Review

Prevalence and factors influencing postpartum depression and its culture-specific cutoffs for women in Asia: a scoping review

Running title: Prevalence and cultural factors of postpartum depression in Asian women

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Abstract

Objectives: The prevalence of postpartum depression (PPD) in Asia is reported to range from 13.53% to 22.31%. However, there remains a gap in the identification of PPD, particularly regarding cultural cutoff points. Therefore, the purpose of this scoping review was to determine the prevalence and associated factors of PPD in Eastern, South-eastern, Western, and Southern Asian countries and analyze the cutoff points of the Edinburgh Postnatal Depression Scale (EPDS) used across these countries.

Methods: Following Arksey and O'Malley's five-step scoping review framework, the population was defined as mothers, the concept as the EPDS, and the context as the Asian region. A literature search was conducted using PubMed, Embase, CINAHL, PsycINFO, and Web of Science. The data analysis focused on demographic characteristics, EPDS cutoffs and features, PPD prevalence, and its associated factors.

Results: Nineteen studies were selected. Most countries used translated versions of the EPDS with demonstrated reliability and validity. The cutoff scores varied, with most using scores of 10 or higher. The prevalence of PPD ranged from 5.1% to 78.7%. Key associated factors for PPD included cultural factors such as relationships with in-laws and preferences for the newborn's sex.

Conclusions: To improve the accuracy of PPD screening in Asia, the EPDS should be used consistently, and appropriate cutoff criteria must be established. In addition, prevention

strategies and programs that reflect the cultural characteristics and social context of Asia need to be developed for the early detection and prevention of PPD.

Prevalence and factors influencing postpartum depression and its culture-specific cutoffs for women in Asia: a scoping review

Introduction

The postpartum period is a critical transitional phase for women, characterized by significant physical and psychological changes. During this period, the prevalence of depression is reported to be more than twice as high as at other times in a woman's life [1]. Postpartum depression (PPD) is considered a precursor to major depressive disorder and is defined by symptoms such as sadness, excessive crying, anxiety, agitation, low mood, loss of interest, and sleep disturbance [2]. PPD can progress to long-term depressive illness, particularly when accompanied by thoughts of self-harm [3]. PPD typically begins 6 weeks after childbirth and ranges in severity from mild to severe [4-5]. The prevalence of PPD has been estimated at 17.2%, with reported rates in Asia ranging from 13.53% to 22.32% [6]. Despite its prevalence, PPD remains among the most underdiagnosed and undertreated forms of depression, and there is limited awareness regarding the importance of prevention and intervention.

Several instruments have been used to identify PPD promptly, including the Edinburgh Postnatal Depression Scale (EPDS), the Postpartum Depression Screening Scale, and Beck's Depression Inventory. The EPDS is considered the most reliable of these instruments in terms of its sensitivity, specificity, and clinical validity for measuring PPD in the postpartum period [7]. Moreover, the EPDS includes a specific item on suicidal ideation, which is critical for evaluating the severity of depression and facilitating timely referrals to mental health services [8].

PPD is associated with various demographic and psychosocial factors, including low economic status, low education, single motherhood, major stressful events, lack of social and family support, history of depression, and unplanned pregnancy [9,10]. In Asian cultures, traditional support from in-laws or female relatives can provide physical and psychological comfort; however, it can also lead to interpersonal conflict and emotional distress [4,5,11].

Furthermore, a longstanding cultural preference for male offspring, particularly for the first child, is found in regions such as Eastern Asia, South-eastern Asia, Western Asia (including Arab countries and Türkiye), and Southern Asia (including India), which may contribute to the development of PPD [5].

Studies have systematically reviewed the prevalence and associated factors of PPD. However, these studies were limited in scope, either focusing on single countries within Asia [12,13] or providing broad reviews of the global literature [6] that lacked an Asia-specific context. In 2024, a systematic review was conducted in Asian cultural contexts [5], but it did not address the characteristics of the EPDS in these contexts, such as culture-specific cutoff points, nor did it explore cultural factors influencing PPD.

To fill this research gap, this study aimed to compare and analyze the prevalence of PPD across Asian countries, examine the EPDS cutoffs used in each country, and identify the cultural, psychosocial, and demographic factors associated with PPD.

Methods

Ethical Statement

As a scoping review of the existing literature, this study did not require approval from the institutional review board or informed consent.

