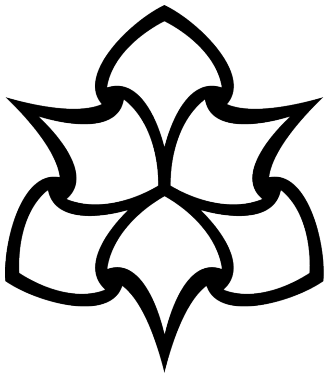

Manchester Metropolitan University

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The impact of social support on postpartum depression in Asia: A systematic literature review

Mandu Stephen Ekpenyong *, Munshitha Munshitha

Department of Nursing, Manchester Metropolitan University, Brooks Building, M15 6GX Manchester, United Kingdom

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ABSTRACT

Background: Postpartum depression (PPD) is a major public health problem. Consolidated evidence of the impact of social support on PPD has been well documented especially, in high-income countries. There is no recent comprehensively synthesized evidence of the same solely concentrated in the Asian continent.
Amis: This review aimed to identify the impact of social support on PPD in Asian countries from the current available evidence.
Methods: An electronic database search of CINAHL, Cochrane Library, Embase, and MEDLINE from 2012 to 2022 was conducted according to the PRISMA statement through September 2022. Disease search terms included "Postpartum depression", "postnatal depression", "perinatal depression", "peripartum depression".
Results: The prevalence of PPD ranged from 3.9% in Turkey to 67.3% in Iran. The study demonstrated the importance of social support in reducing the risk of PPD, especially from partners. Immigrant women had a higher prevalence of PPD than local citizens. The study demonstrated that postpartum cultural practices buffered for PPD by giving adequate support and care. The negative sides of these practices were evident in the studies that mentioned women's relationships with their mothers-in-law.
Conclusions: The prevalence of PPD and cultural practices differ across the Asian continent. Social support, especially from close relatives is a protective factor against PPD. Health professionals should be able to provide informational support to new mothers and their families. Postpartum cultural practices can either increase or decrease PPD risk depending on whom they stay with.

1. Introduction

Postpartum Depression (PPD) is defined as "an episode of depressive symptoms with an onset during the first 4 weeks of delivery" (Wisner, Moses-Kolko & Sit, 2010) or within the first 6 weeks of delivery (World Health Organisation, 2022). However, many studies and clinics have found that PPD has an onset within 12 months of delivery (Yu et al., 2021). More than 1 in 10 women is affected by depression within 1 year of postpartum (Milgrom, 2017). It affects the mental health and well-being of more than 10% of pregnant women and their families every year (Gavin et al., 2005). PPD has profound consequences on both mother and child health, with decreased physical health and risky behaviors in mothers, and decreased motor development in infants (Slomian, Honvo, Emonts, Reginster & Bruyère, 2019).

Based on a systematic review done by Wang et al. (2021), the global prevalence of PPD is 17.22%. The prevalence in Asia ranges from 60.93% in Afghanistan to 9.29% in Korea (Wang et al., 2021). This massive difference in the prevalence of PPD in Asian countries can be due to various socio-demographical and cultural factors (Klainin & Arthur, 2009). This indicates that social support is an imperative factor during the postpartum period. Social support is defined as the support available to an individual through various social ties from another individual or community (Ozbay et al., 2007). Studies have found a connection between social support and neurobiological pathways through which it reduces the risk of mental illness, but the exact mechanism is not known (Ozbay et al., 2007). Numerous studies have found that social support decreases the risk of PPD (Xie, He, Koszycki, Walker & Wen, 2009; Xie et al., 2010; Yagmur & Ulukoca, 2010; Al Dallal & Grant, 2012; Jones & Coast, 2013; Kamalifard, Hasanpoor, Babapour-Kheiroddin, Panahi & Payan, 2014; Demiroz & Tastan, 2018; Seymour-Smith, Cruwys & Haslam, 2021; Inekwe & Lee, 2022), however, it may be inconclusive when addressing confounding factors (Xie, He, Koszycki, Walker & Wen, 2009).

Postpartum cultural practices are an important cultural factor that is

* Corresponding author.
E-mail addresses: M.Ekpenyong@mmu.ac.uk (M.S. Ekpenyong), MUNSHITHA.MUNSHITHA@stu.mmu.ac.uk (M. Munshitha).

