22% and 63.14% (Vizheh et al., 2020). These mental health issues may play a role in the bi-directional association between mental health and workplace bullying of pre-existing mental health issues being associated with being bullied at work. Furthermore, Asaoka et al. (2021) revealed a significant association between psychological distress and any instances of bullying or patient aggression related to COVID-19. Amidst the COVID-19 pandemic's impact on nurses at the frontlines, heightened challenges and mental health issues emphasize the critical importance of prioritizing their well-being and addressing workplace bullying.

Relevance of the current study

Taken together, workplace bullying and the consequences thereof may contribute to the current and future healthcare staffing crisis. Despite a growing body of literature, there seems to be no meta-analysis available, looking at workplace bullying in nursing populations and the association with mental health issues. Further, the recent impact of the COVID-19 pandemic should be taken into consideration. While individual studies have provided valuable insights, a comprehensive meta-analysis exploring the bidirectional associations between workplace bullying and mental health symptoms and the potential impact of the COVID-19 pandemic on nurses is currently lacking. Changes due to the COVID-19 pandemic are highly relevant in understanding health crises such as endemics, a disease that frequently occurs in a specific area or community, or pandemics as healthcare workers are largely involved. The results of such a meta-analysis are relevant as they could inform change within the healthcare community to improve conditions and counteract staffing shortages. By elucidating the association between workplace bullying and mental health issues in nurses, healthcare officials, and organization leaders can be informed of the circumstances and implement strategies to minimize workplace bullying and provide workers with a safe and fair environment (Johnson, 2009). Additionally, the findings may inform healthcare workers about bullying and the organization's consequences for bullies and bystanders. Further, organizations should investigate the potential structural issues that support or contribute to bullying such as a high workload or low autonomy (Baillien et al., 2011). By elucidating these novel aspects, this meta-analysis aims to contribute to the existing literature and inform policy and practice. Additionally, it aims to highlight the need for targeted interventions and support mechanisms to mitigate the detrimental effects of workplace bullying on the mental well-being of nurses. Further, it may provide a ground for further studies, that may inform the enhancement of nurses' job satisfaction, retention, and overall quality of patient care. Additionally, it may also highlight structural issues relevant in preparation for healthcare crises, such as pandemics.

Research Question

This meta-analysis aims to investigate the bi-directional associations between workplace bullying, including ostracism, and mental health, as conceptualized as 1) symptoms of depression, 2) symptoms of anxiety, 3) suicidal thoughts and behaviors, 4) stress-related

psychological complaints including burnout and post-traumatic stress disorder (PTSD) and 5) general mental health issues. While building upon and potentially expanding the findings from Verkuil et al. (2015), this meta-analysis focuses specifically on nurse populations. The secondary aim of the review is to examine the impact of the COVID-19 pandemic on the relationship between workplace bullying and mental health in nurses.

Research questions: 1) What are the bi-directional associations between workplace bullying, including ostracism, and mental health among nurses working in the healthcare sector? 2) Additionally, how has the relationship between workplace bullying and mental health been affected by the COVID-19 pandemic in nurse populations? 3) Are there differences between country clusters, by clustering countries based on the United Nations geo-scheme (Statistics Division of the United Nations Secretariat, 1999) or mental health issues? 4) Does age or gender have an impact on the relationship between workplace bullying and mental health?

Based on the previously reviewed literature, it is expected to find a significant positive association between workplace bullying and mental health complaints among nurses. It is hypothesized that nurses who experience workplace bullying are more likely to report higher levels of symptoms in different symptom clusters (depression, anxiety, suicidality, stress-related complaints, burnout, PTSD, and general mental health complaints) over time. The impact COVID-19 pandemic and the added stress and challenges brought about are expected to exacerbate the adverse effects of workplace bullying on mental health in nurse populations. Additionally, the influence of country clusters is not expected, as workplace bullying seems to be a pervasive issue across the world. Finally, age and gender are expected to affect the relationship between workplace bullying and mental health, with younger employees and men likely to experience more bullying and mental health issues.