Study Design

This study employed a scoping review design following the five-step framework proposed by Arksey and O'Malley [14]. The process included (a) identification of research questions, (b) literature search, (c) selection of relevant literature, (d) data analysis, and (e) summarizing and reporting the findings [14]. The study adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Extension for Scoping Review (PRISMA ScR) reporting guidelines for topical scoping reviews [15].

Step 1: Identification of the research question

The primary research question was: "What are the recent research trends in Asian countries regarding maternal PPD?" The specific research questions were: (a) What is the prevalence of PPD among Asian mothers, (b) How do the EPDS cutoffs differ across Asian countries, and (c) What are the cultural, psychosocial, and demographic factors influencing PPD?

Step 2: Literature Search

A literature search was conducted between October 1 and October 7, 2024, in five electronic databases: PubMed, Embase, CINAHL (EBSCO), PsycINFO, and Web of Science, using a combination of three main search terms: "postpartum depression," "EPDS," and "Asia." Asian countries were defined based on the United Nations Geoscheme [16], including countries from Eastern Asia, South-eastern Asia, Southern Asia, and Western Asia.

Search strategies were developed by two researchers (authors L, M) using Boolean operators to combine Medical Subject Headings (MeSH) with keywords and synonyms. The final search strategies were reviewed by a professional librarian at the authors' institution. The search strategies for each database are detailed in Supplement 1. The search was restricted to titles and abstracts using the final search strategy in each database. Additionally, a supplementary search for relevant literature not identified by the database search was conducted using Google Scholar for 10 days following October 7, 2024.

Step 3: Selection and Exclusion Criteria

Studies were included if they 1) were peer-reviewed journal articles addressing the prevalence and factors associated with PPD in Asian mothers, 2) included the usage of EPDS, 3) were written in English, and 4) were published from January 1, 2020 to September 30, 2024. The exclusion criteria were as follows: 1) gray literature such as dissertations, case reports, posters, or abstracts; (b) review articles or qualitative studies; (c) articles for which the full text was not available; (d) studies that did not include outcomes at 6-8 weeks postpartum; and (e) studies that did not address cultural, psychosocial, or demographic

factors associated with PPD (e.g., only included biological markers, etc.).

The screening process was conducted independently by two researchers (authors L, M). In the first phase, titles and abstracts of all retrieved studies were reviewed based on the inclusion and exclusion criteria. In the second phase, the full texts of the selected studies were reviewed using the same criteria for the final selection. Any disagreements at any stage were resolved through discussion. If no consensus was reached, a third researcher (author K) was consulted.

The initial search yielded 2,480 studies. After excluding duplicates, 850 studies remained for screening. Based on titles and abstracts, 629 studies were excluded, leaving 221 studies for full-text review. After applying the inclusion and exclusion criteria to the full texts, 202 studies were excluded, and 19 studies [4,9,10,17-32] were finally selected for analysis (Figure 1). The bibliographic management software EndNote 20 was used to store retrieved studies and remove duplicates.

Step 4: Data Analysis

A draft analysis framework was developed to record the data from the selected literature, and the final analysis framework was finalized through research meetings. The framework consisted of five main categories: publication characteristics, study characteristics, EPDS characteristics, participant characteristics, and study outcomes. All data were extracted, and frequency analysis and descriptive statistics were performed using Microsoft Excel 2020.

Results

General characteristics of the selected studies

Table 1 summarizes the general characteristics of the selected studies. The analysis of 19 studies revealed that publications originated from 10 countries. China accounted for the largest share with 7 studies (36.8%) [19-25], followed by India with 3 studies (15.79%) [26-28], and Saudi Arabia with 2 studies (10.53%) [31,32]. One study (5.26%) each was conducted in Bhutan [17], Cambodia [18], South Korea [29], Laos [10], Myanmar [4], the Philippines [30], and Türkiye [9].

The distribution of studies over the past 5 years showed an increasing trend, despite a dip during the COVID-19 pandemic. Specifically, 6 studies (31.58%) were published in 2020 [9,10,21,24,27,30], 3 studies (15.79%) in 2021 [22,23,29], and 1 study (5.26%) each in 2022 and 2023 [19,31]. The year 2024 saw a significant rise, with 8 studies (42.11%) [4,17,18,20,25,26,28,32].

Regarding study design, the majority were cross-sectional (n=17, 89.47%) [4,10,17-28,30-32], one was a prospective cohort study (5.26%) [29], and one was a prospective longitudinal study (5.26%) [9]. The number of participants ranged from 65 to 4,813. One study [29] included both mothers and their spouses. Two studies [18,30] recruited participants from primary health care centers, while 17 studies [4,9,10,17,19-29,31,32] recruited participants from hospitals.