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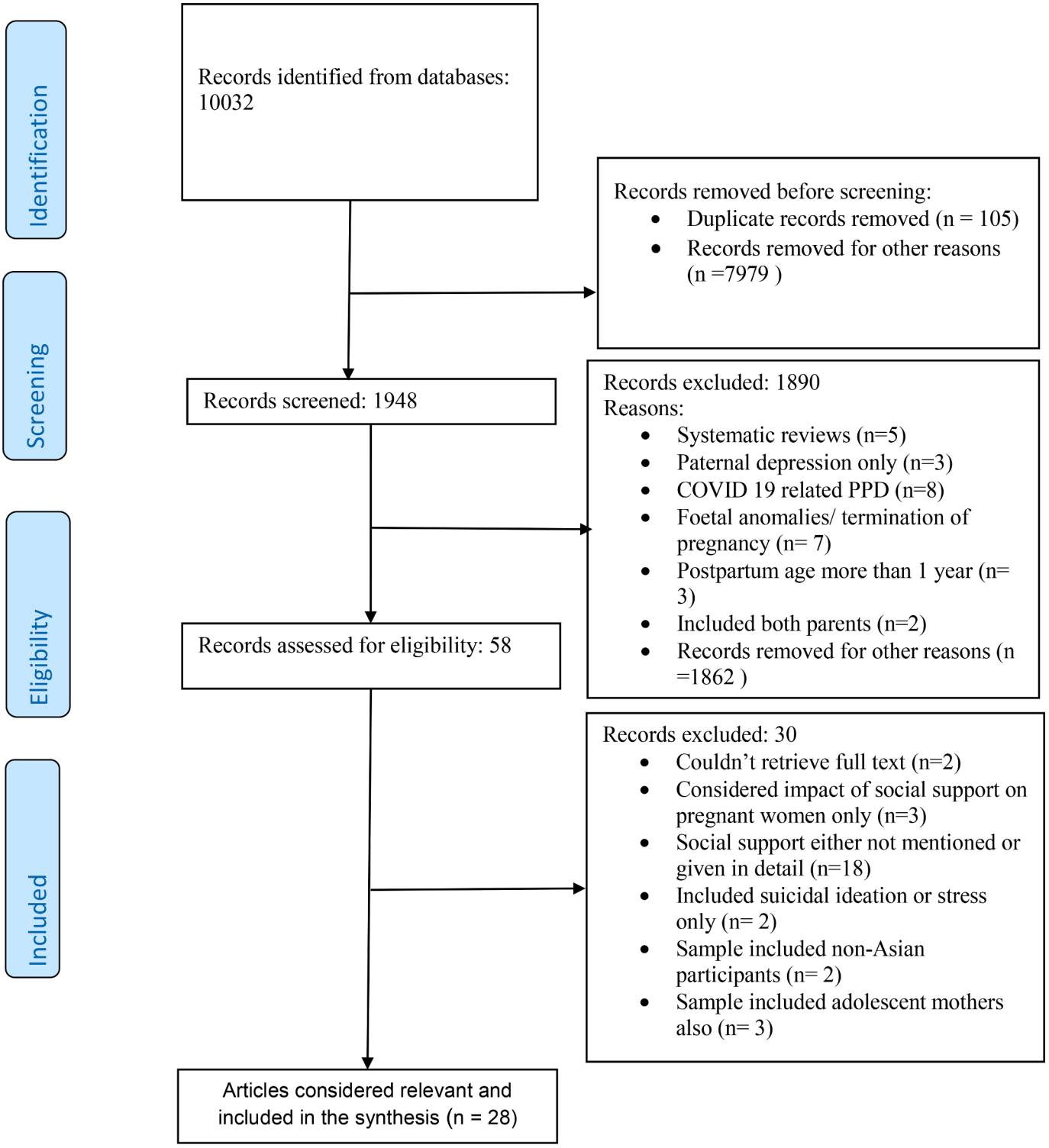

Fig. 1. Preferred reporting items for systematic reviews and meta-analyses flow diagram.

concerned with the postpartum period. This in Asian cultures consists of practical and emotional support from family compared to individualistic practices in modern western culture (Klainin & Arthur, 2009). Even though these are supposed to be supportive mechanisms, they may alleviate or trigger PPD (Bina, 2008).

Moreover, in many parts of South Asia, close association with family may either provide support or cause interpersonal conflicts (Bina, 2008; Gao, Chan & Mao, 2009; Yagmur & Ulukoca, 2010; Jones & Coast, 2013). A study on the Chinese postpartum practice of 'doing the month' and PPD on Chinese women by Ding et al. (2020) found that doing the month' practice includes confining to the room without going outside or opening the windows, not washing hair, and traditional diet (Ding et al., 2020). This indicates that social support is an imperative factor during the postpartum period (Fig. 1) (Appendix A1., A2., A3).

There is no recent systematic review done on the impact of social support on postpartum depression in Asia overall. This review therefore presents a systematic literature review on the impact of social support on postpartum depression in Asia from the existing available evidence.

1.1. Study purpose

To identify the impact of social support on postpartum depression in Asia from the currently available evidence.

2. Methods

We performed a systematic literature review using the guidelines for Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA–2009) was used to complete the review (Moher et al., 2009).

2.1. Search strategy

We searched for all studies published between 1 January 2012 and 30 September 2022, using the following databases: CINAHL, Cochrane Library, Embase, and MEDLINE. The following search terms were applied in the databases postpartum depression, postnatal depression, puerperal depression, perinatal depression, peripartum depression, social support, family support, partner support, postpartum cultural practices, impact, influence, and Asia. Boolean operators were also used to generate search results. In addition, reference list scanning was carried out on the retrieved studies. One reviewer (MSE) independently screened each title and abstract. Full text was retrieved for any article considered potentially relevant. To ensure accuracy, a second reviewer (MM) performed 25% (5 out of 21 articles) of the full-text reading and any disagreements were resolved through discussion between the reviewers.

2.2. Eligibility criteria

Studies conducted in Asian countries (countries geographically located on the continent of Asia) that provided information on the association between social support and PPD were included. Articles that show the link between postpartum cultural practices, social support, and PPD were also included. Articles that include women participants within one year of postpartum only, peer-review articles using quantitative, qualitative, or mixed-method design published in the English language from 2012 to 2022 were considered for inclusion. Articles that included only paternal depression or both parents, the factor of the COVID-19 pandemic and lockdown, adolescent mothers, and postpartum women who have undergone an abortion or have a child with a foetal anomaly were excluded from the review.

