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Workplace violence and associated factors against nurses working in public hospitals in Ethiopia: a systematic review and meta-analysis

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Abstract

Background The issue of workplace violence (WPV) directed at nurses is a chronic and global public health concern. Numerous studies on workplace violence in Ethiopia have been conducted; however, the results have been inconsistent. The review aims to identify the pooled prevalence and associated factors of workplace violence against nurses.

Methods A systematic and methodical literature search was conducted using electronic databases such as Google Scholar, EMBASE I, Scopus, PubMed, HINAR, the Web of Science, and the African Journal Online (AJOL). Each original study's efficacy and quality were assessed using a modified Newcastle-Ottawa scale (NOS) technique designed for cross-sectional research. The Cochrane Q and I2 test statistics were used to verify the heterogeneity of the studies. Using a random effect model, the pooled estimate of workplace violence among nurses was calculated.

Result The pooled estimate of workplace violence among nurses in Ethiopia was 39.43% (95% CI: 27.63, 51.23). Female nurse (POR = 2.25; 95% CI: 1.29, 3.92), short work experience (POR = 3.25; 95% CI: 2.37, 4.45), and living without a spouse (POR = 2.03; 95% CI: 1.03, 3.99) were identified factors associated with workplace violence.

Conclusion This study found that about two-fifths of nurses encounter workplace violence. According to this study, there was a significant association between work place violence among Nurses and being female, having less job experience, and being single. To address this issue, the Federal Ministry of Health (FMOH), policymakers, and other stakeholders should prioritize interventions aimed at reducing workplace violence.

Keywords Prevalence, Workplace violence, Factors, Nurses, Ethiopia

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Background

Worldwide, workplace violence (WPV) directed at healthcare workers is a pervasive and enduring public health issue [1]. WPV is defined as "violent acts directed toward persons at work or on duty [2]." The National Institute for Occupational Safety and Health reports that there are four categories of work-related violence injuries in the healthcare industry. Type I includes crimes committed by a criminal unrelated to the company or its employees. Type II: Following therapy or services, a patient, client, or customer becomes aggressive. Type III refers to workplace violence, whereas type IV refers to interpersonal violence [3]. Every year, violence claims the lives of about 1.6 million people worldwide, and many more are hurt and have both physical and mental health issues [1]. Of the almost 6.5 million acts of violence that people have witnessed, violence-related injuries rank as the second most common cause of workplace injuries, accounting for 16% of all such incidents [2]. According to certain data, the prevalence of workplace violence in Ethiopia ranges from 29.9 to 82.8% [4, 5].

Workplace violence is a widespread public health concern globally [6]. Nearly 25% of violent workplace incidents occur in the health sector, and over 50% of health professionals have already experienced violence [4, 5] Nurses experienced higher rates of violence than other healthcare workers, according to a survey from the International Labour Office (ILO) [7, 8]. As front-line healthcare professionals, nurses work with people in various environments, including trauma, suffering, and life-changing events [9, 10]. A nurse may choose to move to a different area within the same healthcare facility as a result of seeing violence at work. Treatment facilities and the community may incur large additional expenditures [3, 11, 12]. Furthermore, the effects of workplace violence on the medical field have a big influence on how successful health systems are, especially in poor nations. In addition, the workplace and society at large are severely impacted by sexual violence as a kind of violence. The survivors of sexual assault may require time off from work due to the numerous possible impacts of the abuse on their physical and mental health. Moreover, incidents of sexual assault at work may foster a fearful environment. Additionally, it lowers job productivity work performance, and wellness of the entire staff [13, 14].

Various studies have underscored the impact of work-related and sociodemographic factors on workplace violence (WPV) against nurses [4, 5, 15–20]. Research shows that female nurses with limited work experience and those living without a spouse are more vulnerable to experiencing WPV [21–23]. To combat this issue, violence prevention policies recommend conducting risk assessments tailored to specific environments, which can guide the development of comprehensive prevention programs [24, 25]. Accurately measuring the prevalence of WPV and identifying associated factors is critical for designing effective interventions.

To address WPV, particularly among more vulnerable nurses, healthcare institutions must implement multifaceted strategies. This includes enforcing zero-tolerance policies, offering regular training on violence prevention and de-escalation, and ensuring adequate staffing. Mentorship, counseling, and peer support for less experienced nurses are essential to reduce their risk. Additionally, improving the work environment with enhanced safety measures, encouraging incident reporting, and fostering a culture of inclusion and respect can help prevent violence. Regular collection and analysis of WPV data will further refine preventive strategies, ensuring a safer and more supportive workplace for all nurses.

The study evaluated existing literature on workplace violence among Ethiopian nurses, noting that no systematic reviews have been conducted to date. By including quantitative cross-sectional studies in this systematic review and meta-analysis, the research efficiently assesses the prevalence of workplace violence (WPV), analyzes associated risk factors, and offers broad, generalizable insights to inform policy and preventive measures in public hospitals in Ethiopia. Although numerous studies have examined workplace violence in Ethiopia, their findings have been inconsistent. Therefore, the primary objective of this study is to estimate the pooled prevalence of WPV and identify contributing factors among nurses working in public hospitals in Ethiopia. The findings from this meta-analysis will aid policymakers and stakeholders in effectively implementing strategies for the prevention and control of workplace violence.

