Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Gender-Based Violence Among Female Construction Workers in Bhaktapur District, Nepal: A Cross-Sectional Study

Bishal sharma

bishalsharma5061@gmail.com

Devdaha Medical College and Research Institute

Pratibha Manandhar

Kathmandu Medical College Teaching Hospital

Arpana Acharya

Devdaha Medical College and Research Institute

Rajendra Ruchal

Devdaha Medical College and Research Institute

Saujan Sharma Poudel

Gandaki Medical College Teaching Hospital and Research Center

---

Research Article

Keywords: Gender-based violence, Workplace violence, Intimate partner violence, Construction workers, Anxiety, Depression

Posted Date: May 22nd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9565298/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License

Additional Declarations: No competing interests reported.

Abstract

Background

Gender-based violence (GBV) is a pervasive violation of human rights globally, encompassing workplace violence (WPV) and intimate partner violence (IPV). Female construction workers in Nepal represent a highly vulnerable population, yet remain understudied. This study aimed to examine the prevalence, forms, perpetrators, and associated factors of GBV, and the mental health impact (anxiety and depression) among female construction workers in Bhaktapur district, Nepal.

Methods

A cross-sectional analytical study was conducted across multiple construction sites, including brick kiln factories, in the Bhaktapur district. Female construction workers aged 18 years or older were enrolled using convenience (non-probability) sampling. Data were collected through face-to-face interviews using a semi-structured questionnaire incorporating the WHO multi-country study IPV tool, Beck's Anxiety Inventory (BAI), and Beck's Depression Inventory (BDI). Bivariate and multivariate binary logistic regression analyses were performed. IPV data were restricted to ever-married women. Data were analyzed using SPSS version 25.

Results

A total of 295 female workers were interviewed (median age 30 years). The prevalence of WPV was 11.2% (95% CI: 7.9–14.5), and IPV was 21.1% (95% CI: 16.2–26.0) among 261 ever-married participants. Emotional violence (72.7%) was the most common form of WPV, while physical violence (80%) predominated among IPV forms. Perpetrators of WPV were predominantly male co-workers, frequently under the influence of alcohol. None of the participants reported their experience of violence to the authorities. The prevalence of anxiety was 49.5%, and depression was 26.7%. Illiteracy was significantly associated with WPV (AOR = 4.72; 95% CI: 1.8–12.3; p = 0.002), as was low income (AOR = 2.83; 95% CI: 1.1–7.2; p = 0.01). Alcohol consumption was significantly associated with IPV (AOR = 2.06; 95% CI: 1.3–4.1; p = 0.038). IPV was significantly associated with anxiety (COR = 3.4; 95% CI: 1.004–3.42; p = 0.047).

Conclusions

GBV is prevalent among female construction workers in Bhaktapur, with IPV more common than WPV. Illiteracy and low income are key risk factors for WPV, while alcohol use is the primary predictor of IPV. High rates of anxiety and depression underscore an urgent need for mental health services and multi-sectoral policy interventions targeting this vulnerable population.

Background

Gender-based violence (GBV) is defined by the United Nations as any act resulting in, or likely to result in, physical, sexual, or psychological harm or suffering to women, including threats, coercion, or arbitrary deprivation of liberty in public or private life [1]. GBV is globally recognized as a major public health issue that violates basic human rights, damages individuals' dignity, and erodes self-confidence [2]. The World Health Organization (WHO) reports that one in three women worldwide has experienced either physical or sexual violence from an intimate partner or sexual violence from a non-partner [3].

Two critical forms of GBV investigated in this study are workplace violence (WPV) and intimate partner violence (IPV). WPV is defined by the International Labour Organization (ILO) as any action, incident, or behavior departing from reasonable conduct in which a person is assaulted, threatened, harmed, or injured in the course of, or as a direct result of, their work [4]. A global survey by the ILO found that one in five workers (22.8%) had experienced at least one form of violence or harassment during their working life, including physical (8.5%), psychological (17.9%), and sexual violence (6.3%) [5]. IPV, defined by WHO as behavior by an intimate partner or ex-partner causing physical, sexual, or psychological harm, including physical aggression, sexual coercion, psychological abuse, and controlling behaviors, affects approximately 26% of women worldwide [6].