2.3. Quality assessment of included studies

The Critical Appraisal Programme (CASP) checklist (2018) ritical Appraisal Programme (CASP) was used for the systematic quality assessment of qualitative articles in this study because it is a widely used checklist (Williams, Boylan & Nunan, 2020), while Coughlan, Cronin & Ryan's (2007) framework was used for the quantitative studies. This framework helps in assessing the credibility and integrity of the study which in turn helps in identifying the trustworthiness of the study and its application to clinical practice (Coughlan, Cronin & Ryan, 2007). See Appendices 1–3 for quality assessment of the included articles.

2.4. Data extraction

Data extraction was also performed by MM and was independently checked by MSE reviewers. The extracted data included the name of the authors and country and the country, title, study aim/hypothesis, study design, sample size, study population, the tool used for depression and time point, social support dimension and tool used, data analysis method, study outcomes, and summary of support effect (see Tables 1, 2, 3 for data extraction).

3. Results

The initial search strategy using the keywords in various databases yielded 10,032 studies. 105 articles were removed because they were duplicates. Subsequently, 9899 studies were excluded because they did not meet the review inclusion criteria. Twenty-eight studies met the review inclusion criteria. Twenty-six of the included studies were quantitative in nature, one qualitative, and one mixed-methods study.

3.1. Study characteristics

One study (Ali-Saleh, Goldblatt & Baron-Epel, 2022) was conducted using qualitative methodology. Ten studies (Chen, Tai, Wu, Chiang & Chien, 2012; Almutairi et al., 2017; Jahromi, Mohseni, Manesh, Pouryousef & Poorgholami, 2019; Vaezi, Soojoodi, Banihashemi & Nojomi, 2019; Yamada, Isumi & Fujiwara, 2020; Eslahi, Bahrami, Allen & Alimoradi, 2021; Hajipoor, Pakseresht, Niknami, Roshan & Nikandish, 2021; Huang, Liu, Wang & Liu, 2021; Cho et al., 2022; Qi et al., 2022) were cross-sectional studies. Two studies (Li, Long, D. Cao & F. Cao, 2017; Yörük, Açikgöz, Türkmen & Karlidere, 2020) were longitudinal studies. Two studies (Chen, Hwang, Tai & Chien, 2013; Kondou, Yasui & Haku, 2021) were prospective cohort studies. Three studies (Akbari, Rahmatinejad, Shater, Vahedian & Khalajinia, 2020; Ando et al., 2021; Kızılırmak, Calpbinici, Tabakan & Kartal, 2021) were descriptive studies. One study (Lee & Hung, 2022) used a prospective repeated measure design. Two studies (Sapkota, Kobayashi & Takase, 2013; Zhang & Jin, 2016) did not mention their research design clearly.

Of the 21 studies, 4 studies were from China (Zhang & Jin, 2016; Li, Long, D. Cao & F. Cao, 2017; Huang, Liu, Wang & Liu, 2021; Qi et al., 2022), 5 studies were from Iran (Jahromi, Mohseni, Manesh, Pouryousef & Poorgholami, 2019; Vaezi, Soojoodi, Banihashemi & Nojomi, 2019; Akbari, Rahmatinejad, Shater, Vahedian & Khalajinia, 2020; Eslahi, Bahrami, Allen & Alimoradi, 2021; Hajipoor, Pakseresht, Niknami, Roshan & Nikandish, 2021), 3 studies were from Japan (Yamada, Isumi & Fujiwara, 2020; Ando et al., 2021; Kondou, Yasui & Haku, 2021), 2 studies were from Turkey

The data collection method of Ali-Saleh, Goldblatt and Baron-Epel (2022) was in-depth semi-structured interviews with 15 participants. Thematic analysis was used for data analysis. However, it was difficult to conclude the relationship between the researcher and participants as this was not clearly stated prior to the study implementation. This is because the quality of the data in qualitative research is in many ways dependent upon the relationship between the researcher and the participant (Wa-Mbaleka, 2022). The closer the researcher gets to the participants, the richer and more authentic the data he/she gets.

19 studies (Chen, Tai, Wu, Chiang & Chien, 2012; Almutairi et al., 2017; Jahromi, Mohseni, Manesh, Pouryousef & Poorgholami, 2019; Vaezi, Soojoodi, Banihashemi & Nojomi, 2019; Yamada, Isumi &

Table 1
Data extraction of quantitative studies.