Materials and methods

This systematic review and meta-analysis was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [26] S1 file. Additionally, the review has been registered with the Prospective Register of Systematic Reviews (PROSPERO) with the identifier CRD42024578923.

Search Strategy

We searched databases including Google Scholar, EMBASE I, Scopus, PubMed, HINAR, web of Science, and African Journal Online (AJOL) between November 10, 2023–May 9, 2024, to find studies regarding the prevalence of workplace violence and its associated factors among Nurses working in public Hospitals in Ethiopia. The search utilized a combination of free-text keywords and Medical Subject Headings (MeSH), incorporating terms such as "workplace violence" OR "violence" OR "bullying" OR "aggression" OR "assault" OR "assaultive

behavior" AND "factors" OR "determinants" OR "predictors" AND "health personnel" OR "Nurses" OR "health care provider" OR "healthcare worker" OR "health care professional" OR "Nursing personnel" OR "registered Nurse" AND "Hospitals" OR "Heath care facilities" AND "Ethiopia". Boolean operators (AND, OR) were applied to maximize the search's comprehensiveness.

Inclusion criteria

The study comprised original research articles documenting workplace violence and/or related factors among Ethiopian nurses. Without regard to the year of publication, observational studies were taken into consideration. Only published articles written only in English were considered for inclusion. Furthermore, all publications reported up to May 9, 2024, were also taken into consideration.

Exclusion criteria

Excluded from consideration were studies that failed to provide a clear picture of workplace violence among Ethiopian nurses. Moreover, editorial reports, letters, reviews, commentary, and publications lacking an abstract or complete text were not included in the analysis.

Article selection

All studies identified through various databases were exported to Endnote X7. After removing duplicate articles, three authors (YAF, GKN, and WCT) independently reviewed the abstracts and full texts of the articles, screening them for eligibility.

Extraction of data

Three authors (YAF, JAB, & AMZ) summarized the prevalence of workplace violence among nurses and its associated factors from each study using a data extraction format based on the Joanna Briggs Institute (JBI) tool for prevalence studies. Details that were retrieved were the first author's name, the study's area and setting, the year it was published, the study's design, the sampling process, and the type of violence, perpetrators, and the sample size. Moreover, 95% confidence intervals were generated for the prevalence and associated factors of workplace violence.

Risk of bias (quality) assessment

All original research's quality was evaluated by the Newcastle-Ottawa scale (NOS), a tool designed specifically for cross-sectional study evaluations. There are three major components to the assessment instrument. Five stars are awarded for each study's methodological quality (i.e., sample size, response rate, sampling process, and risk factor or exposure determination) in the tool's first section. The tool further assesses the study's comparability with a potential score of two stars. Next, it evaluates the outcomes and statistical tests, awarding up to three stars. Ultimately, studies in this systematic review and meta-analysis achieve moderate (5–6 stars) to high (>6 stars) quality scores. The quality of the included studies was independently assessed by three reviewers (YAF, GKN, and WCT). Disagreements were resolved through discussion.

Outcome measurement

Two main outcomes were examined in this review. Workplace violence is the main outcome measure of this study. It is defined as follows: participants must have encountered at least one type of workplace attack in the previous 12 months, such as physical violence, verbal abuse, bullying, or sexual harassment [22]. Finding factors associated with workplace violence among Ethiopian nurses was the study's second outcome variable, and it was quantified using the odds ratio (POR). Each discovered factor's odds ratio was computed using binary outcome data provided by each original research.

Statistical analysis

Testing for heterogeneity

The researchers used Microsoft Excel for data import and STATA version 11 for statistical analysis. Cochran's Q test assessed significant statistical heterogeneity, and the I^2 statistic quantified its degree, with a p-value less than 0.05 indicating that variability was unlikely due to chance [27]. Heterogeneity was classified as low ($I^2 < 25\%$), moderate ($25\% \leq I^2 \leq 75\%$), or high ($I^2 > 75\%$) [28]. Given the expected variability between studies, a random-effects model was applied, as it accounts for differences among studies and is suitable when significant heterogeneity is present. Subgroup analysis, based on the geographical regions of the primary studies, was conducted to compare prevalence estimates within each group. Sensitivity analysis was also performed to check if any individual studies had a significant impact on the overall results. Meta-regression analysis examined whether study characteristics influenced the reported prevalence of workplace violence.

Publication bias assessment

A funnel plot was used as a visual tool to evaluate potential publication bias, and a statistical test was conducted to quantify its likelihood. Egger's test was applied, with a p-value of less than 0.05 suggesting the presence of possible publication bias.