Nepal presents a particularly concerning context. The country ranks 110th on the Global Gender Gap Index [7]. Nepal's construction sector, the third largest employer after agriculture and the public sector, employs approximately 111,000 female workers [8]. These workers are predominantly from marginalized, low-income, and low-literacy backgrounds, making them especially vulnerable to multiple forms of GBV [9, 10]. Despite growing evidence linking occupational settings to GBV, no prior study has comprehensively examined WPV, IPV, their co-occurrence, and associated mental health outcomes specifically among female construction workers in Nepal.

The Bhaktapur district, with its high concentration of brick kilns, road construction, heritage restoration, and real estate development projects, provides an ideal setting for such research. The present study therefore aimed to: (1) determine the prevalence of WPV and IPV; (2) describe the forms, circumstances, and perpetrators of violence; (3) identify sociodemographic risk factors; (4) assess the co-occurrence of WPV and IPV; and (5) measure the prevalence of anxiety and depression and their relationship to GBV among female construction workers in Bhaktapur district, Nepal.

Methods

Study design and setting

A cross-sectional analytical study was conducted from March 2024 to September 2024 at multiple construction sites, including brick kiln factories, road construction sites, heritage restoration projects, and building construction sites within the Bhaktapur district of Bagmati Province, Nepal. Bhaktapur district was purposively selected due to its high density of construction activity and large female workforce.

Study population and sampling

The study population comprised female construction workers actively employed at the selected construction sites. Inclusion criteria were: (i) female sex; (ii) aged 18 years or above; and (iii) employed at a construction site in Bhaktapur district at the time of data collection. Workers who were unable to communicate due to illness or a language barrier were excluded. Non-probability convenient sampling was used to recruit participants, given the absence of a formal sampling frame. IPV-related data were restricted to ever-married women (n = 261).

Sample size

The sample size was calculated using the formula $n = Z^2 \times p(1-p)/d^2$, where Z = 1.96, p = 0.74, and d = 0.05 (margin of error), yielding 295 participants.

Data collection instruments

A pre-tested semi-structured questionnaire was administered by trained interviewers via face-to-face interviews in Nepali. The questionnaire comprised four sections:

- Sociodemographic characteristics: age, religion, ethnicity, marital status, educational status, occupation type, income, duration of employment, and substance use (smoking, alcohol, tobacco).
- Workplace violence module: adapted from the WHO/ILO WPV guidelines, capturing occurrence, type (physical, emotional, sexual), circumstances, perpetrators, and professional impact of violence [11].
- Intimate partner violence module: the validated WHO Multi-Country Study IPV questionnaire, covering physical, sexual, emotional, and controlling behaviors by an intimate partner, and physical violence during pregnancy [12].
- Mental health assessment: Beck's Anxiety Inventory (BAI) and Beck's Depression Inventory (BDI-II), both validated and widely used tools. A BAI score ≥8 indicated anxiety; a BDI score ≥11 indicated depression [13,14].

Ethical considerations

Ethical approval was obtained from the Institutional Review Committee of Kathmandu Medical College (Ref. No. 2022/14). Approval for site access was provided by the Contractors' Association of Bhaktapur. All participants provided written informed consent before enrollment. Participation was voluntary, and withdrawal was possible at any time without consequence. Data were anonymized and stored securely. Sensitive data on violence was collected in a private setting. All methods were carried out in accordance with the Declaration of Helsinki and relevant guidelines and regulations governing research involving human participants.

Statistical analysis

Data were entered and analyzed using IBM SPSS Statistics, Version 25. Descriptive statistics (frequencies, medians, inter-quartile ranges) were used to summarize sociodemographic characteristics and violence

prevalence. Chi-square tests were used for bivariate associations. Multivariate binary logistic regression was performed to identify independent predictors of WPV and IPV, adjusting for potential confounders. Variables with $p < 0.05$ on bivariate analysis were entered into the multivariate model. Results are reported as crude odds ratios (COR) and adjusted odds ratios (AOR) with 95% confidence intervals (CI). Statistical significance was set at $p < 0.05$.

Results

Sociodemographic characteristics

A total of 295 female construction workers participated. The median age was 30 years (IQR: ±16 years). The majority were Hindu (73.6%) and from the Janajati ethnic group (56.6%). Nearly 29% had no formal education, while 88.7% were ever-married. Substance use was reported by 37.6% of participants, predominantly in the form of alcohol. Most participants were unskilled laborers (helpers or general laborers), had less than 7 years of work experience, and earned less than NRs 25,000/month (Table 1).