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
1) Qi, W., Liu, Y., Lv, H., Ge, J., Meng, Y., Zhao, N., Zhao, F., Guo, Q and Hu, J. 2022 China	Effects of family relationship and social support on the mental health of Chinese postpartum women	(1) marital satisfaction or perceived caring of the mother-in-law will have a direct effect on PPD and an indirect effect on PPD through social support; (2) social support will have a direct relationship with PPD or sleep quality and an indirect relationship with sleep quality through PPD; (3) marital satisfaction or perceived caring of the mother-in-law will have a direct effect on sleep quality and an indirect effect on sleep quality through social support and PPD; and (4) PPD and sleep quality will have a bidirectional relationship at 6 weeks postpartum.	Cross-sectional study. 887 women	EPDS (cut off >= 10 for minor depression; >=13 for major depression). 6 weeks	Social Support Rating Scale (SSRS) by Xiao. Subjective support, objective support, and support availability. Also evaluated perceived caring of mother-in-law on a rating scale.	SPSS 25.0 (SPSS Inc., Chicago, IL, USA). Path analysis was done using Mplus 7.0. Bivariate Pearson correlation coefficients were used to examine the relationship among marital satisfaction, caring of mother-in-law, social support dimensions, sleep quality dimensions, and PPD.	Mean score of SSRS 38.42 with SD of 5.58 (not mentioned each domain). Minor depression 41.49% ($n = 339$, EPDS > = 10, 95%CI = 38.12, 44.86%) and major depression 23.13% ($n = 189$, EPDS > = 13, 95%CI= 20.23, 26.03%).	Social support is negatively correlated with PPD. Marital satisfaction and perceived caring of mother-in-law have direct negative effect on PPD and indirect effect through social support. PPD leads to poor sleep quality at 6 weeks postpartum
2) Zheng, J., Gao, L., Li, H., & Zhao, Q. 2022b China	Postpartum depression and social support: A longitudinal study of the first six months as parents	1) assess the changes of maternal and paternal depression and social support across the 6 months postpartum period; (2) investigate the relationships between maternal and paternal depression and social support during the 6-month postpartum period; (3) compare the differences of post-partum depression and social support between mothers and fathers at 2–3 days, 6 weeks, 3 months, and 6 months postpartum	Longitudinal study. 122 couples.	EPDS (cut off score >=13). 2–3 days, 6 weeks, 3 months, and 6 months postpartum	Social Support Rating Scale (SSRS) by Xiao. (Domains not mentioned)	SPSS version 25.0 (IBM, Armonk, NY, USA). Descriptive statistics used for socio-demographic and obstetric characteristics. Differences in maternal and paternal depression evaluated by *t*-test or one-way analysis of variance (ANOVA). Post hoc analyses with Bonferroni correction used to compare the differences in mean scores regarding postpartum depression and social support at different time points used in this study	Prevalence of maternal depression at 2–3 days, 6 weeks, 3 months, and 6 months postpartum were 12.3%, 23.0%, 25.4% and 27.0%, respectively. While the prevalence of paternal depression was 4.1%, 8.2%, 9.0% and 9.0%, respectively. Maternal and paternal social support was highest at 2–3 days postpartum compared with that measured at 6 weeks, 3 months, and 6 months postpartum. Maternal depression was significantly correlated with paternal depression while	Low social support determines maternal PPD at same time points. Low social support determines paternal PPD at same time points except at 2–3 days postpartum

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							maternal social support was significantly correlated with paternal social support at different time points	
3) Ando, H., Shen, J., Morishige, K., Suto, S., Nakashima, T., Furui, T., Kawasaki, Y., Watanabe, H and Saijo, T. 2021 Japan	Association between postpartum depression and social support satisfaction levels at four months after childbirth	To clarify the association between PPD among mothers and the satisfaction levels for all types and sources of social support that mothers actually receive up to four months after childbirth.	Survey (observational study). 279 mothers	EPDS (cut off >=9). 4 months postpartum.	Authors own questionnaire. Measure formal support (healthcare professionals, midwives) and informal (family members or friends). Each classified into informational, instrumental, and psychologic support.	SPSS version 25.0 (IBM Corp., Armonk, N.Y., USA). Univariate analyses done using the *t*-test, chi-squared test, and Mann–Whitney U test. Multivariate logistic regression analyses used to find correlation between satisfaction levels of social support and PPD.	Mothers' PPD was found to be significantly associated with satisfaction levels regarding formal-instrumental support (OR: 0.32, 95% CI: 0.162–0.632), informal instrumental support (OR: 0.547, 95% CI: 0.313–0.955), and informal psychological support (OR: 0.591, 95% CI: 0.384–0.912) in a multivariate logistic regression analysis	Mother with PPD have lower satisfaction levels of formal and informal support.
4) Hajipoor, S., Pakseresht, S., Niknami, M., Roshan Z.A., Nikandish, S. 2021 Iran	The Relationship Between Social Support and Postpartum Depression	To determine the relationship between social support and postpartum depression in women referring to comprehensive health centers in Rasht City, Iran.	Cross-sectional study. 300 mothers.	EPDS (cut off score >=12). 2–4 weeks postpartum.	Standard Hopkins social support questionnaire. Social support from partner, mother's parents, partner's parents, and friends and relatives.	SPSS version 21.0. Descriptive statistics indicators and Friedman, Mann-Whitney U, Kruskal-Wallis tests, the Spearman correlation coefficient, and logistic regression model were used.	67.3% mild PPD and 11% severe PPD. Significant inverse correlation between depression score and social support score by spouses ($P = 0.004$, $r=-0.167$), parents ($P = 0.002$, $r=-0.176$) and total social support score ($P = 0.024$, $r =-0.130$). The highest social support score was from spouse with a mean of 77.96 $\pm$14.98, and the lowest was from friends and relatives with an average of 48.5 $\pm$ 24.8.	Significant inverse relationship between social support and PPD. Spouse is the most important support provider.
5) Yamada, A., Isumi, A., & Fujiwara, T. 2020 Japan	Association between Lack of Social Support from Partner or Others and Postpartum Depression among Japanese Mothers: A Population-Based Cross-Sectional Study	To investigate the association between lack of social support from a partner or others and PPD in Japan	Cross-sectional study. 6590 mothers	EPDS (cut off score >=9). 3–4 months postpartum.	Authors own questionnaire. Measured support from partner and others (parents, partner's parents, relatives, and friends).	STATA/SE 13.1 software was used. Multiple logistic regression analyses used to find correlation between all categories of social support and PPD.	Mothers who have no social support from either a partner/ other, have social support from a partner only, and have social support from others only were 7.22 (95%CI, 1.76–29.6), 2.34 (95%CI, 1.37–3.98), and 3.13 (95%	Low social support is associated with a considerable risk of PPD. Inadequate support from partner is a significant factor for PPD despite receiving support from others.

