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Intimate partner violence against pregnant women during the COVID-19 pandemic: a systematic review and meta-analysis

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ABSTRACT

This systematic review and meta-analysis aimed to estimate the pooled prevalence of (intimate partner violence) IPV against pregnant women in the COVID-19 pandemic. A literature search was conducted in PubMed, Web of Science, and Scopus for observational studies regarding the prevalence of IPV against pregnant women during the COVID-19 pandemic. The search was performed with the following keywords: intimate partner violence, domestic violence, battered women, wife assault, partner assault, wife abuse, partner abuse, femicide, domestic homicide, pregnancy, gestation, pregnant women, COVID-19, SARS-CoV-2, 2019-nCoV, Coronavirus Disease-19, 2019 Novel Coronavirus, Wuhan Coronavirus, SARS Coronavirus 2, Wuhan Seafood Market Pneumonia Virus. Heterogeneity between the studies was assessed using Cochran's Q test and I^2 index. In addition, a random-effects model was used to estimate the prevalence of IPV. Data analysis was performed in Stata software version 16. Six articles met our inclusion criteria, which were conducted on 2213 pregnant women. The pooled prevalence of total IPV was estimated at 22 percent (95 percent Confidence Interval [CI]: 4–40 percent). Moreover, the pooled prevalence of psychological, physical, and sexual violence was reported to be 24 percent (95 percent CI: 13–35 percent), 14 percent (95 percent CI: 7–20 percent), and 6 percent (95 percent CI: 4–9 percent), respectively. Publication bias was significant ($P = .01$). According to the results, IPV against pregnant women has been relatively prevalent during the COVID-19 pandemic. Therefore, identifying the women who are at the risk of IPV is essential to preventing the consequences of maternal-fetal abuse and designing strategies to facilitate the reporting of violence during pandemics.

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Introduction

On 31 December 2019, the Chinese government reported pneumonia of unknown cause to the World Health Organization (WHO), which was identified in Wuhan. On 30 January 2020, the WHO declared the diseases a public health emergency and major concern. On 11 February 2020, the infectious disease

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was introduced as COVID-19 (WHO 2020). To prevent the spread of the disease, social restrictions were imposed, which led to isolation and loneliness, the closure of schools and jobs, economic vulnerability, and job losses (Bradbury-jones and Isham 2020). Although quarantine reduced the risk of contracting the disease, it posed the risk of domestic violence to numerous women and children, adding domestic violence to the other complications of COVID-19 as another public health crisis (Yari et al. 2021). Social distancing requirements may increase the risk of intimate partner violence (IPV) in women (Cohen et al. 2020), which is the most common form of violence against women (Mojahed et al. 2021). Since the outbreak of COVID-19, reports of IPV have increased across the world due to mandatory 'stay-at-home orders,' and the United Nations Chief (2020) described the current situation as a horrifying global surge in domestic violence. IPV refers to physical aggression, sexual coercion, psychological abuse, and exhibiting controlling behaviors, which cause physical, sexual, and/or psychological harm (World Health Organization/London School of Hygiene and Tropical Medicine 2010).

IPV threatens continued access to contraceptive and abortion services, affects pre-pregnancy planning, discontinues breast cancer screening, increases the risk of sexually transmitted diseases, and reduces access to treatment (Cohen et al. 2020). The current pandemic seems to have created a paradox about staying safe by staying at home (Thibaut and van Wijngaarden-Cremers 2020). When quarantined, many women were potentially exposed to financial problems and job losses, as well as additional household responsibilities, such as taking care of their children's homework and the care of other family members. Under such circumstances, the reduced access of women to protection resources has increased the rate of violence (Abujilban et al. 2021).

Studies show that the prevalence of IPV has increased since the COVID-19 lockdown (Agüero 2021; Barbara et al. 2020; Hamadani et al. 2020). Available evidence suggests that violence against pregnant women is associated with fetal and maternal adverse outcomes, such as low birth weight, preterm birth, premature rupture of membranes, and abortion (Abadi et al. 2013; Chisholm, Bullock, and Ferguson 2017; Okenwa, Lawoko, and Jansson 2011). Violence against pregnant women could lead to severe adverse consequences for both mother and fetus due to their special circumstances. Studies in this regard have proposed different results. This systematic review and meta-analysis aimed to estimate the pooled prevalence of IPV against pregnant women during the COVID-19 pandemic.

Methods

This meta-analysis was conducted in accordance with the preferred reporting items for systematic reviews and meta-analyses (PRISMA).