Table 1
Sociodemographic characteristics of the study participants (N = 295)

Variable	Category	n (%)
Age (median ± IQR)	30 ± 16 years	—
Religion	Hindu	217 (73.6%)
Ethnicity	Janajati	167 (56.6%)
No formal education	Illiterate	84 (28.5%)
Marital status	Ever married	261 (88.5%)
Substance use (any)	Yes	111 (37.6%)
Income	< NRs 25,000/month	122 (41.4%)

Prevalence of workplace violence

The overall prevalence of WPV was 11.2% (n = 33; 95% CI: 7.9–14.5). Emotional violence was the most prevalent form, affecting 72.7% of those who experienced WPV, followed by sexual harassment. Physical violence was the least common. Only 3% of workers experienced all three types simultaneously. The majority of violent incidents occurred unexpectedly (85%); 33.3% of victims were alone at the time.

Verbal abuse was the most frequent form of emotional violence. Among victims, 57.5% managed the situation themselves, while 33.3% took no action. Notably, none of the participants filed a formal complaint or report against the perpetrator.

The primary perpetrators were male co-workers (n = 37), followed by contractors, and rarely property owners. Most perpetrators (n = 17) were under the influence of alcohol or narcotics at the time of the

incident.

Impact of workplace violence on professional life

Among those experiencing WPV, 72.7% reported job dissatisfaction. Additionally, 39.3% reported reduced confidence at work, 27.2% considered leaving their job, and 51.5% resumed normal routines despite the violence (multiple responses permitted).

Prevalence of intimate partner violence

Among 261 ever-married women, 21.1% (n = 55; 95% CI: 16.2–26.0) reported experiencing at least one form of IPV in their lifetime. Physical violence (80%) was the most common form, followed by emotional violence (45.4%), controlling behaviors, sexual violence, and physical violence during pregnancy. Slapping or throwing objects was the most frequently reported act of physical violence (Table 2).

Table 2
Forms of physical violence by intimate partner (N = 55 with IPV)

Form of physical IPV	N
Slapped or thrown something that could hurt	37
Pushed or shoved	22
Hit with a fist or an object	22
Kicked, dragged, or beaten up	5
Threatened with a knife or a weapon	5
Choked or burnt on purpose	2
Note: Multiple responses permitted.	

Association between WPV and IPV

Women who experienced IPV were 1.5 times more likely to also experience WPV compared to those without IPV (COR: 1.506; 95% CI: 0.4–2.5; p = 0.90); however, this association was not statistically significant.

Predictors of workplace violence and intimate partner violence

Multivariate binary logistic regression identified illiteracy (AOR = 4.72; 95% CI: 1.8–12.3; p = 0.002) and low income (< NRs 25,000/month) (AOR = 2.83; 95% CI: 1.1–7.2; p = 0.01) as independent predictors of WPV. Women under 30 years were 2.4 times more likely to experience sexual violence at work (p = 0.002). Alcohol consumption was the only variable significantly associated with IPV (AOR = 2.06; 95% CI: 1.3–4.1; p = 0.038) (Table 3).

Table 3
Multivariate logistic regression for predictors of WPV and IPV

Socio-demographic variables	categories	Workplace violence (WPV) N = 295				Intimate Partner Violence (IPV) N = 295			
		COR (95% CI)	P-value	AOR (95% CI)	P-value	COR (95% CI)	P-value	AOR (95% CI)	P-value
Income	< 25000rs	3.23 (1.5–6.9)	**0.012***	2.83 (1.1–7.2)	**0.01***	0.61 (0.3–1.1)	0.12	0.57 (0.2–1.1)	0.09
	>=25000rs	RC				RC			
Educational status	Illiterate	3.564 (1.7–7.4	**< 0.01***	4.717 (1.8–12.3)	**0.002***	1.43 (0.7–2.6)	0.2	1.70 (0.8–3.5)	0.15
	literate	RC				RC			
Alcohol drinking	Yes	1.6 (0.6–3.6)	0.16	1.5 (0.6–3.4)	0.3	2.26 (1.1–4.3)	**0.013***	2.06 (1.3–4.1)	**0.038***
	No	RC				RC			

AOR = Adjusted Odds Ratio; CI = Confidence Interval; * p < 0.05 (statistically significant).

Prevalence of anxiety and depression

The prevalence of anxiety (BAI score ≥ 8) was 49.5%, with 35.9% having mild, 11.5% moderate, and 2.0% severe anxiety. The prevalence of depression (BDI score ≥ 11) was 26.7%, with 17.6% mild and 6.8% borderline clinical depression. IPV was significantly associated with anxiety (COR = 3.4; 95% CI: 1.004–3.42; p = 0.047), but WPV was not significantly associated with either anxiety or depression.