General characteristics of the participants

The general characteristics of the participants are summarized in Table 2. Twelve studies reported the mean age of participants, which was calculated to be 28.06 ± 4.44 years. The age range of participants varied across the studies; some included mothers aged 16 years and older [10], while others included those aged 17 years and older [17,31]. Additionally, two studies [19,24] focused on older mothers, aged 35 years or older.

Regarding obstetric characteristics, 3 studies [9,22,25] focused on primiparity, and 6 studies [4,9,10,18,22,29] included only mothers of singleton births. Nine studies [19,20,24-26,28-30,32] included mothers with no psychiatric history, and 7 [10,18,20-22,25,28] recruited only participants with no health problems or complications related to pregnancy and birth. One study [26] excluded mothers with a history of abortion or induced termination of pregnancy, and another [27] excluded cases where the infant had health conditions.

EPDS characteristics by country

EPDS version

A total of 16 studies (84.21%) described the EPDS version used, with 13 (68.42%) using

translated versions validated for reliability and validity in their respective countries. Six of those used the Chinese version [20-25], followed by Hindi [27,28], Arabic [31,32], Korean [29], Burmese [4], and Turkish [9] versions. Three studies (17.79%) used translations done by the researchers, pilot-tested but without reported psychometric analyses: these were from Bhutan [17], Cambodia [18], and Laos [10].

EPDS cutoff points

The EPDS is typically validated for reliability and validity within each country, with a standard cutoff of 13 or higher frequently adapted to fit the local cultural context [33]. However, among these 19 studies, there was variability in cutoff points, even within the same country.

A cutoff point of 10 or higher was most commonly used, appearing in 10 out of the 19 studies (42.11%). These studies spanned various regions: India [28] in Southern Asia; Cambodia [18], Laos [10], Myanmar [4], and the Philippines [30] in Southeastern Asia; Saudi Arabia [32] in Western Asia; and South Korea [29] along with China [20,23,25] in Eastern Asia. Two studies from Cambodia [18] and Laos [10] cited research on EPDS cutoff points in primary healthcare settings in non-English-speaking countries [34]. Meanwhile, studies from China [23], South Korea [29], Myanmar [10], and Saudi Arabia [32] referenced validation studies of the EPDS translated into their respective languages [35-38]. Additionally, 2 studies from China [22,24] utilized cutoffs based on research assessing the clinical significance of EPDS cutoffs in English-speaking mothers [39].

A cutoff point of 9 or higher was reported in one study (5.26%) conducted in China [19], referencing a prior validation study of the Chinese version of the EPDS [40]. One study (5.26%) from Bhutan [17] used a cutoff of 11 or higher, which based its criteria on a systematic review of EPDS cutoffs in the global literature [41]. Another study (5.26%) from India [27] used a cutoff point of 12 or higher but did not provide details on a specific rationale or evidence for this criterion.

In contrast, a cutoff point of 13 or higher was reported in six studies from China [21,22,24], India [26], Saudi Arabia [31], and Türkiye [9]. The rationale for this cutoff included

a validation study of the Turkish EPDS version [42] and a previously validated Arabic version that was assessed for reliability and validity [43]. Conversely, two Chinese studies [21,22] cited a systematic review of EPDS cutoff points in global literature [44] and the original developer's publication on the EPDS [45]. Two other studies [24,26] did not provide a rationale for their chosen cutoff points. However, the original developer of the EPDS [45] recommended that cutoff points for translated versions of the EPDS might not be universally applicable across different cultures and emphasized the importance of establishing semantic, technical, diagnostic, and conceptual equivalence when adapting the EPDS for various cultural contexts.

EPDS mean scores

Nine studies (47.37%) reported mean EPDS scores and standard deviations (SD), although one [17] provided only the mean for participants suspected of having PPD. The remaining 8 studies [4,10,18,21,22,25,27,32] showed a mean EPDS score of 7.75±5.09.

The mean and SD of EPDS scores from studies conducted in South-Eastern Asia, specifically in Cambodia [18], Laos [10], and Myanmar [4], were calculated to be 6.72±4.71. A study from India [27] in Southern Asia reported slightly higher values (7.67±5.9), while a study from Saudi Arabia [32] in Western Asia reported lower values (2.54±4.5). The unusually low EPDS mean score in the Saudi study [32] may be attributed to the demographic characteristics of the participants, over 90% of whom had a university education or higher and resided in nuclear family settings.