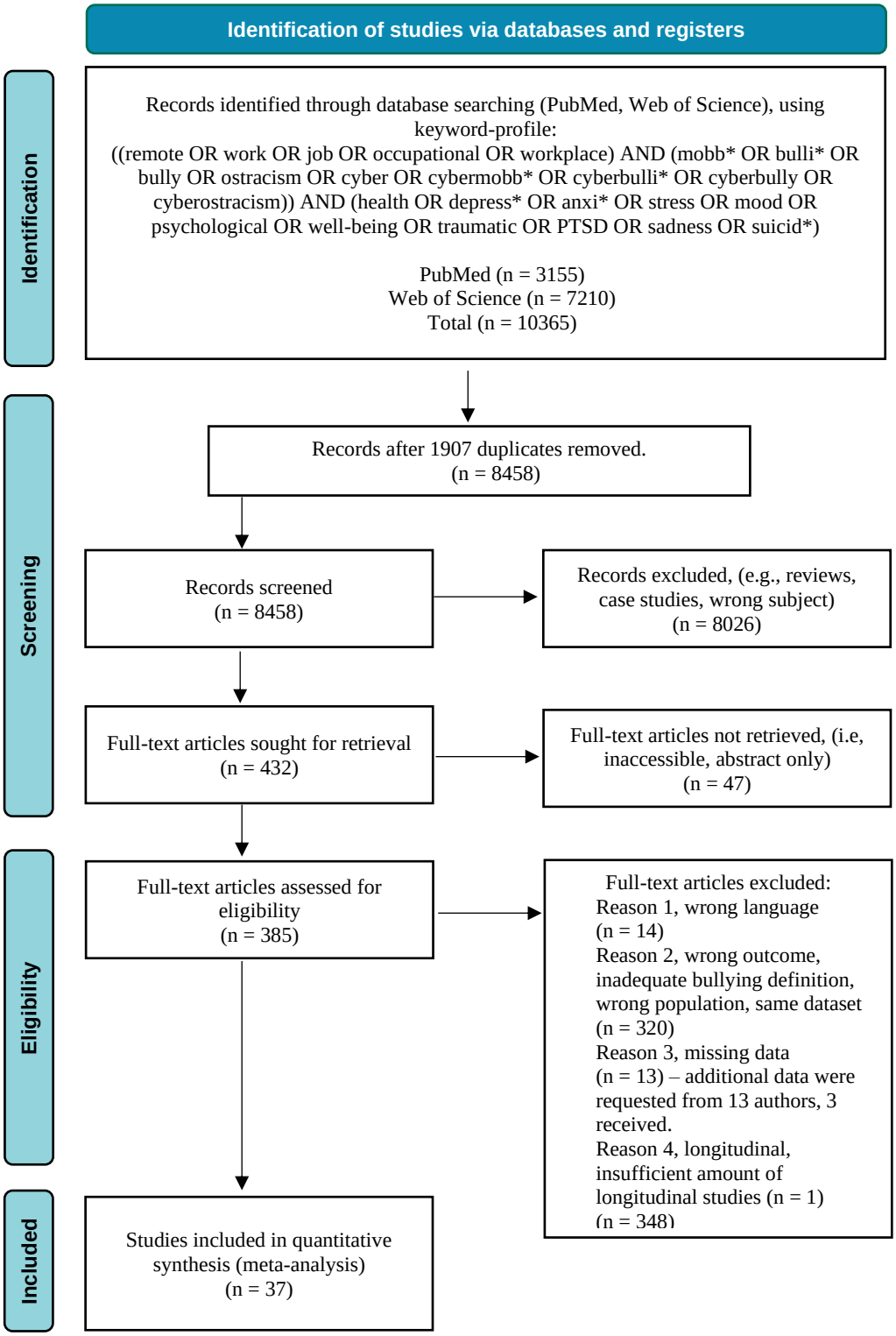
Methods

Design

The study is a systematic review with meta-analyses. It builds upon an existing meta-analysis that investigated data until 2015 (Verkuil et al., 2015). The study was performed within a larger project investigating workplace bullying and mental health in the general working population. Ethical approval by the Leiden University Psychology Research Ethics Committee is not necessary as only secondary data will be used.

Figure 1

Flowchart Study Selection



From*:* Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71, for more information, visit: http://www.prisma-statement.org/

Search Strategy

We conducted a thorough search of electronic databases (Web of Science and PubMed) up to December 2022, using the following keyword profile to identify eligible studies: *((remote OR work OR job OR occupational OR workplace) AND (mobb* OR bulli* OR bully OR ostracism OR cyber OR cybermobb* OR cyberbulli* OR cyberbully OR cyberostracism)) AND (health OR depress* OR anxi* OR stress OR mood OR psychological OR well-being OR traumatic OR PTSD OR sadness OR suicid*)*. From the resulting dataset, studies on nurse populations were identified. After excluding duplicates, the initial search yielded 8458 potentially eligible studies. A flowchart illustrating the study selection process is presented in Figure 1.

Inclusion criteria

The study selection process adhered to specific inclusion and exclusion criteria. Studies meeting the following criteria were included: 1) the study population was nurses, 2) the study was of a cross-sectional or cohort study design, and 3) reported usable data on the association between workplace bullying and depression, anxiety, suicidal thoughts, and behaviours, stress-related complaints, burnout and PTSD in nurse populations, 4) defining workplace bullying as specified in the introduction section and 5) being written in English, Dutch, Spanish, German or French. Table 3 (see Appendix) lists the questionnaires utilized to explore the outcomes of interest.