Search strategies

A literature search was conducted in PubMed, Web of Science, Scopus, and Google Scholar during November 1 to 1 December 2021. We selected all published and eligible studies from December 2019 (the time of the emergence of COVID-19) to November 2021. The following keywords were used in the database search: ("intimate partner violence" OR "domestic violence" OR "battered women" OR "wife assault" OR "partner assault" OR "wife abuse" OR "partner abuse" OR "femicide" OR "domestic homicide" AND "pregnancy" OR "gestation" OR "pregnant women" AND "COVID-19" OR "SARS-CoV-2" OR "2019-nCoV" OR "Coronavirus Disease-19" OR "2019 Novel Coronavirus" OR "Wuhan Coronavirus" OR "SARS Coronavirus 2" OR "Wuhan Seafood Market Pneumonia Virus"). The identified studies were retrieved and managed using the Endnote X7 software (Thomson Reuters, Philadelphia, PA, USA).

Inclusion and exclusion criteria

The eligibility criteria of this review were observational studies, measuring the prevalence of IPV, and articles published in English. Studies with an unavailable full text and those not reporting the prevalence of violence were excluded.

Outcomes

The main outcome of the current review was the prevalence of IPV during pregnancy. IPV refers to emotional, physical, or sexual abuse, which is imposed in an intimate relationship by a current or former spouse or dating partner (Deshpande and Lewis-O'Connor 2013). Psychological violence encompasses insult, humiliation, intentional intimidation, and threat of harm (Laelago, Belachew, and Tamrat 2014). The intentional use of physical force is also known as physical violence, and forcing a woman to have sexual intercourse is referred to as sexual violence (Teshome et al. 2021).

Data extraction

The two authors independently reviewed and screened the selected articles. After reviewing the titles and abstracts, irrelevant articles were eliminated, and the full text of the remaining articles was reviewed. The required data from these articles were recorded in a pre-designed form. In case of any disagreement between the authors, the opinion of the correspondent author would be applied.

Quality assessment

The two authors independently assessed the quality of each study using the modified Newcastle-Ottawa scale (NOS). The NOS has three domains of selection (maximum 5 stars), comparability (maximum 2 stars, and outcome (maximum 3 stars). The selection dimension has 4 items: representativeness of the sample, sample size, non-respondent, and measurement. The comparability dimension had one question: Were the group of women victims of violence compared to women who did not experience violence? If the comparison results of these two groups are reported in the study, this dimension gets a score of 2, otherwise it does not get a score. The third dimension also has two items of Assessment of the outcome and statistical analysis. Articles with scores ≥6 out of 10 are considered to be of proper quality based on the NOS (Modesti et al. 2016).

Data analysis

Initially, the standard error of each article was calculated using the binomial distribution formula. Heterogeneity between the reported prevalence rates was also assessed by calculating the Q statistic and using the I^2 test (Rücker et al. 2008). Due to the significant heterogeneity of the selected studies (I^2 = 97.97 percent), a random-effects meta-analysis model was used to estimate Der Simonian and Laird's pooled effect. The point prevalence was determined, and a 95 percent confidence interval was considered as a forest plot. In this plot, the size of each box indicated the weight of the study, while each crossed line indicated a 95 percent confidence interval.

Results

At the first stage, 111 potentially relevant articles were identified, and 44 articles were eliminated due to duplication. After reviewing the titles and abstracts of the remaining articles, 55 articles were eliminated due to irrelevance. After reviewing the full text of the remaining articles, six articles were also eliminated due to insufficient data. Finally, six eligible articles were selected, and their data were extracted (Figure 1).

Characteristics of original studies

In this meta-analysis, the sample population was 2,213 pregnant women in six selected studies; the sample size range was 183–885 participants. All the selected studies were published in 2021, reporting the prevalence of IPV as total violence and physical, psychological, and sexual violence. The overall