Prevalence and Associated Factors of PPD
Prevalence

The prevalence of PPD ranged from 5.1% [32] to 78.7% [25]. In Eastern Asia, South Korea [29] reported 24.6%, while Chinese studies ranged from 11.6% [23] to 78.7% [25]. In South-eastern Asia, reported prevalence was 30.2% in Cambodia [18], 31.8% in Laos [10], 31.9% in Myanmar [4], and 16.4% in the Philippines [30]. In Southern Asia, Bhutan [17]

reported 14.9%, while rates in India ranged from 17.4% [28] to 33.8% [26]. In Western Asia, Türkiye [9] reported 18%, whereas Saudi Arabia reported the lowest rates (5.1% [31] and 5.6% [32]). Thus, the lowest prevalence was found in Saudi Arabia, while the highest was found in China.

Cultural factors

Various cultural factors contributing to PPD were identified in 18 studies (Table 3), with a particular focus on family relationships. The most frequently mentioned factor was poor relationships with in-laws (n=7), followed by negative relationships with the spouse (n=4) and the mother's own parents (n=3). Additionally, living with in-laws (n=2) and having the mother-in-law as the primary caregiver for the mother and newborn (n=1) were also reported as contributing factors.

The influence of newborn sex also emerged as a significant cultural factor, particularly when the newborn was female (n=2) or when there was a discrepancy between family expectations and the actual sex of the newborn (n=2). Additionally, one study identified family pressure to conceive as a factor linked to PPD.

Psychosocial factors

Thirteen studies identified psychosocial factors associated with PPD [4,9,10,17-19,21-23,25,27,29,31]. The most commonly reported factors were low family support and low social support from colleagues or friends, each mentioned in four studies. Other factors included high levels of daily life stress, parenting stress, dissatisfaction with marriage, childbirth experiences, and economic status, each cited in two studies.

Demographic factors

The most commonly reported demographic factors included pregnancy complications and unplanned pregnancies, each cited in six studies. These were followed by low economic status, reported in five studies; low level of education, in four studies; and young maternal

age, multiparity, and poor neonatal health, each noted in three studies. Less frequently mentioned factors were spousal unemployment, the mother's occupation as a housewife, primiparity, and multiple fetuses, each reported in two studies.

Discussion

This study found that the prevalence of PPD was lowest in Saudi Arabia at 5.1% [32] and highest in China at 78.7% [25]. These findings are somewhat consistent with previous reports, which have shown PPD prevalence in Asian countries to range from 4.9% to 93% [5]. Earlier studies have indicated variability in PPD prevalence across Asia, with the lowest rates reported in South Korea [5, 6] and the highest in Japan [5] or Afghanistan [6]. However, considering that Korean nurses exhibited significantly higher rates of PPD (45.9%) compared to their US counterparts (3.4%) [46], it is crucial to carefully examine variations in sampling methods, participant characteristics, and the use of culturally sensitive cutoffs.

Among the cultural factors associated with PPD, a negative relationship with in-laws has been identified as a contributing factor, consistent with findings from a previous study in Japan [47]. This may be linked to Confucian influences that emphasize recognition and affirmation by the extended family in Asia. Similarly, the extended family—a traditional family structure in Asian countries—has been reported to increase the risk of PPD [47]. However, while some studies have identified the extended family as a factor [26,32], others have pointed to the nuclear family structure as associated with PPD [4,28]. Interestingly, living with a mother-in-law was found to be a significant factor for PPD, aligning with results from a previous study in China [48]. Our findings regarding cultural factors related to the newborn's sex also mirror those of the earlier study conducted in China [48], suggesting that Confucian preferences for boys in Asian countries may contribute to familial conflict and, consequently, increase the risk of PPD.

In terms of the psychosocial factors associated with PPD, a lack of family and social support was identified as a key factor. Family support during the postpartum period is crucial for maternal well-being, as close relationships and daily interactions with the spouse and

other family members offer both emotional and practical support [4]. This observation aligns with the findings of systematic reviews from Western Asia, which analyzed the relationship between social support and PPD [1,49]. These insights suggest that healthcare providers should consider the family environment and educate spouses and family members about PPD. Regarding demographic characteristics, unplanned pregnancies, low education levels, low income, and younger maternal age have been significantly associated with PPD. These associations are consistent with studies conducted in Western Asia [1,11].