Studies reporting on sporadic incidents of harassment or violence at work and on nursing student populations were excluded. Sporadic incidents of harassment and violence are not in line with the definition of workplace bullying used in this meta-analysis. Further, nursing students were excluded due to variations in nursing school requirements, including varying hours spent working in a hospital or at school across different countries, making their investigation more complex. Additionally, we excluded studies that recruited self-labelled bullying victims seeking treatment at specialized institutions, as they may be more biased in the judgement of their experiences. Additionally, criteria for self-identification may vary across studies. We also excluded reviews, meta-analyses, case studies, essays, conference abstracts, letters, and commentaries. Finally, studies for which missing outcome data could not be obtained from the corresponding author were excluded as well. In cases where multiple publications emerged from the same study population, we included the publication containing the most comprehensive and for our purposes informative study.

To ensure the reliability of the study selection process, we assessed the interrater reliability during the initial selection using Cohen's Kappa. The obtained value was 0.65 (N = 300, SD = 0.1006, Z = 11.27, p < .0001), indicating a substantial level of agreement among the raters in the study selection process.

Quality appraisal

To assess the quality of the included studies we used the study quality assessment tool for observational cohort and cross-sectional studies as provided by NHLBI (NHLBI, n.d.). The tool contains 14 items with three scoring options (*yes, no, other*). Article quality was evaluated by four raters in total, with two raters assigned to each article (LS and MM, JW and MM, JR and MM). The score ranges from -14 to 14, with a higher score indicating a higher study quality. The preliminary results show an average of 3, indicating a rather low study quality.

Data extraction

The data extracted from the studies included the year and month of data gathering, demographic information of the sample, methodological data such as measurement tools or duration of follow-up, and the outcome data. The raw outcome data was converted to standardized Pearson product-moment correlation coefficients *r*, if the original data was not reported in this format. Additionally, if multiple correlation coefficients were reported for the same symptom cluster within a study, the outcomes were averaged to yield a study-wide correlation coefficient. Further, when a study reported multiple outcomes of interest (symptom clusters e.g. anxiety and depression), the outcomes were averaged and used in the analysis of the general association between workplace bullying and mental health. However, in the analyses on different symptom clusters, the original data, without averaging for symptom clusters, was used.

Statistical Analyses

The statistical analysis was conducted using Jamovi (version 2.3.21) (jamovi, 2023). Given the expected heterogeneity among the included studies, a random-effects model was adopted to pool the correlation coefficients (Borenstein et al., 2010). In the first analysis, workplace bullying will be examined as a predictor for overall mental health issues. The second analysis

will investigate workplace bullying as the predictor for individual symptom clusters. All findings will be reported with the corresponding effect size (*r*) and 95% confidence interval (*95% CI*). Additionally, the number of studies (k) and the total number of participants (*N*) will be provided for each analysis. To test for potential moderating effects of age, gender, country cluster, and COVID-19 (year of data collection), these variables were added as continuous or categorical predictors into the random effects model. Publication bias will be assessed through visual inspection of funnel plots and more formally using the Eggers regression test (Egger et al., 1997). Statistical significance was considered when the p-value was less than 0.05, commonly denoted as $p < 0.05$.

Results

Table 1
Demographic and Methodological Study Characteristics [1]

Author, year	Analysis [2]	N	% female	Mean age (in years)	Country
Ajoudani et al., 2019	BO	278	86	34	Iran
Ali et al., 2019	BO	310	100	NA	Pakistan
Allen et al., 2015	BO	762	89	47	Australia
Amini et al., 2022	BO	184	89	31	Iran
Bae et al., 2021	BO	166	93		Korea
Bardakçı and Günüşen, 2016	MHEALTH	284	98	34	Turkey
Berry et al., 2016	ANX, PTSD, STRESS	37	91	29	USA
Chowdhury et al., 2022	BO, DEP	1264	70	28	Bangladesh
Gillet et al., 2022	BO	290	98	36-54	France
Giorgi et al., 2015	BO	658	52	NA	Italy
Hong et al., 2021	ANX, DEP, PTSD, STRESS	319	96	NA	Korea
Hosseini and Homayuni, 2022	ANX, DEP	320	88	NA	Iran
Hsieh et al., 2019	MHEALTH	385	NA	30	Taiwan
Islam et al., 2021	BO	314	85	NA	Pakistan
João et al., 2022	BO	2015	83	39	Portugal
Johnson et al., 2019	BO	528	91	44	UK
Ko et al., 2020	DEP	484	NA	31	Taiwan