Results

Study selection

We were able to get 26,332 articles about violence and/or associated factors among nurse workers working in public hospitals in Ethiopian. Studies removed due to duplication were 325. After the articles' titles and abstracts were evaluated 25,956 articles were removed. After the qualifying criteria for the remaining 51 full-text papers were evaluated, 44 studies were further excluded, mostly due to unreported outcomes of interest and differences in the study population. Seven studies were thus included in the final meta-analysis (Fig. 1).

Characteristics of the included studies

Every study that was included employed an institutional-based, cross-sectional study to estimate workplace violence. Every study that was a part of this evaluation was published between 2016 and 2024. Simple random sampling was utilized in six of the papers that made up this review, whereas systematic random sampling was used in one. There were 2,826 participants all from an estimated 2,986 nurse workers, with an estimated sample size ranging from 354 [29] to 660 [4]. According to the included research, the prevalence of workplace violence among nurses ranged from 17.4% [30] to 61.3% [31]. The Amhara area produced four of the research that made up this review [17, 23, 30, 32], The other three investigations were produced by the Southern Nations, Nationalities, and People's Region (SNNPR) [4, 29, 31] (Table 1).

Meta-analysis

Risk of bias assessment for the included studies

The Newcastle-Ottawa scale was utilized to assess each original study's quality objectively, and it was modified for use in cross-sectional research. As per the quality assessment summary, a majority of the included studies ($n=6$, 85.7%), had high quality, and a minority ($n=1$, 14.3%) had medium quality **S 2 file.**

Workplace violence

In this study, the pooled estimate of workplace violence among nurses was 39.43% (95% CI: 27.63, 51.23). In estimating the pooled prevalence of workplace violence among nurses high heterogeneity through the included studies was exhibited ($I^2=100\%$; $p=0.000$). Therefore, a random effects model was used in the meta-analysis to calculate the pooled prevalence of workplace violence among nurses (Fig. 2).

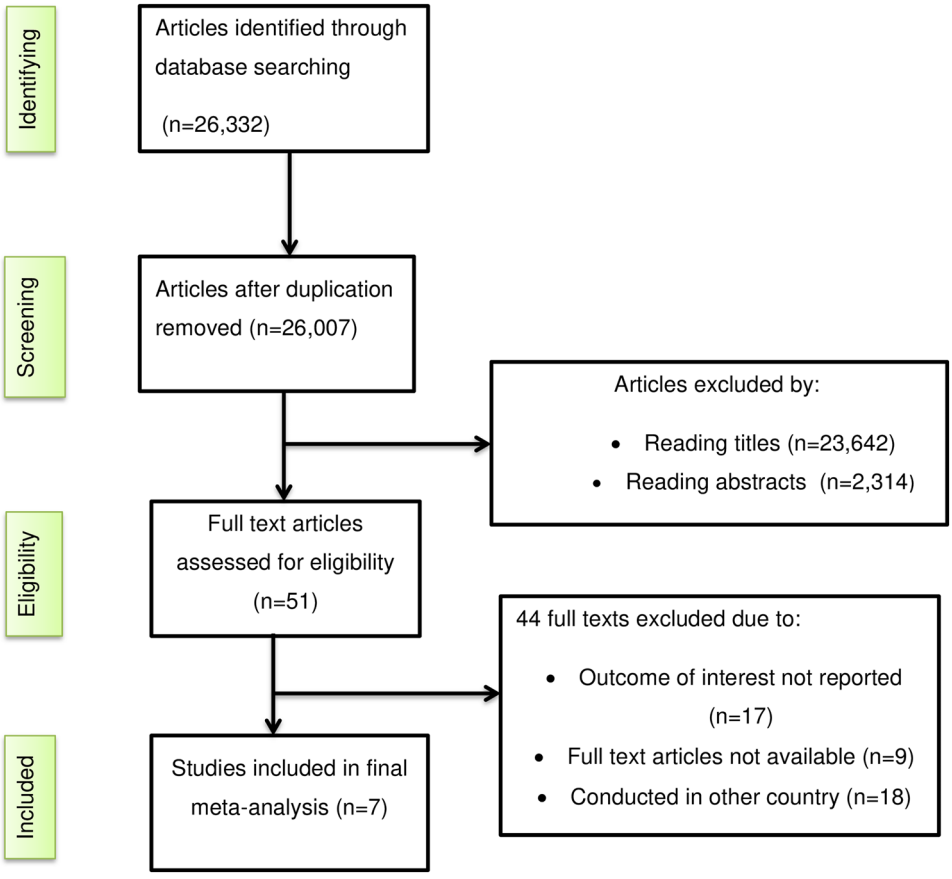


Fig. 1 Flow chart of study selection for systematic review and meta-analysis of workplace violence and associated factors among nurses in Ethiopia, 2024

Table 1 Descriptive summary of primary studies included in the meta-analysis of workplace violence and associated factors among nurse proffesinals in Ethiopia, 2024