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							CI,2.11–4.63) times more likely to show PPD, respectively, in comparison with mothers who have social support from both.	
6) Vaezi, A., Soojoodi, F., Banihashemi, A.T., & Nojomi, M. 2019 Iran	The association between social support and postpartum depression in women: A cross sectional study	To investigate the prevalence of maternal postpartum depression and its association with social support	Cross-sectional study. 200 mothers.	EPDS (cut off score >12). 3 weeks to 6 months postpartum	Social support questionnaire developed by Sarason et al. measured perception of social support network and degree of satisfaction.	SPSS version 21.0.1 (SPSS Inc., Chicago, IL, USA).	Prevalence of PPD 43.5%. Mean social support network score was 2.09±0.99; which is lower in depressed mothers compared to non-depressed mothers (1.78 ±0.87 vs. 2.33 ±1.00 respectively, $P<0.001$). Mean score of degree of satisfaction 5.01 ±0.86. A significant reverse association between social support and postpartum depression (Odds Ratio=0.47, 95% CI=0.33–0.67).	Social support is protective factor for PPD. Bigger the social network, lesser the PPD.
7) Jahromi, M.K., Mohseni, F., Manesh, E.P., Pouryousef, S., & Poorgholami, F. 2019 Iran	A study of social support among non-depressed and depressed mothers after childbirth in Jahrom, Iran	To evaluate the social support provided for non-depressed women and women with postpartum depression referring to health centers in Jahrom	Cross-sectional study. 60 mothers (30 depressed and 30 non-depressed)	EPDS (cut off score >=12). 6–12 weeks postpartum	Philips social support scale. Measured family environment, friends, and others.	SPSS version 19.0. Descriptive statistics and T test were used.	Low social support: 3.7% in non- depressed and 23.7% in depressed group. 93.3% and 56.7% enjoyed social support in depressed and non-depressed group, respectively. Average social support in depressed was 15.9% and non-depressed was 19.4%.	Depressed mothers have low social support.
8) Li, Y., Long, Z., Cao, D., & Cao, F. 2017 China	Social support and depression across the perinatal period: A longitudinal study	1) To understand changes in depression and social support at three different times from late pregnancy to 4th week of postpartum. 2) To test the relationship between social support and depression at each time points over the perinatal period	Longitudinal study. 240 women.	EPDS (cut off score>= 12). Late pregnancy, 1 week and 4 weeks postpartum.	Multidimensional scale of Perceived Social Support (MSPSS). Measured perceived support from family, friends, and others.	R statistical software package version 3.1.1. was used. Chi-square or Kruskal–Wallis rank sum tests were used for comparison. ANOVA used to evaluate time effects and Pearson correlation was used to assess relationships between PPD and social support.	Antepartum depression risk: 12.9%. PPD risk: 16.3%. Child maltreatment leads to perinatal depression. Perceived social support at late pregnancy (66.1 ± 8.6), increasing to a maximum at 1 week postpartum (69.5 ± 7.5) and then again decreased at 4 weeks postpartum (66.4 ± 9.1).	Perceived social support and PPD were highest and lowest at 1 week postpartum, respectively.

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							Meanwhile, EPDS at late pregnancy (8.2 ± 3.5), decreased at 1 week postpartum (6.9 ± 3.5), and again increasing at 4 weeks postpartum (7.3 ± 3.6).	
9) Zhang, Y., & Jin, S. 2016 China	The impact of social support on postpartum depression: The mediator role of self-efficacy	1) self-efficacy and social support can negatively predict postpartum depression. 2) Social support can partially mediate the effect of self-efficacy on postpartum depression.	Quantitative study. 427 new mothers.	EPDS (cut off score not mentioned). 6–10 weeks postpartum.	Multidimensional scale of Perceived Social Support (MSPSS). Measured perceived support from family, friends, and significant others.	AMOS 17.0 program. A two-step procedure introduced by Anderson and Gerbing (1988) was used to analyze the mediation effect.	Perceived social support has a direct negative effect on PPD and indirect effect through self-efficacy (26.75%). Social support has significant positive direct effect on self-efficacy.	Both social support and self-efficacy significantly correlate with PPD.
10) Huang, Y., Liu, Y., Wang, Y., & Liu, D. 2021 China	Family function fully mediates the relationship between social support and perinatal depression in rural Southwest China	1) Social support would be positively associated with family function. 2) Social support would be negatively associated with depression. 3) Family function would be negatively associated with depression. 4) The relationship between social support and depression would be mediated by the family function.	Cross-sectional study. 490 women.	EPDS (cut off score>= 9.5). Within 6 months postpartum.	Social Support Rating Scale (SSRS) by Xiao. Subjective support, objective support, and social support utilization.	SPSS version 20.0 and AMOS version 24.0. Description analysis, binary logistic regression analysis and structural equation modeling were used.	The mean score of depression was 5.30 ± 3.46, and 10.4% of women had significant depression symptoms. Social support had a significant positive correlation with family function (β=0.293, 95%CI: 0.147 to 0.434). The direct impact of social support on depression proved to be statistically non-significant (β=−0.090, 95% CI: −0.213 to 0.043). The family function had a direct negative correlation with depression (β=−0.251, 95% CI: −0.382 to−0.118). Social support had an indirect negative correlation with depression (β=−0.074, 95% CI: −0.139 to−0.032)	Family function fully mediates the relationship between social support and PPD.
11) Kızılırmak, A., Calpbinici, P., Tabakan, G., & Kartal, B. 2021 Turkey	Correlation between postpartum depression and spousal support and factors affecting postpartum depression.	Spousal support during the early postpartum period reduces the likelihood of postpartum depression.	Descriptive correlational study. 181 women.	EPDS (cut off score >= 12). 4th week postpartum	Perceived spousal support among women in early postpartum period scale (PSSAWEPP). 3 subscales of emotional support, social support, and physical support from partner.	SPSS version 17.0. The Pearson's chi-square test or Fisher's exact test were used to compare the categorical variables between the groups.	PPD prevalence: 28.2%. Mean depression risk score was 8.34 ± 5.27. Spousal violence (aOR= 5.69, 95% CI: 1.65–19.55) and unintended pregnancy (aOR= 0.24, CI: 0.11–0.54) were	When partner support increased, PPD risk decreased.