Author, year	Analysis [2]	N	% female	Mean age (in years)	Country
Kozakova et al., 2018	ANX, DEP	456	92	37	Czech Republic
Lang et al., 2021	BO	257	90	48	Australia
Laschinger and Fida, 2014	BO	205	89	29	Canada
Laschinger and Grau, 2012	BO	165	93	28	Canada
Laschinger and Nosko, 2015					
Experienced Nurses	PTSD	631	94	46	Canada
New Nurses	PTSD	244	87	27	Canada
Laschinger et al., 2010	BO	415	95	27	Canada
Lu (Y.) et al., 2022	SUICIDE	1901	96	31	China
Lu (Y.P.) et al., 2022	MHEALTH	179	10	35	Taiwan
Ma et al., 2021	BO	245	97	NA	China
Peng et al., 2016	BO	262	92	51	Taiwan
Peng et al., 2021	BO, STRESS	493	94	31	China
Qi et al., 2020	BO	530	74	31	China
Quine, 2001	ANX, DEP	1091	84	NA	UK
Read and Laschinger, 2013	BO	342	92	28	Canada
Rodwell and Demir, 2012					
Aged Care Nurses	DEP, STRESS	132	100	45	Australia
Hospital Nurses	DEP, STRESS	142	100	45	Australia
Sauer and McCoy, 2017	STRESS	345	89	46	USA
Teo et al., 2021					
Dataset 1	STRESS	287	70	NA	Australia
Dataset 2	STRESS	201	NA	NA	New Zealand
Václavíková and Kozáková, 2021	DEP	84	90	33	Czech Republic
Václavíková and Kozáková, 2022	ANX, DEP	715	95	39	Czech Republic
Vévodová et al., 2020	BO	250	92	34	Czech Republic

[1] Studies are sorted alphabetically.

[2] This column indicates the symptom cluster that is used in the meta-analysis: anxiety (ANX), burnout (BO), depression (DEP), general mental health complaints (MHEALTH), post-traumatic stress disorder (PTSD), general stress-related complaints (STRESS), SUICIDE (suicidal thoughts and behaviours)
NA = not available

Study selection

The study selection, identification, and inclusion process is presented in the flow diagram in Figure 1. The search identified, after the exclusion of duplicates, a total of 8458 studies. After the initial screening of titles and abstracts, 432 articles were identified for full-text screening. However, of those 47 were not available as full-text versions and were therefore excluded. After evaluating the remaining 385 full-text articles for eligibility, 348 studies were excluded due to 1) being written in the wrong language, 2) providing a wrong outcome, inadequate bullying definition, wrong population, same dataset, 3) missing data, and 4) longitudinal studies due to the insufficient amount. 37 studies were included in the final quantitative meta-analysis.

Study characteristics

The data for this meta-analysis consists of 40 samples obtained from 37 articles. The studies (k = 37) exclusively reported cross-sectional data (Table 1). As only two available studies were exploring the longitudinal association between workplace bullying and mental health, they were deemed insufficient for inclusion in the analysis and were therefore excluded.

A total of 53 effect sizes were extracted. The number of individual participants across studies varied, ranging from 37 to 2015 (*M* = 454, *SD* = 430), with a cumulative total of 18,170 participants. Gender distribution was reported in 37 out of 40 samples, with an average of 87.1% female participants (*SD* = 16.1). The participants' age ranged from 27 years old to 50 years old (*M* = 35.8, *SD* = 7.26, k = 30). The studies were published between 1996 and 2021, with the majority of studies published during the 2010s (*M* = 2015, *SD* = 5.21, k = 32).

Among the studies, the most prevalent outcome variable was burnout (k = 21, 39.6%), followed by depression and stress-related complaints (k[depression] = 10, 18.9%; k[stress] = 8, 15.9%). Only one study sample investigated suicide and suicidal ideation. Geographically, the majority of studies (k = 17, 42.5%) were conducted in Asia, with nearly 60 percent of those conducted in Eastern Asia. Additionally, four studies were conducted in Western Asia

and three studies in Southern Asia. 22.5 percent of the studies were conducted in Europe, 20 percent in North America, and 15 percent in Oceania. Importantly, the study sample did not include any studies from Africa or South America which decreases global generalizability.

The Negative Acts Questionnaire (NAQ-(R)) emerged as the predominant measurement tool, used in 27 out of 37 papers, representing 72.97 percent of the studies (Einarsen, 2001; Einarsen et al., 2009). This is presented in Table 3. Notably, this meta-analysis comprises studies only investigating the association between workplace bullying and mental health, with no available data for the reverse direction.

Meta-analysis on the cross-sectional association between workplace bullying and mental health

The meta-analysis revealed that workplace bullying is significantly associated with an increase in mental health issues. The data is presented in Table 2 and the funnel plot (Figure 2).

Analyses of specific mental health outcomes revealed specific associations between workplace bullying and various mental health outcomes. Workplace bullying was found to have a moderately positive association with burnout, anxiety, and depression. Moreover, there is a strong positive association between workplace bullying and stress-related as well PTSD. Workplace bullying also exhibits a strong positive association with general mental health complaints. An investigation of the association between workplace bullying and suicidal ideation and suicide was not possible, as there was only one study available. The specific study (N = 1901, China) reported a moderate association between workplace bullying and suicidal ideation and suicidal attempts.

Between-study heterogeneity was substantial across all symptom clusters (Table 2). However, the heterogeneity among the PTSD studies is not considered significant. Publication bias was only detected for the anxiety symptom cluster (Egger's $z = 2.06$, $p = 0.04$).