Id	Author	Pub year	Region	study design	Study population	Sample size	Prevalence (%)	Sampling	Type of violence	Perpetrators
1	Bekalu and Wudu [1]	2023	Amhara	IBCS	Nurse	568	56	Simple random sampling	• verbal abuse • physical abuse • bullying • sexual harassment	• relatives of patient • staff member
2	Fute et al [2]	2015	Southern	IBCS	Nurse	660	29.9	Simple random sampling	• physical abuse • verbal abuse • sexual harassment	• patients
3	Yenealem et al [3]	2019	Amhara	IBCS	Nurse	553	41.6	Simple random sampling	• physical abuse • verbal abuse • sexual harassment	• staff member
4	Tiruneh et al [4]	2016	Amhara	IBCS	Nurse	428	26.7	Systematic sampling	• physical violence • Psychological violence.	• relatives of patient • staff member
5	Weldeha-waryat et al [5]	2020	Southern	IBCS	Nurse	354	43.1	Simple random sampling	• verbal abuse • physical abuse • bullying • sexual harassment	• relatives of patient • staff member
6	Dagnaw et al [6]	2022	Amhara	IBCS	Nurse	423	17.4	Simple random sampling	• sexual harassment	• relatives of patient
7	Anose et al [7]	2024	Southern	IBCS	Nurse	415	61.3	Simple random sampling	• sexual harassment • verbal abuse	• relatives of patient

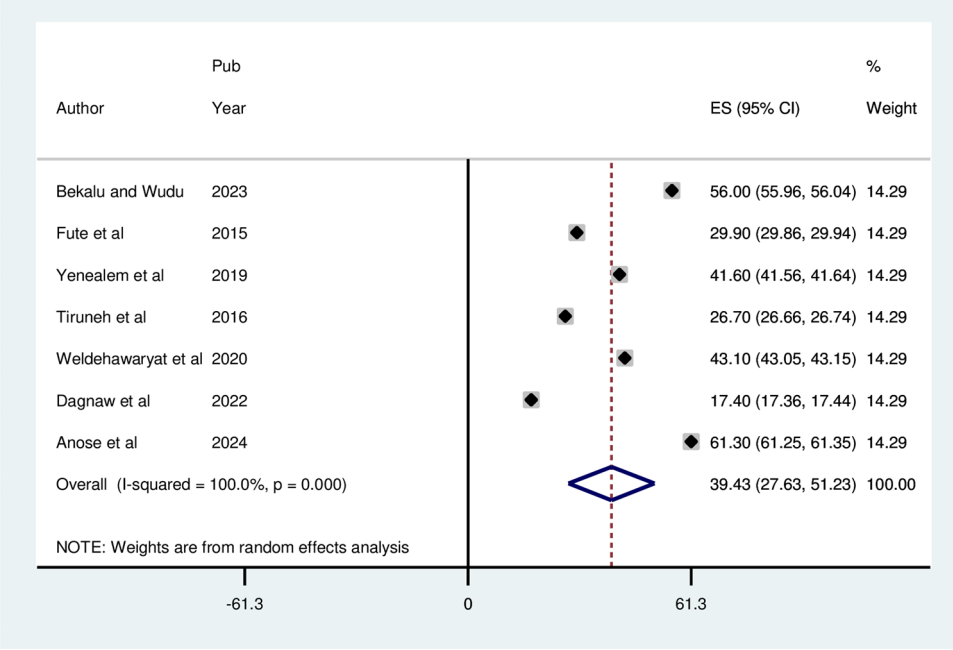


Fig. 2 forest plot of the pooled prevalence of workplace violence among nurses in Ethiopia, 2024

Subgroup analysis

Subgroup analysis was done according to the areas in which the primary studies were carried out. Accordingly, the higher violence was detected in southern region with a prevalence of 44.77%(95% CI: 25.87, 63.67), and the lower violence was detected in Amhara region with a prevalence of 35.42%(95% CI: 18.46, 52.39) (Fig. 3).

Publication bias

To determine if publication bias existed, Egger regression tests and visual examination of the asymmetry in funnel plots were used. As a consequence, publication bias was not present in the included papers according to the results of both funnel plots and Egger's tests. Egger's test result showed statistically non-significant results