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							factors significantly associated with PPD in women. Mean total PSSAWEPP score was 61.68 ± 8.25, while the mean scores of emotional support, social support and physical support were 27.96 ± 3.68, 22.56 ± 3.88, 11.15 ± 2.94, respectively.	
12) Kondou, A., Yasui, T., & Haku, M. 2021 Japan	Relationship between maternal mental status and social supports during pregnancy and until one month after childbirth in a local city	To clarify the relationship between maternal mental status and social supports during pregnancy and until one month after childbirth in order to evaluate the actual situation in a local city.	Prospective cohort study. 78 women	The CES-D (Center for Epidemiologic Studies Depression) by Radloff (cut off 16 points). Second and third trimester, postpartum hospitalization, and 1 month after childbirth.	Multidimensional scale of Perceived Social Support (MSPSS). Support by the important person, support by the family, and support by a friend.	SPSS version 25.0. Friedman test, Bonferroni method, spearman's rank correlation coefficient test, *t*-test and the Mann-Whitney U test were used.	CES-D (and social support score) score was 8.0 (72.5), 9.0 (72.5), 7.0 (76), and 4.0 (76.5) in the second tri-mester, third trimester, during postpartum hospitalization, and 1 month after childbirth, respectively. The score for support by the important person on the Social Support Scale was 25.5, 24.0, 27.0, and 27.0 in the second trimester, third trimester, during postpartum hospitalization, and 1 month after childbirth, respectively. CES-D score was significantly and negatively correlated with the Social Support Scale score in the second trimester, third trimester, during postpartum hospitalization, and 1 month after childbirth ($r = -0.30$ to -0.48, $P < 0.01$).	Depressive symptoms and anxiety were highest during pregnancy and decreased following birth, while perceived social support was low during pregnancy and increased during the postpartum period.
13) Akbari, V., Rahmatinejad, P., Shater, M.M., Vahedian, M., & Khalajinia, Z. 2020 Iran	Investigation of the relationship of perceived social support and spiritual well-being with postpartum depression.	To investigate the relationship between spiritual well-being (SWB) and perceived social support with postpartum depression in new mothers	Descriptive survey study. 200 mothers	EPDS (cut off score >= 13). 4–8 weeks postpartum.	Multidimensional scale of Perceived Social Support (MSPSS). Support by significant other, family, and friends.	SPSS version 22.0. Data analysis done using chi-square test, Pearson correlation and logistic regression.	Prevalence of PPD in this group was 22%. Pearson correlation test showed that there was a negative correlation between high level of perceived social support and SWB with	perceived social support and SWB have a significant role in low depressive symptom in mothers during postpartum