Figure 2

Funnel plot presenting the association between workplace bullying and mental health issues

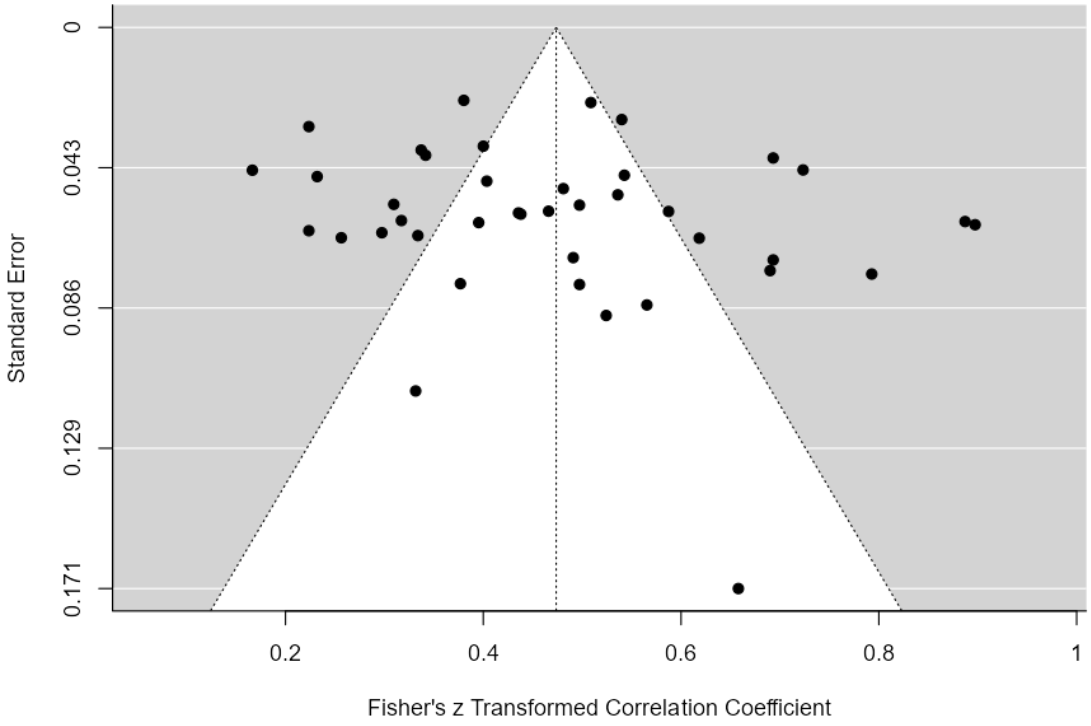


Table 2

Pooled effect size estimates for workplace bullying and mental health clusters

	r (95% CI)[1]	k (n)	Heterogeneity		Publication bias
			I^2	Q	Egger's z (p)
Overall	0.47 (0.42 - 0.53)	40 (17965)	92.76%[3]	467.69	1.28 (0.2)
Burnout	0.45 (0.37 - 0.52)	21 (9933)	92.73%[3]	256.02	-0.03 (0.98)
Depression	0.4 (0.31 - 0.49)	10 (5007)	89.75%[3]	90.68	1.5 (0.13)
Stress	0.6 (0.47 - 0.72)	8 (1956)	86.06%[3]	56.33	0.32 (0.75)
Anxiety	0.43 (0.33 - 0.53)	6 (2938)	82.65%[3]	28.91	2.06 (0.04)
PTSD	0.65 (0.58 - 0.71)	4 (1231)	18.79%[4]	2.55	-0.62 (0.54)
Mental Health	0.57 (0.35 - 0.79)	3 (848)	90.33%[3]	17.12	1.13 (0.26)
Suicide	0.47 (NA[2])	1 (1901)	NA	NA	NA

[1] $p < 0.001$

[2] NA = not available

[3] $p < 0.001$

[4] $p = 0.466$

Moderator analyses: country clusters, COVID-19, age, gender

Geographic differences in the data were explored by clustering countries based on the United Nations geo-scheme (Statistics Division of the United Nations Secretariat, 1999). Country clusters were not associated with the correlation between workplace bullying and mental health (r = - 0.01, CI = -0.06 – 0.04, p = 0.612, k = 40).

The potential impact of the COVID-19 pandemic was investigated. Studies were classified as having performed data collection pre- or post-COVID onset, with 24 studies performed before and 8 studies performed after the onset of the pandemic. Eight studies were excluded due to missing information. The moderator analysis yielded no association with the relation between workplace-bullying and mental health (r = 0.05, CI = -0,09 – 0.17, p = 0.51, k = 32).