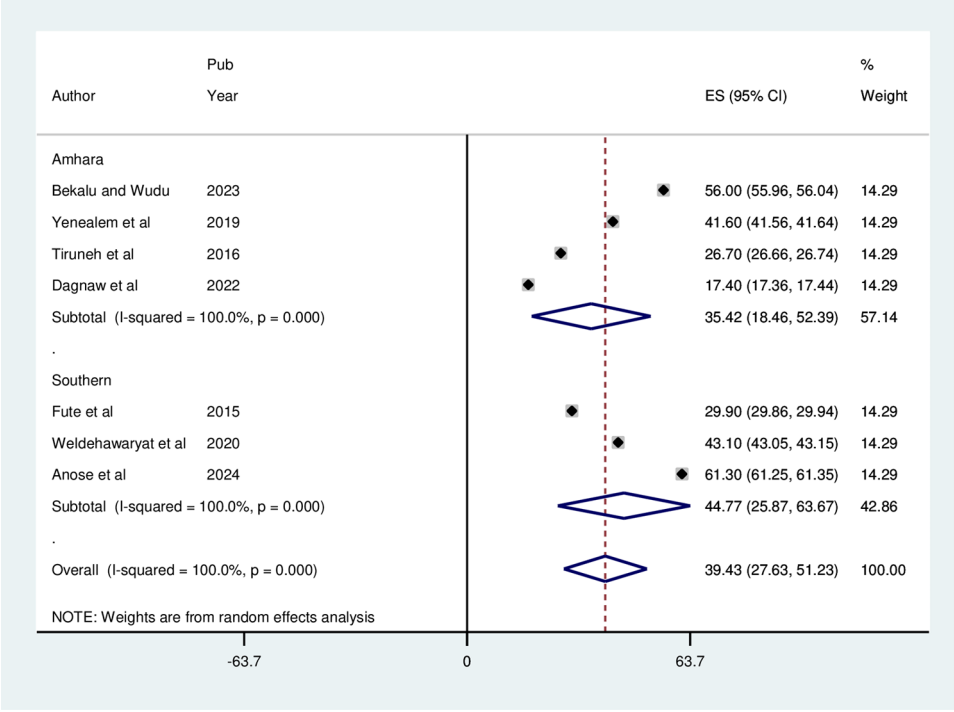


Fig. 3 subgroup analysis of workplace violence among nurses in Ethiopia, 2024

($p = 0.827$), indicating the absence of publication bias. Furthermore, a visual examination of the funnel plots revealed a symmetry distribution of research (Fig. 4).

Meta-regression and sensitivity analysis

The subgroup analysis revealed significant variability between the included studies. To explore the sources of this heterogeneity, a meta-regression and sensitivity analysis were conducted. In the meta-regression, study covariates such as publication year, sample size, and participant characteristics were examined, but none were found to be statistically significant contributors to the observed heterogeneity. Additionally, the sensitivity analysis showed that no individual study significantly influenced the overall pooled prevalence of workplace violence among nurses working in Ethiopian public hospitals. This suggests that the pooled estimates are robust and not disproportionately affected by any single study.

Associated factors

In this study, certain factors associated with workplace violence were statistically pooled, but some weren't since the independent variables were not evenly classified or grouped about the outcome, which is workplace violence.

Three studies indicated that female nurse has a substantial correlation with workplace violence. The odds of workplace violence were 2.25 times (POR = 2.25; 95% CI: 1.29, 3.92) higher among nurses who are female health workers on workplace violence when compared with those who are male health workers. This meta-analysis revealed high heterogeneity among the included studies ($I^2 = 83.4\%$, $P = 0.002$). Thus, an analysis using a random effect model was employed (Fig. 5).

Three studies indicated that short work experience has a substantial correlation with workplace violence. The odds of workplace violence were 3.25 times (AOR = 3.25; 95% CI: 2.37, 4.45) higher among nurses who have short work experience when compared with those who have long work experience. The homogeneity of the included studies in this analysis was noted ($I^2 = 0.0\%$, $P = 0.386$). Thus, a fixed effect model analysis was applied (Fig. 6).

Furthermore: Three studies indicated that being single has a substantial correlation with workplace violence. The odds of workplace violence were 2.03 times (AOR = 2.03; 95% CI: 1.03, 3.99) higher among nurses who live without a spouse when compared with those who live with a spouse. Moderate heterogeneity was found in the analysis of the included studies ($I^2 = 70.7\%$, $P = 0.033$). Thus, an analysis using a random effect model was employed (Fig. 7).

Discussion

The purpose of this meta-analysis was to estimate the prevalence of workplace violence nationwide and its contributing factors. This meta-analysis, to the best of our knowledge, is the first of its type to calculate the pooled prevalence of workplace violence and associated factors among Ethiopian nurses. According to this analysis, there