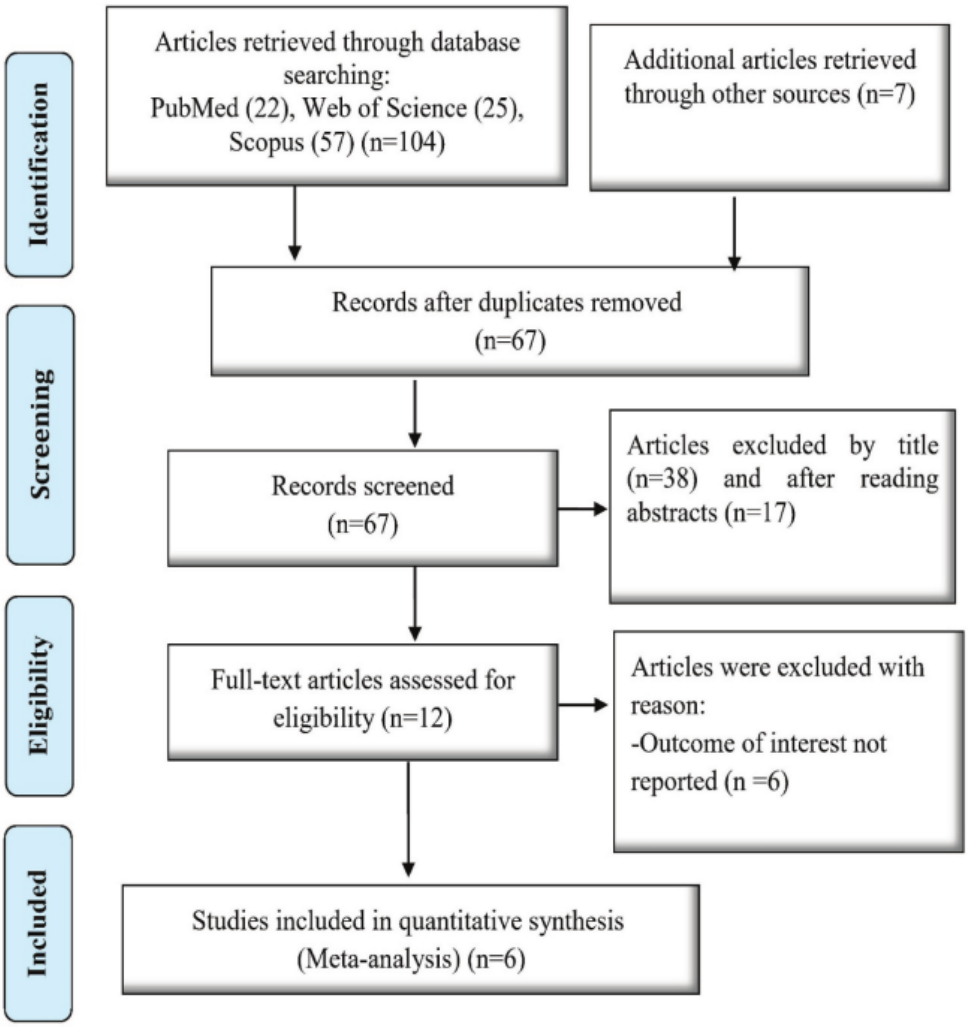

Figure 1. Flow chart of study selection for systematic review and meta-analysis of intimate partner violence (IPV) in pregnant women (PRISMA 2009).

prevalence of IPV was reported in three studies (Muldoon et al. 2021; Naghizadeh, Mirghafourvand, and Mohammadirad 2021; Teshome et al. 2021). In the study conducted by Abrahams et al., pregnant women were divided into two groups (with and without common mental disorders), and the prevalence of physical, psychological, and sexual violence was estimated separately in these groups (Abrahams et al. 2021). Methodologically, all the articles were considered to be of high quality (Table 1).

Meta-analysis

According to the obtained results, the pooled prevalence of IPV among pregnant women during the COVID-19 pandemic was 22 percent (95 percent CI: 4–40 percent). Since the selected studies had significant heterogeneity ($I^2 = 97.88$ percent; $P < .001$), a random-effects meta-analysis model was used to estimate the pooled prevalence of IPV during pregnancy. The pooled prevalence of psychological, physical, and sexual violence were estimated at 24 percent (95 percent CI:13–35 percent), 14 percent (95 percent CI: 7–20 percent), and 6 percent (95 percent CI: 4–9 percent), respectively (Figure 2).

Table 1. Descriptive summary of selected studies in meta-analysis of IPV in pregnant women during COVID-19 pandemic.