This study has limitations. Strict inclusion criteria may have excluded some articles that contained relevant insights into PPD. In addition, most included studies were cross-sectional, limiting conclusions about causality. Some recent research suggests that environmental factors (e.g., endocrine disruptors, and air pollution) could also influence PPD [50,51]. Future research should consider these factors to gain a more comprehensive understanding of PPD. Despite these limitations, this review highlights the need for consistent use of the EPDS and the establishment of standardized cutoff points to enhance the accuracy of PPD screening in Asian countries. It also emphasizes the importance of strengthening family and community support systems to improve maternal psychological well-being and prevent PPD. Developing prevention strategies and programs that reflect Asia's diverse cultural and social contexts will be key to the early detection and prevention of PPD.

In conclusion, the prevalence of PPD in Asian countries widely varied, ranging from 5.1% to 78.7%. Although most studies used translated EPDS versions that had been previously validated for reliability and validity, there was variability in the EPDS cutoff points, even within individual countries such as India, Saudi Arabia, and China. This variability underscores the need for a standardized approach to using the EPDS, including adopting internationally recognized standardized translations and establishing consistent cutoff criteria that take into account the cultural characteristics of Asian countries.

This study identified that cultural factors, including relationships with in-laws and issues related to the sex of the newborn, are significant in the context of PPD among Asian mothers. To definitively establish the connection between cultural influences and PPD, further

prospective cohort or population-based studies are required.

Authors' contributions:

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- Funding acquisition: Not applicable
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Conflicts of interest

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Supplementary materials
Supplement 1. The search strategies for each database

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Table 1. General characteristics of the selected studies (N=19)

UN Geoscheme	Country	First Author (Year) [Ref]	Study Design	Recruitment Site
Eastern Asia	China	Chen (2023) [19]	Cross-sectional study	Hospital
		He (2024) [20]	Cross-sectional study	Hospital
		Liu (2020) [21]	Cross-sectional study	Hospital
		Liu (2021) [22]	Cross-sectional study	Hospital
		Peng (2021) [23]	Cross-sectional study	Hospital
		Xiong (2020) [24]	Cross-sectional study	Hospital
		Yi (2024) [25]	Cross-sectional study	Hospital
	South Korea	Yoo (2021) [29]	Prospective cohort study	Hospital
South-Eastern Asia	Cambodia	Guechhorng (2024) [18]	Cross-sectional study	Primary healthcare institutions
	Laos	Inthaphatha (2020) [10]	Cross-sectional study	Hospital
	Myanmar	Wyunn (2024) [4]	Cross-sectional study	Hospitals
	Philippines	Labrague (2020) [30]	Cross-sectional study	Primary healthcare institutions
Western Asia	Saudi Arabia	Alhusaini (2022) [31]	Cross-sectional study	Hospital
		Alshowkan (2024) [32]	Cross-sectional study	Hospital
	Türkiye	Çankaya (2020) [9]	Prospective longitudinal cohort study	Hospital
Southern Asia	Bhutan	Zangmo (2024) [17]	Cross-sectional study	Hospital
	India	Begum (2024) [26]	Cross-sectional study	Hospital
		Murryï (2020) [27]	Cross-sectional study	Hospital
		Priya (2024) [28]	Cross-sectional study	Hospital

Table 2. Detailed characteristics of the selected studies (N=19)

First Author (Year)	Country	Sample		EPDS				Findings
		Size	Characteristics	Time Frame (Postpartum)	EPDS Version	Cutoff /Mean	PPD Prevalence n (%)	Factors associated with PPD
Zangmo (2024) [17]	Bhutan	314	· Age range: 17-48 years ·Included mothers with a history of psychiatric disorders	4–8 weeks	Translated and pilot-tested (n=30)	·≥ 11 ·Mean score of suspected PPD: 14.17±3.44	47 (14.97%)	·Poor relationship with friends/in-laws ·Perceived changes in body image, perceived increased stress during pregnancy, and perceived stress after delivery ·History of pregnancy complications, negative delivery experience, and poor health status of the newborn
Guechhorng (2024) [18]	Cambodia	440	·Mean age: 28.6 years ·Included mothers with a history of psychiatric disorders ·Mothers with singleton pregnancy, and no thyroid disorders	6–8 weeks	Translated and pilot-tested (n=11)	·≥ 10 ·mean score: 6.65±4.27	133 (30.2%)	·Poor relationship with spouse and mother-in-law ·Dissatisfaction with economic status, unplanned pregnancy, and spouse's employment in manual labor/farming/factory work
Chen (2023) [19]	China	239	·Mothers ≥35 years ·Excluded mothers with a history of psychiatric disorders	6 weeks	No information on EPDS version	≥ 9	51 (21.34%)	·Lower familial support ·Lower level of education (<high school education), and history of pregnancy complications,