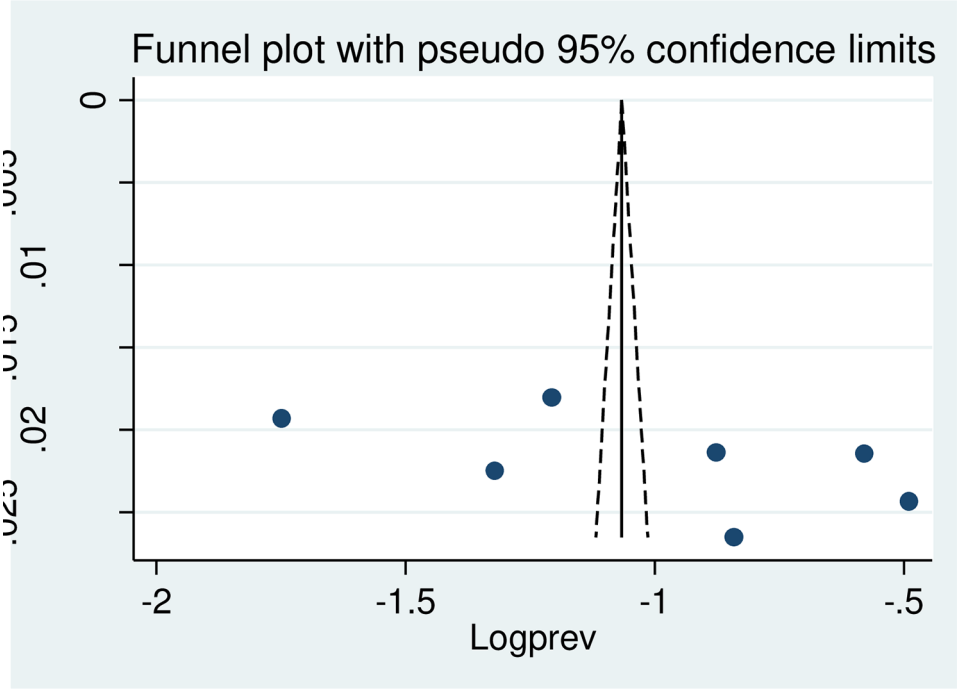


Fig. 4 showing publication bias using funnel plot among nurses in Ethiopia, 2024

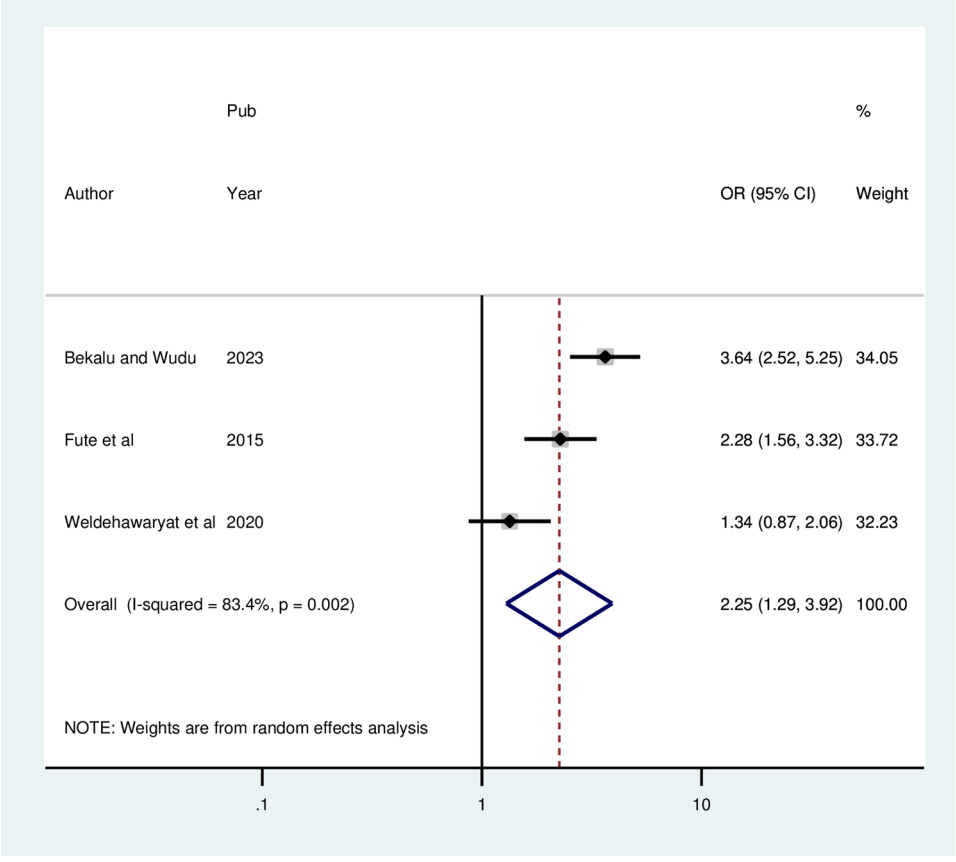


Fig. 5 Showing the forest plot of the association between sex of the nurse and workplace violence in Ethiopia, 2024