Authors (country)	Sample size	Data collection time	Prevalence rate				Findings
			Psychological violence	Physical violence	Sexual violence	Total	
Abrahams et al. (2021) (South Africa)	110 775	February–March 2020	34.3 13.4	31.1 11.7	7.5 0.8	- -	Participants were divided into two groups with ($n = 110$) and without common mental disorders ($n = 775$). Most women in both groups had 1–2 children. The risk of common mental disorders was higher in the women who experienced psychological violence (Relative Risk [RR]: 3.38; 95 percent Confidence Interval [CI]: 1.60–5.65 percent) and sexual violence (RR: 2.35; 95 percent CI: 0.03–6.24 percent).
Abujilban et al. (2021) (Jordan)	215	April 2020	50.2	13	11.2	-	Mean age of the women was 28.6 ± 4.3 years, and mean gestational age was 25 ± 10.2 weeks. The majority were unemployed (64.2 percent), had a bachelor's degree (87.9 percent), and lived in a nuclear family (60 percent). Prevalence of controlled behaviors and humiliation was 80 percent.
Naghizadeh, Mirghafourvand, and Mohammadirad (2021) (Iran)	250	May–August 2020	32.8	12.4	4.8	35.2	Mean age of participants was 30.57 ± 5.87 years. Most of the participants had high school education (53.2 percent) and were housewives (94.4 percent). Mean score of the psychological dimension of quality of life was lower in the women who experienced violence (46.27 vs. 61.17; $P = .001$).
Teshome et al. (2021) (Ethiopia)	464	August 31–November 2, 2020	5.17	2.15	3.43	7.1	Mean age of participants was 28.1 ± 4.8 years. Most of the women were literate (90.1 percent), had primary education (52.4 percent), were Christian (66.6 percent), and unemployed (70.7 percent). Women whose partners used drugs (Odds Ratio [OR]: 3.27; 95 percent CI: 1.45–7.38 percent; $P = .004$) or alcohol (OR: 1.52; 95 percent CI:1.01–2.28 percent; $p = .046$) were more likely to experience violence.
Muldoon et al. (2021) (Canada)	216	March 17–June 16, 2020	10.23	-	2.33	24.7	Maternal median age was 33 years (Interquartile Range [IQR]: 30–36), and infant median age was: 76 days (IQR: 66–90). Prevalence of control behaviors was 17.13. Also, 4.17 percent of the women experienced both regular controlling behaviors and violence. Low income was the strongest risk factor for perinatal IPV (RR: 3.24; 95 percent CI: 1.87–5.59 percent).
Johnson (2021) (United States)	183	January 2021	-	15.9	10.9	-	Mean age of participants was 28 ± 5.9 years. The majority were employed (64 percent) and had a bachelor's degree (42 percent). Women with higher incomes (>$60,000) reported the lowest levels of psychological violence.