He (2024) [20]	China	503	·Mean age of PPD mothers: 28.25±3.785 (vs 29.57±4.123 in non-PPD) ·Excluded history of psychiatric disorders, pregnancy complications, and medical conditions	6–7 weeks	Chinese version	≥ 10	73 (14.5%)	·Co-habitation with in-laws ·Younger maternal age and history of pregnancy complications
Liu (2020) [21]	China	1,204	·Mothers ≥18 years, with healthy term births, and no postpartum complications ·No information on psychiatric history	6 weeks	Chinese version	·≥ 13 ·mean score: 8.18±5.80	279 (23.2%)	·Lower familial support, lower social support from colleagues or friends, mother-in-law as the primary caregiver of mother and newborn, and dissatisfaction with childbirth experiences ·Lower level of education, unplanned pregnancy, and lower economic status
Liu (2021) [22]	China	1,136	·Mean age: 30.16±3.91 ·No information on psychiatric history ·Mothers with singleton pregnancy, and no postpartum complications	6–8 weeks	Chinese version	·≥ 13 ·mean score: 9.54±4.46	267 (23.5%)	·Lower social support, symptoms of postpartum post-traumatic stress disorder ·Poor health condition of the newborn
Peng (2021) [23]	China	4,813	·Mean age of PPD mothers: 29 (27-32) ·Included mothers with a history of psychiatric disorders	6 weeks	Chinese version	≥ 10	559 (11.6%)	·Co-habitation with in-laws ·Higher daily life stress ·Housewife, primiparity

Xiong (2020) [24]	China	1,124	·Mothers ≥35 years ·Excluded mothers with a history of psychiatric disorders	6 weeks	Chinese version	≥ 13	202(18%)	·Demale newborn, gap between familial expectations for fetal sex and actual sex of the newborn, poor relationship with mother-in-law ·Primiparity
Yi (2024) [25]	China	150	·Mean age: 26.25±3.90 ·Excluded mothers with a history of psychiatric disorders ·Mothers with Primiparity, and no pregnancy complications	6 weeks	Chinese version	·≥ 10 ·mean score: 13.94±5.70	118(78.7%)	·Gap between familial expectations for fetal sex and actual sex of the newborn, poor relationship with spouse, mother-in-law, and one's parents ·Higher parenting stress, the gap between perceived and actual family support ·Younger maternal age, lower economic status, and poor health condition of the newborn
Begum (2024) [26]	India	65	·Mean age: 21.58±2.31 ·Excluded mothers with a history of psychiatric disorders ·Mothers with no abortions/ medical terminations	6–8 weeks	No information on EPDS version	≥ 13	22(33.8%)	·Living in an extended family structure, pressure from the family to become pregnant, pressure for a female child, and poor relationship with spouse, in-laws, and one's parents ·Younger maternal age, lower level of education, lower economic status, history of pregnancy complications, multiple fetuses, and unplanned pregnancy
Murryï (2020) [27]	India	284	·Mean age: 28.6±4.61 ·No information on psychiatric history ·Mothers excluding those with infants diagnosed with acute illnesses	6–8 weeks	Hindi version	·≥ 12 ·mean score: 7.67±5.9	72(25.3%)	·Lower familial support, and poor relationship with mother-in-law ·Dissatisfaction with marriage ·History of pregnancy complications

Priya (2024) [28]	India	426	·No information on maternal mean age ·Excluded mothers with a history of psychiatric disorders or neurological disorders	6 weeks	English, Hindi	≥ 10	74(17.4%)	·Living in a nuclear family, and female newborn ·Unplanned pregnancy, and multiparity
Yoo (2021) [29]	South Korea	183 and 130 of their spouses	·Mean age: 32.9±3.41 ·Excluded mothers with a history of psychiatric disorders ·Mothers with a singleton pregnancy and their spouses	at six points (at 20, 28, and 36 weeks of pregnancy and at 2, 6, and 12 weeks postpartum)	Korean version	≥ 10	45 (24.6%)	·Lower social support, dissatisfaction with marriage, higher parenting stress, higher daily life stress, and lower level of self-esteem
Inthaphatha (2020) [10]	Laos	428	·Mean age: 28.1(16-44) ·Included mothers with a history of psychiatric disorders ·Mothers with a singleton pregnancy, and no thyroid disorders	6–8 weeks	Translated and pilot-tested (n=20)	·≥ 10 ·mean score: 7.1±4.6	136 (31.8%)	·Poor relationship with spouse, one's parents, and mother-in-law ·Dissatisfaction with childbirth experiences ·Higher education levels of participants and spouses, unplanned pregnancy, multiparity, housewife, and spousal unemployment
Wyunn (2024) [4]	Myanmar	552	·Mean age: 27.9±4.8(18-43) ·No information on psychiatric history ·Mothers with a singleton pregnancy	6–8 weeks	Myanmar version	·≥ 10 ·mean score: 6.4±5.2	176 (31.9%)	·Living in a nuclear family and lower familial support ·Dissatisfaction with economic status ·Unplanned pregnancy