Age was found to have a negative moderating effect on the relationship between workplace bullying and mental health (r = -0.01, CI = -0.02 - -0, p = 0.03, k = 30). Similarly, gender, assessed as the percentage of female participants, exhibited a weak negative moderating effect on the association between workplace bullying and mental health (r = -0.004, CI = -0.01 – 0, p = 0.04, k = 37).

Discussion

This comprehensive meta-analysis systematically examined the connection between workplace bullying and mental health issues in nurse populations based on data from 40 samples in 37 articles. The results of this meta-analysis substantiate the presence of a significant positive association between workplace bullying and burnout, depression, anxiety, stress-related complaints, PTSD, and general mental health issues in nurse populations. This meta-analysis confirms the moderate to strong link between self-reported exposure to workplace bullying and mental health issues. Suicidality was not investigated due to the lack of sufficient data. The effect sizes range from 0.4 to 0.65 and are therefore stronger than the effect sizes found in a meta-analysis on the general working population, ranging from 0.15 to 0.51 (Verkuil et al., 2015). It is crucial to emphasize that the research question was not fully answered as there was insufficient data available for the bidirectional relationship between mental health issues and workplace bullying. Therefore, only a uni-directional association was explored. Moreover, the association between workplace bullying and mental health across time was not investigated due to an insufficient amount of longitudinal data.

The findings align with Nielsen and Einarsen's (2012) theoretical model of workplace bullying and its impact on individual outcomes. The findings confirm the proposed framework, demonstrating that workplace bullying is notably associated with mental health issues. Prolonged exposure to systematic aggression, as experienced by bullying victims, negatively affects the individual. This aligns with the Cognitive Activation Theory of Stress (CATS) embedded in this broader framework, wherein the bullying experience evolves into a persistent cognitive activation, potentially resulting in prolonged physiological activation (Ursin & Eriksen, 2004). Subsequently, this manifests as diminished health and well-being. Effective coping strategies enable individuals to manage and mitigate activation, averting risks to their mental health. However, inadequate coping could sustain activation, culminating in chronic cognitive arousal and consequent mental health challenges. Furthermore, the moderator analysis exploring various factors such as geographic differences, the COVID-19 pandemic, age, and gender, provide additional dimensions to the theoretical framework. The negative moderating effects of age and gender highlight the importance of individual differences in potentially shaping the impact of workplace bullying on mental health. This aligns with the model's focus on the interaction between individual traits and coping mechanisms, which collectively influence the severity of outcomes. The theoretical model gains empirical validation.

Contrary to expectations, the results show that the COVID-19 pandemic did not have the expected exacerbating effect on workplace bullying and mental health. The elevated stress levels and unfavourable working conditions experienced by nurses during the COVID-19 pandemic did not correspondingly increase the risk of workplace bullying and associated mental health issues (Al Thobaity & Alshammari, 2020; Vizheh et al., 2020). As there is limited availability of studies investigating the effects of workplace bullying and mental health during the pandemic, this could explain the findings. Further, it is possible that the nurses' often possessed moderate resilience to deal with the demands of the pandemic, therefore being less susceptible to an increase in bullying (Baskin & Bartlett, 2021). Investigating the reverse direction, how mental health problems impact workplace bullying, could offer valuable insights, especially given the reported mental health complaints in nurses during COVID-19 (Hu et al., 2020; Vizheh et al., 2020). Due to the lack of data available for the reverse direction, this was not possible.

Furthermore, significant differences across country clusters were not evident from the analysis. This implies that workplace bullying and its subsequent impact on mental health are a shared challenge experienced by nurses in large parts of the world. This is in line with the findings by Karatuna et al. (2020). There was an unequal distribution of countries of origin, with few studies available from Oceania and no studies available from South America and Africa. Thus, global inferences cannot be made.

Lastly, the results indicate a weak negative effect of age and gender on the relationship between workplace bullying and mental health. The correlation between workplace bullying and mental health issues appears to weaken with increasing age. This is in line with a review by Karatuna et al. (2020) that showed an increase in bullying for younger and less experienced nurses, however, contrasting the mostly inconclusive findings in Feijó et al. (2019). This finding may be attributable to the possibility that older employees hold more informal or formal power within the team, thereby reducing the likelihood of being a bullying victim (Notelaers et al., 2011). An alternative explanation may be different coping strategies employed by older people that potentially enable them to better manage workplace bullying (Folkman et al., 1987). Similarly, a correlation emerges indicating that an increased proportion of female participants in the study correspond to a reduced association between workplace bullying and mental health issues. This is in line with the results presented earlier, suggesting that men potentially experience more bullying in female-dominated sectors (Eriksen & Einarsen, 2004; Salin, 2021). As the nursing profession is still largely female-oriented, and some samples in this meta-analysis almost only exclusively included women, this may explain the difficulty to investigate gender differences (Karatuna et al., 2020). Overall, the effects of age and gender were very weak and therefore the results must be carefully interpreted. Other factors may be at play here.