Discussion

This study provides the first comprehensive evidence on the prevalence and determinants of GBV among female construction workers in Nepal. The WPV prevalence of 11.2% is lower than rates reported from other low- and middle-income countries 70.9% in Ethiopia [15], 57.5% in Nigeria [16], and 55.3% in Iran [17] — as well as healthcare settings within Nepal (51–65%) [18, 19]. This difference likely reflects sector-specific dynamics, sampling methods, and variation in how violence is defined and operationalized across studies.

The predominance of emotional violence at the workplace mirrors global findings [5, 17] and is consistent with the principle that emotional abuse is less visible and thus less likely to be recognized or reported by

victims. The complete absence of formal reporting in our study is deeply concerning and aligns with evidence from comparable settings [20]. Barriers to reporting — including fear of job loss, social stigma, normalization of violence, and lack of awareness of reporting mechanisms — require urgent policy attention.

The IPV prevalence of 21.1% is comparable to the Nepal Demographic and Health Survey 2022 figure of 27.2% [21] and to global estimates of 26% [6]. Physical violence was the dominant form, consistent with prior studies in Nepal and South Asia [21, 22]. The finding that alcohol consumption is a significant independent predictor of IPV aligns with a large body of evidence demonstrating the association between substance use and domestic violence [23, 24].

The identification of illiteracy (AOR = 4.72) and low income (AOR = 2.83) as independent predictors of WPV highlights the compounding vulnerability of marginalized women. These findings are consistent with SAARC-level evidence showing the highest GBV rates among illiterate women [25]. They underscore the need for targeted literacy programs and economic empowerment initiatives within the construction sector.

The high prevalence of anxiety (49.5%) and depression (26.7%) is particularly concerning and exceeds rates in comparable Nepalese construction worker samples (19.2% and 17.1%, respectively) [26]. The significant association between IPV and anxiety (COR = 3.4; p = 0.047) confirms that GBV exerts measurable psychological harm and argues for integrated mental health services within occupational health frameworks for construction workers.

Limitations

This study has several limitations. The cross-sectional design precludes causal inference. Convenient sampling limits generalizability. Recall bias may affect self-reported lifetime violence. Cultural and linguistic variability across ethnic groups may have introduced differential interpretation of questions, despite the use of standardized operational definitions. Social desirability bias may have led to underreporting of violence.

Conclusions

GBV is prevalent among female construction workers in Bhaktapur, with IPV (21.1%) more common than WPV (11.2%). Emotional violence predominates at the workplace, while physical violence is the primary form of IPV. Illiteracy and low income are the primary risk factors for WPV; alcohol consumption is the primary predictor of IPV. High rates of anxiety and depression, particularly associated with IPV, underscore the urgent need for mental health services. Under-reporting of violence is universal and demands structural interventions, including accessible reporting mechanisms, awareness campaigns, employer training, and multisectoral coordination. Large-scale prospective studies are warranted to confirm these findings and guide evidence-based policy.

Abbreviations

AOR

Adjusted Odds Ratio
BAI
Beck’s Anxiety Inventory
BDI
Beck’s Depression Inventory
CI
Confidence Interval
COR
Crude Odds Ratio
GBV
Gender-Based Violence
ILO
International Labour Organization
IPV
Intimate Partner Violence
IQR
Interquartile Range
NDHS
Nepal Demographic and Health Survey
WPV
Workplace Violence
WHO
World Health Organization.

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Institutional Review Committee of Kathmandu Medical College (Ref. No. 2022/14). Approval for site access was granted by the Contractors’ Association of Bhaktapur. Written informed consent was obtained from all participants before data collection.

Consent for publication: Not applicable.

Availability of data and materials: Not applicable.

Competing interests: We have no competing interests.

Funding: This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Authors’ contributions

BS conceived and designed the study, collected data, performed statistical analyses, and drafted the manuscript. PM supervised the study, AA contributed to data collection and entry, RR provided critical intellectual content and reviewed the manuscript, and SSP supported the peer review.

Authors' information

[1]*Department of Community Medicine, Devdaha Medical College and Research Institute, Rupandehi, Nepal*

[2]*Department of Community Medicine, Kathmandu Medical College Public Limited, Kathmandu, Nepal*

[3]*Department of Nursing, Devdaha Medical College and Research Institute, Rupandehi, Nepal*

[4]*Department of General Medicine, Gandaki Medical College, Pokhara, Nepal*

Acknowledgements

We sincerely thank the female construction workers who participated in this study and the Contractors' Association of Bhaktapur for facilitating site access.