Labrague (2020) [30]	Philippines	165	·Mean age: 23.98±5.74 ·Excluded mothers with a history of psychiatric disorders	6 weeks	No information on EPDS version	≥ 10	27 (16.4%)	·Having a professional occupation, multiparity
Alhusaini (2022) [31]	Saudi Arabia	354	·Mean age: 31.58±5.8(17-53) ·Included mothers with a history of psychiatric disorders	Twice, immediately after birth and 6 weeks	Arabic version	≥ 13	18 (5.1%)	·Lower social support
Alshowkan (2024) [32]	Saudi Arabia	270	·Married mothers aged 18-49 years ·Excluded mothers with a history of psychiatric disorders	6 weeks	Arabic version	·≥ 10 ·mean score: 2.54±4.5	15 (5.6%)	·Living in an extended family structure ·Lower level of education, spousal unemployment, lower economic status, multiple fetuses, history of pregnancy complications
Çankaya (2020) [9]	Türkiye	245	·Mean age: 27.3±5.2 ·Mean age of PPD mothers: 28.2±5.2 (vs 27.2±5.2 non-PPD) ·No information on psychiatric history ·Mothers with Primiparity and a singleton pregnancy	6– 8 weeks	Turkish version	≥ 13	44 (18%)	·Increased marital conflict ·Increased perceived stress during pregnancy

Table 3. Classification of factors associated with PPD

Factors	Categories	n	Reference
Cultural	Poor relationship with in-laws	7	10,17,18,24-27
	Poor relationship with spouse	4	10,18,25,26
	Poor relationship with parents	3	10,25,26
	Co-habitation with in-laws	2	20,23
	Female newborn	2	24,28
	Gap between familial expectations for fetal sex and actual sex of the newborn	2	24,25
	Living in an extended family structure	2	26,32
	Living in a nuclear family	2	4,28
	Mother-in-law as the primary caregiver of mother and newborn	1	21
	Pressure from the family to become pregnant	1	26
	Pressure for a female child	1	26
Psychosocial	Lower familial support	4	4,19,21,27
	Lower social support	4	21,22,29,31
	Higher daily life stress	2	23,29
	Higher parenting stress	2	25,29
	Dissatisfaction with marriage	2	27,29
	Dissatisfaction with childbirth experiences	2	10,21
	Dissatisfaction with economic status	2	4,18
	Perceived increased stress during pregnancy	2	9,17
	Perceived stress after delivery	1	17
	Symptoms of postpartum post-traumatic stress disorder	1	22
	Perceived changes in body image	1	17
	Gap between perceived and actual family support	1	25
	Lower level of self-esteem	1	29
	Increased marital conflict	1	9
Demographic	History of pregnancy complications	6	17,19,20,26,27,32
	Unplanned pregnancy	6	4,10,18,21,26,28
	Lower economic status	5	21,25,26,32
	Lower level of education	4	19,21,26,32
	Younger maternal age	3	20,25,26
	Multiparity	3	10,28,30
	Poor health condition of the newborn	3	17,22,25
	Spousal unemployment	2	10,32
	Housewife	2	10,23
	Primiparity	2	23,24
	Multiple fetuses	2	26,32
	Higher education levels of participants and spouses	1	10
	Negative delivery experience	1	17
	Spouse's employment in manual labor/farming/factory work	1	18
	Having a professional occupation	1	30

| | **Identification of studies via databases and registers** | | **Identification of new studies via other methods** |

Identification

Records identified from databases (n=2,479)
- PubMed (n=554)
- Embase (n=304)
- CINAHL (n=948)
- PsycINFO (n=156)
- Web of Science (n=517)

Duplicate records removed before screening (n=1,630)

Records identified from other sources (n=1)

Screening

Records screened during title and abstract screening (n=849)

Records excluded (n=630)