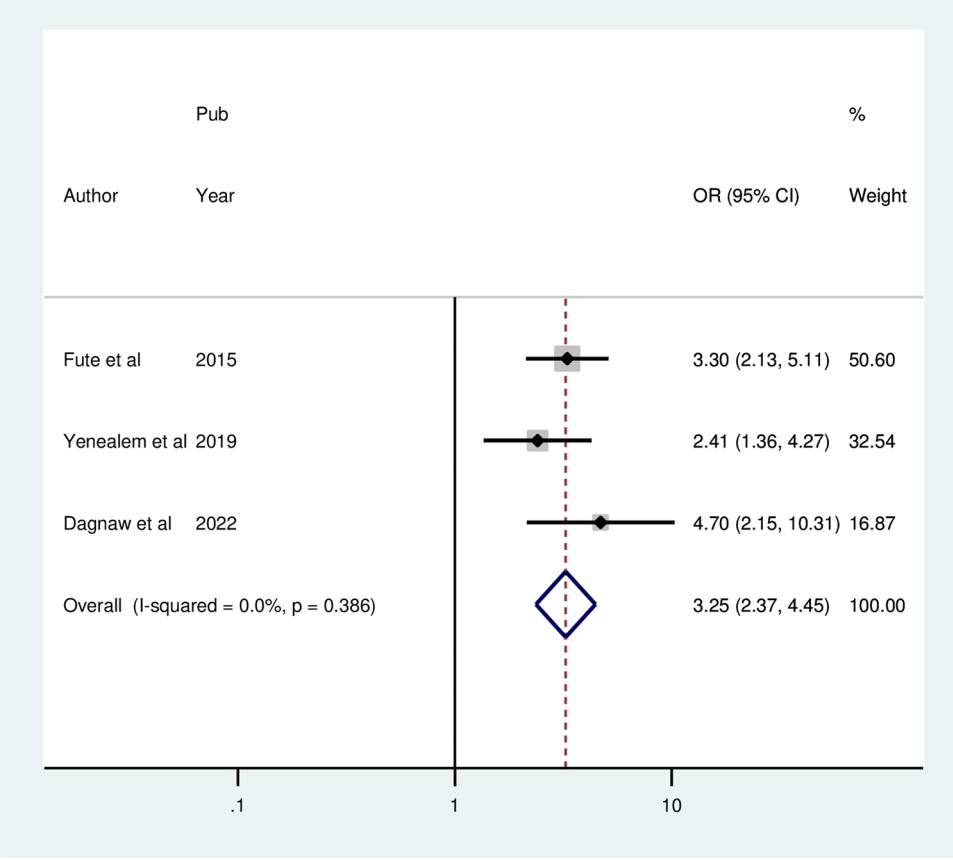


Fig. 6 Showing forest plot the pooled odds ratio of the association between work experience and workplace violence in Ethiopia, 2024

is a broad range of workplace violence among nurses from 17.4 to 61.3%. This can be attributed to differences in study methodologies, geographical and cultural factors, work settings, and the time frame of data collection. Some studies may focus on specific types of violence, such as physical or verbal, while others take a more comprehensive approach. Nurses in high-risk environments are more likely to experience violence, and underreporting may skew the lower end of estimates. Additionally, regional differences in workplace protections and reporting mechanisms contribute to the wide variation in prevalence rates. In Ethiopia, the pooled prevalence of workplace violence among nurses was 39.43% (95% CI: 27.63, 51.23). The current study's findings on workplace violence among nurses are in line with other studies from Rwanda (39%) [33] and Iran (42.2%) [34]. This might be a result of the research's same methodology.

The current study found a higher prevalence of workplace violence when compared with the findings in China (19.33%) and Palestine (20.8%) [35]. These could result from the socioeconomic difference between the nations. The mismatch between the need and delivery of healthcare in resource-constrained nations like Ethiopia might expose medical practitioners to direct risks of workplace violence. Because of this, patients' unhappiness with the organization's healthcare services might result in workplace violence against healthcare personnel.

On the other hand, the finding of this meta-analysis is lower than a study done in India which reported the violence in the workplace as 55% [2]. This might be the result of disparities in healthcare systems, sociocultural differences, or underreporting of violent events. The absence of tactics to avoid violence, such as training and policies, may be the cause of the other.

The results of this study offer valuable insights into the factors associated with workplace violence. Specifically, it was found that participants' gender; marital status, and work experience are independently associated with the likelihood of workplace violence.

This study shows a statistically significant association between marital status and workplace violence against nurses. According to this study, single nurses had a higher risk of experiencing violence at work than nurses who were married. This finding agrees with the Pakistan results [36]. This might be because the majority of single nurses are younger individuals under 30, which has been linked to an increased risk of violence in many studies [37, 38]. Younger nurses may lack the experience and maturity needed to effectively manage conflict