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							postpartum depression.	
14) Deng, A.W., Xiong, R.B., Jiang, T.T., Luo, Y.P., & Chen, W.Z. 2014 China	Prevalence and risk factors of postpartum depression in a population-based sample of women in Tangxia Community, Guangzhou	To assess the prevalence of PPD and examine the risk factors in Tangxia Community.	Cross-sectional study. 1823 women.	EPDS (cut off score>= 10). 4 weeks postpartum.	Social Support Rating Scale (SSRS) by Xiao. Subjective support, objective support, and social support utilization.	SPSS version 13.0.		
Student's t-test used to evaluate the significance of differences between two independent-samples.	Prevalence of PPD in Tangxia Community, Guangzhou was 27.37%. The incidence of mild, moderate, and severe PPD were 14.04%, 11.63%, 1.70%, respectively. The total score of social support rating scale, the score of objective support, subjective support and social utilization degree were significantly reduced in women with PPD in contrast with women without PPD.	Social networks, social cohesion, and support buffer for PPD.						
15) Sapkota, S., Kobayashi, T., & Takase, M. 2013 Nepal	Impact on perceived postnatal support, maternal anxiety, and symptoms of depression in new mothers in Nepal when their husbands provide continuous support during labor	To examine the impact on postnatal support, anxiety and symptoms of depression experienced by new mothers in Nepal at 6–8 weeks postpartum, when they had received Continuous Labor Support (CLS) from their husband. To examine the difference in effect when a woman receives CLS from her husband as opposed to a female friend, or when she had no birthing companion at all.	Quantitative study. 231 women.	EPDS (cut off score not mentioned). 6–8 weeks postpartum.	Postpartum Support Questionnaire (PSQ) by Logsdon. Measured important particular support (CLS).	AMOS version 18.0. Chi-square test, ANOVA and post hoc analysis were done.	CLS from a husband during his wife's labor was related to a greater degree of postnatal support than those who were not supported by their husband during labor (β=0.23, p<0.001). Similarly, the more women considered they were being supported, the less likely they were to experience maternal anxiety (β=0.52, p<0.001), which in turn was associated with a lower level of depression (β=0.43, p<0.001)	CLS from husband has a greater impact on postnatal support and indirect effect on PPD and postpartum anxiety.
16) Zheng, J., Sun, K., Aili, S., Yang, X., & Gao, L. 2022a China	Predictors of postpartum depression among Chinese mothers and fathers in the early postnatal period: A cross-sectional study	To explore the prevalence of PPD and identify its predictors among Chinese mothers and fathers in the early postpartum period	Cross-sectional study. 454 couples.	EPDS (cut off score>= 13). 2–3 days postpartum.	Social Support Rating Scale (SSRS) by Xiao. Domains not mentioned.	SPSS version 25.0. The Q-Q plot and P-P plot were used to test the normality of the data. McNemar's test, t-test and ANOVA were used.	The prevalence of PPD was 13.0% and 7.5% in mothers and fathers, respectively. SSRS and parenting satisfaction and	Maternal and paternal depression are predictive factors of one another.

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							self-efficacy (PSOC) negatively correlated with EPDS. SSRS positively correlated with PSOC. Maternal EPDS is negatively correlated with paternal PSOC and SSRS. Paternal EPDS is negatively correlated with maternal PSOC and SSRS. Maternal EPDS positively correlated with paternal EPDS.	
17) Lanjewar, S., Nimkar, S., & Jungari, S. 2021 India	Depressed motherhood: Prevalence and covariates of maternal postpartum depression among urban mothers in India.	To examine the prevalence and covariates of postpartum depression among new mothers; and find the association between the indices of social support, partner support and attention shifting with experience of postpartum depression	Cross-sectional hospital-based study. 240 mothers	EPDS (cut off score>= 13). 0–42 days postpartum.	Social support index (measured social support from participants' mothers, mothers-in law, relatives, neighbours, and friends) and partner support index.	Data analysed using chi-square test and logistic regression analysis	26.3% depressed and 73.7% non-depressed. A strong association was found between social support and PPD (AOR: 3.037; 95% CI: 1.486–6.208) and unadjusted models (UOR: 2.269; 95% CI: 1.056–4.87), partner support (AOR: 4.979; 95% CI: 1.348–18.388) and attention shift from mother to baby with PPD (Both adjusted to AOR: 2.618; 95% CI: 1.441–4.858; and unadjusted UOR: 2.373; 95% CI: 1.072–5.254).	Low social support is associated with PPD. Partner support is the most important.
18) Bahadur, E.I., Asena, M., Yavuz, Y., Karabulut, E., & Ozmert, E.N. 2021 Turkey	The role of adverse childhood experience and social support type in postpartum depression in Turkey.	1) To investigate the risk and protective factors for PPD. 2) To analyze the relationship between Adverse Childhood Experience (ACE) and postpartum depression as well as the relationship between ACEs and the sources of social support effective in PPD among women with and without ACEs in a non-Western country	Cross-sectional study. 900 mothers.	EPDS (cut off score>= 12). Within 1 week postpartum.	Multidimensional scale of Perceived Social Support (MSPSS). Support by significant other, family, and friends.	Data analysed using ANOVA, post hoc Tukey test and Mann-Whitney U test in SPSS version 22.0.	Prevalence of PPD and ACE were 10% and 8.8%, respectively. Family support was perceived as beneficial, in both women with no history or $\geq$2 instances of ACE. Perceived support from friends and/or a special person was lowest in the$\geq$2 ACE group ($p<0.05$). In logistic regression, unwanted pregnancy, emotional abuse, and neglect, incarceration of a household member, and	Perceived poor social support, emotional abuse and neglect are predictors of PPD.