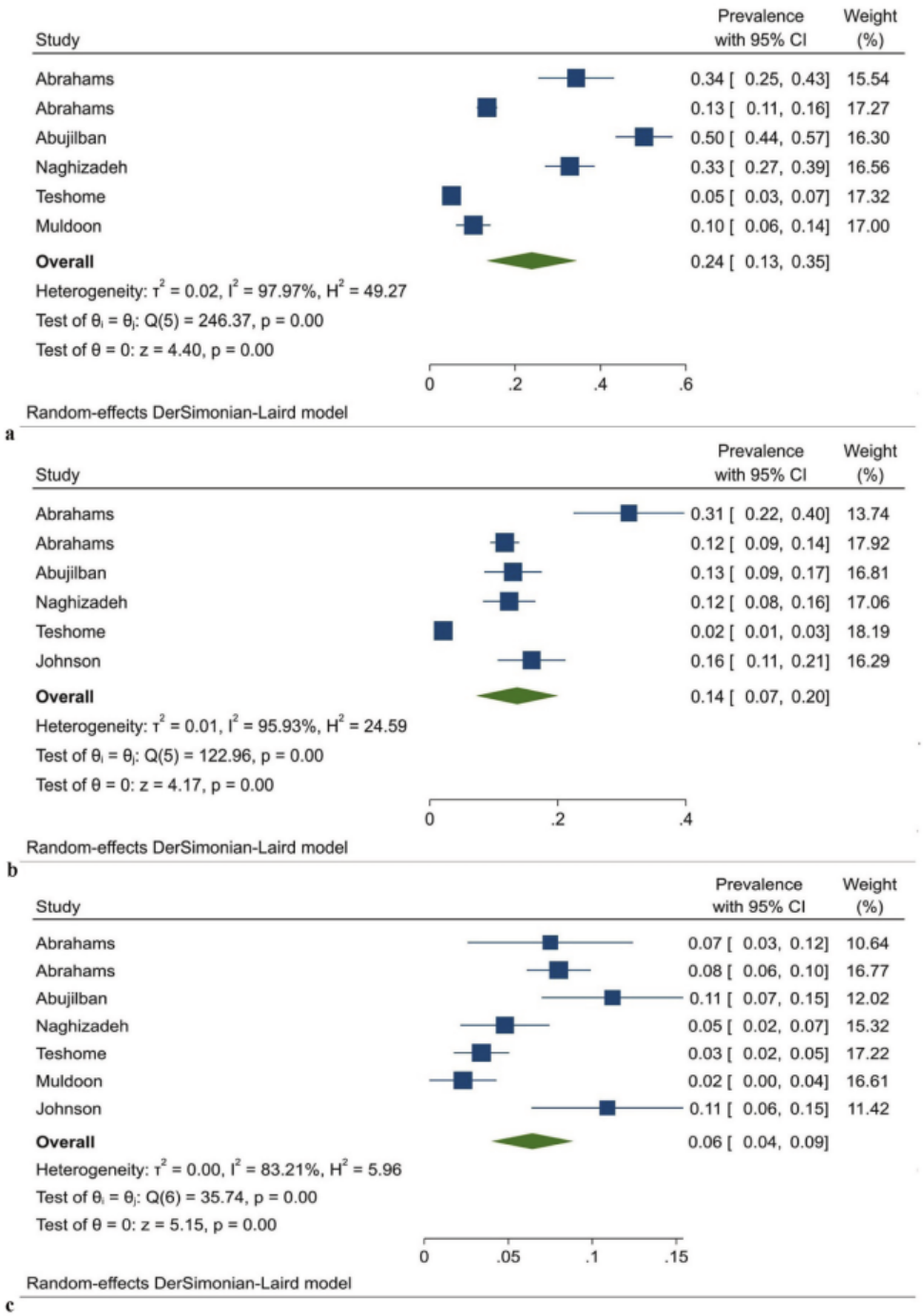

Figure 2. Prevalence of psychological (a), physical (b), and sexual (c) violence against pregnant women during COVID-19 pandemic.

Figure 2 depicts the data of each study based on the first author's name and the final outcome. To identify the possible sources of heterogeneity, various heterogeneity-related factors (e.g., sample size) were examined using univariate meta-regression models, while the variable was not statistically significant. Publication bias was also assessed using Egger's test, which was considered significant ($P = .01$).

Discussion

According to the current review, more than one-fifth of pregnant women have experienced IPV during the COVID-19 pandemic. The highest and lowest prevalence rates of IPV have been attributed to psychological violence and sexual violence, respectively. Under normal circumstances, one-third of women experience physical and psychological violence by their partners, and the prevalence of violence during pregnancy is slightly lower (2–13.5 percent) (Devries et al. 2010). In a study in this regard, Román-Gálvez et al. (2021) estimated the global prevalence of IPV against pregnant women, reporting the prevalence of psychological, physical, and sexual violence to be 18.7 percent, 9.2 percent, and 5.5 percent, respectively, which are lower than the estimated prevalence of IPV in the present study during the COVID-19 pandemic. During the current health crisis, the prevalence of violence may be higher as several of these cases are not reported for various reasons. For instance, the perpetrators may use their power to reduce women's access to services, assistance, and support networks and restrict their access to health care. The results of another study indicated that although the total number of the violence victims referred to medical centers decreased during the COVID-19 pandemic compared to previous years, the incidence of physical violence and the severity of the subsequent injuries have increased in this period. This finding may imply that victims of mild physical and psychological violence have not been able to report violence and seek help (Gosangi et al. 2021).

A study conducted in Congo investigated violence against women, indicating that pregnancy significantly increases the risk of violence (Ditekemena et al. 2021). Domestic violence seems to increase following critical situations such as wars, natural disasters, or health crises. After Hurricane Katrina, which occurred in 2009 in the United States, the prevalence of domestic violence nearly quadrupled, and women were twice as likely to suffer from physical violence (Schumacher et al. 2010). Furthermore, phone calls for domestic violence increased by 50 percent after the 2010 New Zealand earthquake according to the police (Thibaut et al. 2020). After the Fukushima disaster, physical violence against pregnant women quadrupled in the area (30). In the United Kingdom, the death toll from domestic violence during the COVID-19 pandemic is reported to be twice as high as the average rate over the past decade (Gosangi et al. 2021). Domestic violence deaths in the COVID-19 pandemic in the United Kingdom are on the rise, doubling compared to the past decade (Sakurai et al. 2017). To the best of our knowledge, this is the first meta-analysis to assess the global prevalence of IPV among pregnant women during the COVID-19 pandemic. Therefore, our findings could provide a clear and comprehensive perception of IPV against pregnant women, based on which health officials could take the necessary measures.

Conclusion

Violence against women has emerged as a 'shadowepidemic' during the COVID-19 pandemic, implying that women are experiencing high levels of violence and face IPV where they need to feel safe in their own homes (Stöckl and Quigg 2021). The prevalence of violence against pregnant women in the COVID-19 epidemic is relatively high, and identifying the women who are at the risk of this atrocity is essential to preventing maternal and fetal adverse outcomes, which could even be life-threatening.

Disclosure statement

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Ethical consideration

In the present systemic review and meta-analysis, previously published studies on violence against pregnant women in the COVID-19 pandemic were analyzed and the Ethics Committee approval is not applicable to these studies.

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