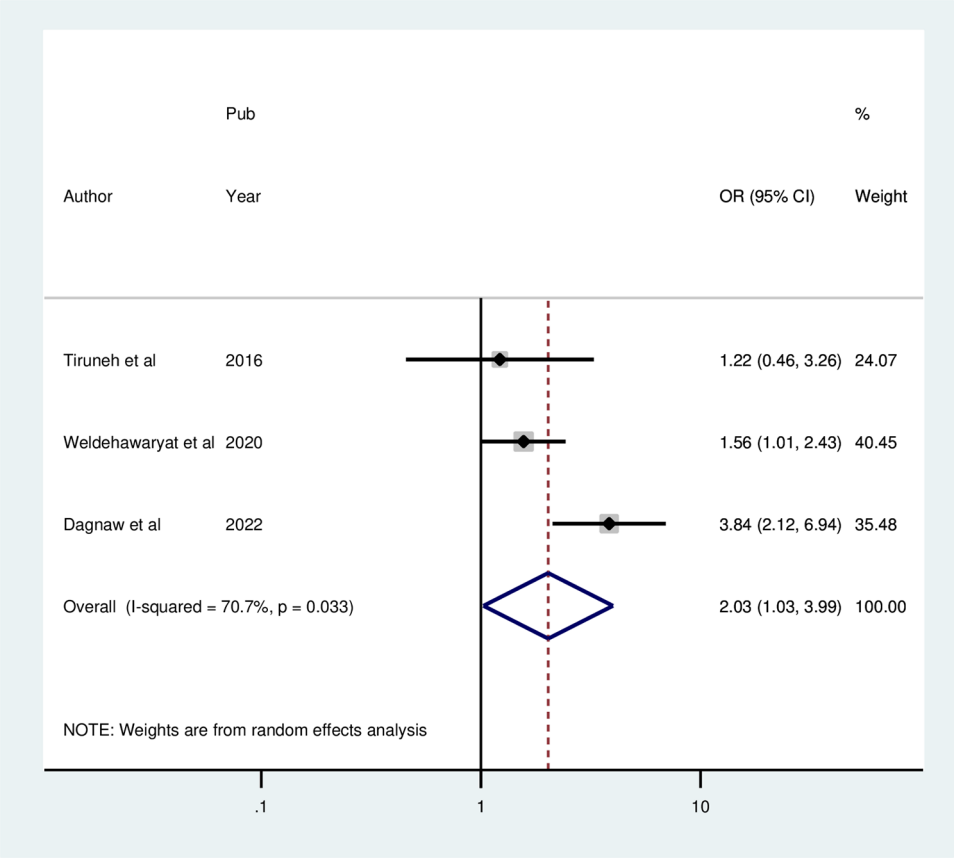


Fig. 7 Showing forest plot the pooled odds ratio of the association between marital status and workplace violence in Ethiopia, 2024

and aggressive behaviors in the workplace, making them more vulnerable to such incidents.

The current study indicates a strong correlation between workplace violence and the participants' gender. According to this study, female nurses are more likely to experience workplace violence than their male counterparts. This study is supported by another study [39]. One explanation may stem from traditional gender norms and stereotypes that persist in many societies, which often portray men as superior to women. Such societal beliefs can manifest in the workplace, where male dominance is reinforced through hierarchical structures, leading to power imbalances that make female nurses more vulnerable to aggression [40]. Moreover, negative attitudes toward women's capabilities and authority can contribute to a hostile work environment. When female nurses are perceived as less competent or powerful than their male colleagues, it may encourage aggressive behavior from patients, families, or even coworkers.

The other finding of this study showed that nurses with fewer than five years of employment were more likely than those with five or more years of service to encounter workplace violence. This finding agrees with the Taiwanese results [41]. This might be because nurses with fewer years of service had less expertise in handling or avoiding different kinds of conflicts and were unable to quickly eliminate the risk of an abuse occurrence, which led to a higher incidence of verbal and physical abuse.

Limitation of the study

Despite being the first systematic review and meta-analysis on workplace violence among Ethiopian nurses, this study has many shortcomings. This meta-analysis includes full-text articles that were published only in English. The pooled odds ratio for all variables associated with workplace violence among nurses was not examined as the included studies had varying definitions of the variables. Additionally, this analysis only included studies from two places, which may affect the total prevalence of workplace violence. The implications for researchers include the need for further investigations that address these limitations, such as conducting studies in multiple languages and establishing standardized definitions for workplace violence to enhance generalizability. For hospital administrators, there is a pressing need to implement targeted interventions aimed at vulnerable groups, such as female nurses and those with less experience, while also developing comprehensive workplace violence prevention policies, training programs, and support systems to foster a safer working environment. By

addressing these implications, stakeholders can contribute to reducing workplace violence and improving the overall well-being of nurses in Ethiopia.

Conclusion

This study found that about two-fifths of nurses encounter workplace violence in Ethiopia. According to this study, there was a significant association between work place violence among Nurses and being female, having less job experience, and being single. To address this issue, the Federal Ministry of Health (FMOH), policymakers, and other stakeholders should prioritize interventions aimed at reducing workplace violence.

Abbreviations

POR	Pooled odd ratio
AOR	Adjusted odd ratio
CI	Confidence intervals
PRISMA	Preferred Reporting Items for Systematic review and Meta-analysis
SNNPR	South Nation and Nationality Peoples Regional
WPV	Workplace violence
FMOH	Federal, Ministry, of Health
IBCS	Institutional Based Crossectional Study

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12912-024-02660-y.

Supplementary Material 1: PRISMA checklist for systematic review and meta-analysis of this study

Supplementary Material 2: Methodological quality assessment tool for included studies by using the Newcastle Ottawa scale (NOS)

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Author contributions

YAF: Conceptualization, formal analysis, investigation, methodology, visualization, original draft writing, and review & editing.AMZ: Formal analysis, supervision, original draft writing, and review & editing.JAB: Methodology, visualization, original draft writing, and review & editing.GKN: Supervision, Original draft writing and review & editing.WCT: Supervision, methodology, original draft writing, and review & editing.

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Data availability

all relevant data generated and analyzed is included in this article.

Declarations

Ethics approval and consent to participate

Ethical approval not applicable.

Informed consent

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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