Strengths and Limitations

The ensuing section delves into a comprehensive assessment of the strengths and limitations inherent in this study's methodology and findings. This was the first meta-analysis to specifically investigate the association between workplace bullying and mental health in nurses. This not only contributes valuable insights to the existing literature but also enriches the discourse in this domain. A notable strength of this meta-analysis was the relatively high number of included studies. This enhances the robustness of the findings and their

implications. Additionally, the moderate to strong effect sizes demonstrate a clear link between workplace bullying and nurses' mental health. The incorporation of studies from several different countries and country clusters introduces an element of global perspective, reducing the potential for a Eurocentric bias in the analysis of the examined association. Further, the meta-analysis allows for cross-validation of previous findings on the association between workplace bullying and mental health issues in the general working population (Verkuil et al., 2015). By exploring several moderators, a more nuanced and less biased investigation of the relationship was possible as we acknowledge the possible influence of those. This allows for more enhanced preciseness in recommendations based on this analysis. The incorporation of the COVID-19 pandemic as a moderator shows your responsiveness to recent events and the potential impact on workplace bullying and mental health. Even though the findings were unexpected, they contribute to the literature by addressing a contemporary concern. Finally, the findings presented in this meta-analysis align with the theoretical framework by Nielsen and Einarsen (2012), increasing credibility and underscoring the theoretical significance.

Despite these strengths, it is important to acknowledge certain limitations in this meta-analysis. Firstly, it is plausible that reporting bias might have influenced the outcomes due to the reliance on self-report measures for data collection. Secondly, the search was confined to two databases (Web of Science, PubMed). A risk remains that studies have remained undetected and therefore unaccounted for in the analysis. Thirdly, the study quality assessment has been partially performed and yielded a relatively low rating (3.0). This could be explained by the lack of longitudinal studies, which usually yield higher ratings. The final results were pending at the time of submission. Consequently, the potential inclusion of studies with lower methodological quality could have affected the overall outcomes. Fourthly, the notable heterogeneity within the meta-analysis serves as another limitation. The variability is likely attributable to study designs, measurement tools, and differences in the healthcare system. Fifthly, the global generalizability of the results may be limited due to the absence of data from Africa and South America. This geographical gap should be recognized when considering the broader applicability of the findings. Finally, the bi-directional association and longitudinal effect were not investigated due to a lack of data.

Implications and conclusion

The findings from this study shed light on the heightened vulnerability of nurses to mental health issues in response to workplace bullying. Mental health issues such as depression, anxiety, burnout, stress-related complaints, PTSD, and general mental health issues have been identified to have a positive association with workplace bullying in nurses. Moreover, the study highlights that workplace bullying is not merely a transient stressor but rather correlated with higher levels of subsequent mental health complaints. The study's findings provide compelling support for Nielsen and Einarsen's (2012) theoretical model of workplace bullying. Our results confirm the model's premise that prolonged exposure to systematic aggression significantly impacts an individual's mental health. The moderation analysis, particularly in terms of age and gender, further underscores the model's focus on individual differences and their role in shaping the outcomes of workplace bullying. The profound implications of these findings reverberate throughout various domains. As discussed previously, these findings highlight the need for adequate targeted interventions and support mechanisms to reduce and combat workplace bullying as implemented by policymakers and healthcare administrators. Training programs focussing on resilience skills and education have been found effective, especially when delivered by trusted facilitators (Escartín, 2016). In the face of an aging population and the persistent shortage of healthcare workers, nurturing a supportive work environment that counters workplace bullying can significantly contribute to the retention of skilled nursing professionals. This, in turn, augments healthcare systems' resilience and capacity to provide consistent and high-quality patient care (Laschinger, 2014).

However, the study also illuminates areas warranting further exploration. Future research should focus on gathering data on the association between pre-existing mental health issues and subsequent workplace bullying in nurse populations. Unraveling the dynamics between these variables could provide insights into potential vulnerability factors and underlying mechanisms of workplace bullying. Additionally, the study underscores the pressing need for more longitudinal data, a gap that has implications for accurately discerning the causal direction of the relationship between workplace bullying and mental health issues. This holds particular significance in understanding the nuanced and potentially long-lasting repercussions of the COVID-19 pandemic on nurses' mental health and exposure to workplace bullying. The absence of data from South America and Africa highlights the need for research in these areas, offering valuable insights into cultural and contextual influences on workplace

bullying and its mental health implications. Addressing these geographical gaps can foster a more inclusive understanding of the challenges faced by nurses across diverse global settings, enabling better-informed interventions and policies.

In sum, the study's implications underscore the imperative of holistic interventions to combat workplace bullying among nurses, championed by policymakers and administrators. By doing so, healthcare systems can enhance their workforce's well-being, patient care quality, and long-term sustainability. The study also beckons for further exploration of the nuanced relationships at play, both within and beyond the scope of the current research, to ensure a comprehensive understanding of the intricate interplay between workplace bullying and mental health in the nursing profession.