References

1. United Nations. Declaration on the Elimination of Violence against Women. New York: United Nations; 1995.
2. Council of Europe. Gender matters: A manual on addressing gender-based violence affecting young people. Strasbourg: Council of Europe Publishing; 2020.
3. World Health Organization. Violence against women. Geneva: WHO; 2021. Available from: https://www.who.int/news-room/fact-sheets/detail/violence-against-women
4. International Labour Organization. Convention C190 — Violence and Harassment Convention. Geneva: ILO; 2019.
5. International Labour Organization. Safe at Work: Global Report on Violence and Harassment at Work. Geneva: ILO; 2021.
6. World Health Organization. Violence Info – Intimate partner violence. Geneva: WHO; 2021.
7. World Economic Forum. Global Gender Gap Report 2023. Geneva: WEF; 2023.
8. SEEP Nepal / UK Aid. Women in Nepal's Construction Sector. Kathmandu: SEEP; 2022. Available from: https://seepnepal.com/skills/construction/
9. Adhikari J, Deshingkar P. How Migration into Urban Construction Work Impacts Rural Households in Nepal. COI: 20.500.12592/93swh2; 2022.
10. CARE. Dignified and Violence-Free World of Work: A Study on Women Working in Informal Sectors in Nepal. Kathmandu: CARE; 2021.
11. WHO. Workplace Violence in the Health Sector—Country Case Study Research Instruments—Survey Questionnaire [Internet]. [cited May3, 2026]. Available from:

https://www.who.int/publications/m/item/workplace-violence-in-the-health-sector—country-case-study-research-instruments—survey-questionnaire

12. World Health Organization. WHO multi-country study on women's health and domestic violence against women. World Health Organization; 2002.
13. Weckowicz TE, Muir W, Cropley AJ. A factor analysis of the Beck Inventory of Depression. Journal of consulting Psychology. 1967 Feb;31(1):23
14. Beck AT, Steer RA. Beck Anxiety Inventory Manual. San Antonio, TX: Psychological Corporation; 1993.
15. Asegu KA, Dessie AM, Tilahun TD, Dagnew GW, Anley DT. Violence against women and associated factors among female construction workers in Addis Ababa, Ethiopia. BMC Psychiatry. 2023;23:547.
16. Solidarity Center. Breaking the Silence: Gender-Based Violence in Nigeria's World of Work. Washington DC: Solidarity Center; 2021.
17. Saberi HR, Motalebi Kashani M, Dehdashti A. Occupational violence among female workers in an Iranian industrial area. Women's Health. 2019;59(9):1075–87.
18. Pandey M, Bhandari TR, Dangal G. Workplace violence and its associated factors among nurses. J Nepal Health Res Counc. 2018;15(3):235–41.
19. Bhusal A, Adhikari A, Singh Pradhan PM. Workplace violence and its associated factors among health care workers of a tertiary hospital in Kathmandu, Nepal. PLoS ONE. 2023;18(7):e0288680.
20. Musayón Oblitas FY, Caufield C. Workplace violence and drug use in women workers in a Peruvian Barrio. Int Nurs Rev. 2007;54(4):339–45.
21. Ministry of Health and Population, New ERA, ICF. Nepal Demographic and Health Survey 2022. Kathmandu: MoHP; 2023.
22. Dhungel S, Dhungel P, Dhital SR, Stock C. Is economic dependence on the husband a risk factor for intimate partner violence against female factory workers in Nepal? BMC Women's Health. 2017;17:82.
23. Scott KD, Schafer J, Greenfield TK. The role of alcohol in physical assault perpetration and victimization. J Stud Alcohol. 1999;60(4):528–36.
24. Devries KM, Child JC, Bacchus LJ, et al. Intimate partner violence victimization and alcohol consumption in women: a systematic review and meta-analysis. Addiction. 2014;109(3):379–91.
25. Dangal G, Shrestha N, Khanal G, et al. Prevalence and contributing factors of gender-based violence in SAARC territories from 2010 to 2020: a systematic review and meta-analysis. [publisher details]; 2022.
26. Adhikari B, Poudel L, Bhandari N, et al. Prevalence and factors associated with depression, anxiety, and stress symptoms among construction workers in Nepal. PLoS ONE. 2023;18(5):e0284696.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- questionnaireGBV.pdf