Full-text articles assessed for eligibility (n=219)

Records excluded (n=201)
    Non-peer-reviewed literature: (n=2)
    Review or qualitative research: (n=1)
    Unavailable full texts: (n=2)
    Non-English language: (n=1)
    No PPD outcomes at 6-8 weeks: (n=143)
    Not postpartum women: (n=3)
    Not addressing PPD or related factors: (n=19)
    Not reporting demographic, psychosocial, or cultural factors: (n=29)
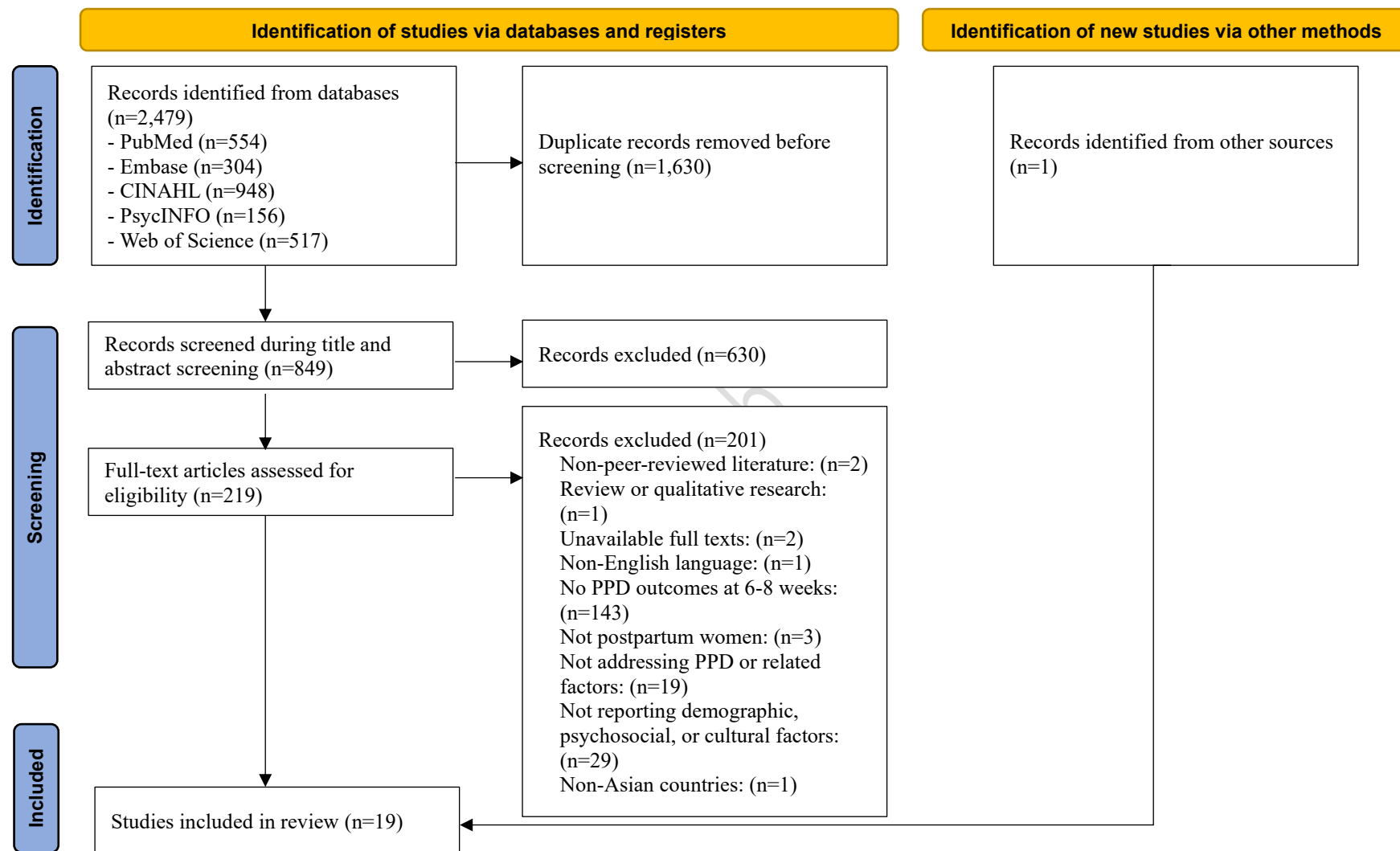   Non-Asian countries: (n=1)

Included

Studies included in review (n=19)

Fig. 1 PRISMA 2020 flow diagram