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Appendix

Table 2

Methodological characteristics of the included studies

Author, year	Measurement of bullying (in months)	Outcomes
Ajoudani et al., 2019	NAQ-R (6)	MBI
Ali et al., 2019	NAQ (6)	Burnout scale
Allen et al., 2015	Bullying scale by Quine (12)	CBI
Amini et al., 2023	Iranian Population's Workplace Bullying Questionnaire (NA)	MBI
Bae et al., 2021	WPBN-TI (NA)	Tedium Scale
Bardakçı and Günüşen, 2016	Workplace Bullying Behaviours Scale (12)	GHQ-12
Berry et al., 2016	NAQ (6)	PSS, STAI, PCL-C
Chowdhury et al., 2022	S-NAQ-9 (6)	PHQ-9, BMS-10
Gillet et al., 2022	SNAQ (6)	MBI-GS
Giorgi et al., 2016	NAQ-R (6)	BIT
Hong et al., 2021	NAQ-R (6)	PCL-5, DASS
Hosseini and Homayuni, 2022	NAQ-R (6)	BDI-II, BAI, NAS
Hsieh et al., 2019	NAQ-R (6)	CHQ-12
Islam et al., 2022	7-item scale based on NAQ (NA)	MBI
João et al., 2023	NAQ-R (6)	MBI-HSS
Johnson et al., 2019	WRES (12)	OBI
Ko et al., 2020	NAQ-R (6)	TDQ
Kozáková et al., 2018	NAQ-R (6)	SUPSO
Lang et al., 2022	WBI (NA)	MBI-GS
Laschinger and Fida, 2014	NAQ-R (6)	MBI-GS
Laschinger and Grau, 2012	NAQ-R (6)	MBI-GS
Laschinger and Nosko, 2015	NAQ-R (6)	PC-PTSD
Laschinger et al., 2010	NAQ-R (6)	MBI-GS
Y. Lu et al., 2022	WPVBI	2 items (1 for ideation, 1 for attempts)
Y. P. Lu et al., 2022	NAQ-R (6)	BSRS-5
Ma et al., 2021	NAQ-R (6)	MBI-GS
Y.-C. Peng et al., 2016	NAQ-R (6)	Burnout Inventory General Survery (8 items)
J. Peng et al., 2022	NAQ-R (6)	ProQOL-CN

Author, year	Measurement of bullying (in months)	Outcomes
Qi et al., 2020	Workplace Ostracism Ferris (NA)	MBI
Quine, 2001	20 item inventory of bullying (12)	HADS
Read and Laschinger, 2013	NAQ (6)	Maslach Burnout Inventory
Rodwell and Demir, 2012	Hoel and Coopers single item (6)	Kessler-10, CESDS-9
Sauer and McCoy, 2017	NAQ-R (6)	SF36 MCS
Teo et al., 2021	NAQ-R (6)	Kessler-10
Václavíková and Kozáková, 2021	NAQ-R (6)	GHQ-28
Václavíková and Kozáková, 2022	NAQ-R (6)	GHQ-28
Vévodová et al., 2020	NAQ-23 (6)	MBI

Abbreviations (alphabetical): *BAI* Beck Anxiety Inventory, *BDI-II* Beck Depression Inventory – II, *BIT* Burnout Indicator Tool (italy), *BMS-10* Burnout Measure-Short, *BSRS-5* Brief Symptom Rating Scale, *CBI* Copenhagen Burnout Inventory, *CESD-9* Center for Epidemiologic Studies Depression Scale, *CHQ-12* Chinese Health Questionnaire, *DASS* Depression Anxiety Stress Scale, *GHQ* General Health Questionaire, *HADS-A* Hospital Anxiety and Depression Scale, *Kessler-10* Kessler Psychological Distress Scale, *MBI* Maslach Burnout Inventory, *MBI-GS* Maslach Burnout Inventory-General Survey, *MBI-HSS* Maslach Burnout Inventory–Human Services Survey, *NAS* Negative Affect Schedule (subscale of the PANAS), *NAQ-(R)* Negative Acts Questionnaire (Revised), *OBI* Oldenburg Burnout Inventory, *PCL-5* Post-traumatic Stress Disorder Checklist Civilian version, *PC-PTSD* Primary Care PTSD scale, *PHQ-9* Patient Health Questionnaire, *ProQOL-CN* Chinese version of Professional Quality of Life Scale, *PSS* Cohen's Perceived Stress Scale, *SF36 MCS* Short Form 36 Health Survey Questionnaire, *STAI* Spielberger State-Trait Anxiety Inventory, *SUPSO* Subjective Feelings and State, *TDQ* Taiwanese Depression Questionnaire, *WBI* Workplace Bullying Inventory, *WPBN-TI* workplace bullying in nursing-type inventory, *WPVBVI* Workplace Psychologically Violent Behaviors Instrument, *WRES* NHS Workforce Race Equality Standards and Indicators