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							poor special person support were factors significantly associated with developing PPD ($p = 0.005$).	
19) Eslahi, Z., Bahrami, N., Allen, K.-A., Alimoradi, Z. 2021 Iran	Spouse's social support in the postpartum period, predictors, and its relationship with postpartum depression in a sample of Iranian primiparous women.	To investigate the predictive factors of receiving spousal support in the postpartum period and its relationship with PPD.	Cross-sectional study. 250 primiparous women.	EPDS (cut off score >=12). At 12–15 days or 40–45 days postpartum.	Postpartum Partner Support Scale (PPSS). Social relations and functional component of social support.	Univariate and multivariate regression analysis done in SPSS version 24.0.	Mean score of PPD scale was 6.95 (SD5.32) and in the PPSS was 64.32 (SD10.45). A moderate significant inverse relationship between partner support and PPD ($\beta = -0.39$). After controlling other demographic variable $\beta = -0.33$. Employment status of partner and life satisfaction predict spousal support.	As partner support increases, PPD decreases. Employment status of partner and life satisfaction are major predictors of spousal support.
20) Chen, H.H., Hwang, F.M., Tai, C.J., & Chien, L.Y. 2013 Taiwan	The interrelationships among acculturation, social support, and postpartum depression symptoms among marriage-based immigrant women in Taiwan: a cohort study	To assess the structural relationships among social support, acculturation, and postpartum depressive symptoms among marriage-based immigrant mothers in Taiwan.	Prospective cohort study. 203 mothers	EPDS (cut off score>= 10). 1 and 6 months postpartum.	Social support questionnaire by T, Chen et al. Measured household activity support, emotional support, and informational support.	Interrelationships were analysed using structural equation modeling and bivariate correlation were analysed using Pearson correlation in SPSS version 18.0.	Prevalence of PPD: 24.1% and 12.3% at 1 and 6 months, respectively. Social support at 1 month negatively correlated to PPD at 1month. Social support at 6 months negatively correlated to PPD at 6 months. Social support at 1 month directly associated with social support at 6 months. PPD at 1 month directly associated with PPD at 6 months.	Social support and social attitude negatively related to PPD in immigrant women.
21) Chen, T.L., Tai, C.J., Wu, T.W., Chiang, C.P., & Chien, L.Y. 2012 Taiwan	Postpartum cultural practices are negatively associated with depressive symptoms among Chinese and Vietnamese immigrant mothers married to Taiwanese men.	To examine acceptance and adherence to doing-the-month practices and their association with postpartum depressive symptoms among Chinese and Vietnamese immigrant mothers in Taiwan.	Cross-sectional study. 190 mothers	EPDS (cut off score>= 10). Within 1 year postpartum.	Social support questionnaire by Chen. Measured household activity support, emotional support, and informational support.	Bivariate analysis using t-test and multiple regression analysis done in SPSS version 17.0.	Adherence to postpartum cultural practices was negatively associate with postpartum depressive symptoms among immigrant mothers (OR=0.93, 95% CI: 0.90–0.96) after adjustment for social support, duration between moving to Taiwan and delivery, and country of origin. Adherence and social support negatively	The beneficial association of postpartum cultural practices with postpartum depressive symptoms was independent of social support.

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							associated with PPD. Chinese immigrant mothers had higher adherence and acceptance to these practice and hence lower depressive symptoms. High acceptance for not moving around and low acceptance for following a traditional diet.	
22) Lee, ı-C. & Hung, C—H. 2022 Taiwan	Women's trajectories of postpartum depression and social support: A repeated-measures study with implications for evidence-based practice.	To explore the trends in postpartum depression and social support. To cross- analyze the correlation between the postpartum depression trajectory and the social support trajectory. To investigate predictors of changes in postpartum depression trajectories	Prospective repeated measure design. 230 women	EPDS (cut off score >=10). 1, 3 and 6 months postpartum	Social support scale- APGAR. Adaptation, partnership, growth, affection, and resolve (family APGAR and friend APGAR)	Trajectory analysis by SAS software version 9.4. Multiple logistic regression analysis by SPSS/PC version 23.0	The average postpartum depression score was highest in the third month after childbirth (Mean = 5.4, SD= 5.0). Perceived social support of the participants was highest in the first month after childbirth (41.1 ± 7.5) followed by the third month (39.9 ± 8.2) and the sixth month after childbirth (39.7 ± 8.3). The trajectory of PPD was significantly related to the trajectory of social support.	Change in the PPD trajectory was significantly related to change in the social support trajectory.
23) Basu, S., Budh, N., Garg, S., Singh, M.M., & Sharma, A. 2019 India	Postpartum depression burden and associated factors in mothers of infants at an urban primary health center in Delhi, India.	To estimate the burden of PPD and associated factors in women having an infant child	Cross-sectional study. 210 mothers	EPDS (cut off score >=10). Within 1 year postpartum	Multidimensional scale of Perceived Social Support (MSPSS). Support by significant other, family, and friends.	Data analysed using binary logistic regression model and chi-square test in SPSS version 25.0.	PPD burden: 29%. Social support was low in 57 (27.2%), medium in 70 (33.3%), and high in 83 (39.5%) respondents. The proportion of women detected with postpartum depression in those reporting low and medium levels of social support was higher as compared to women reporting higher levels of social support and was statistically significant ($P < 0.001$).	Low social support is an important risk factor of PPD
24) Yörük, S., Açikgöz, A., Türkmen, H., & Karlidere, T. 2020 Turkey	The prevalence of postpartum depression and the correlation of perceived social support and quality of life with postpartum	To determine the prevalence of PPD and to determine the correlations between PPD and perceived social support, quality	Longitudinal study. 317 women	EPDS (cut off score >=13). 4 and 6 weeks postpartum. Also used Becks Depression Scale (score above 17,	Multidimensional scale of Perceived Social Support (MSPSS). Support by significant other, family, and friends.	Data analysed using chi-square test, Fisher's exact test and Mann-Whitney U test in SPSS version 20.0.	Prevalence of PPD was found to be 5.9% (95% CI: 3.3–8.5) in the 4th week and 3.9% (95% CI: 2.0–6.2) in the 6th week	High social support leads to low PPD risk, but not statistically significant. A significant correlation

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
	depression: A longitudinal study.	of life, and risk factors		exclude from the study)			postpartum. No significant correlation between MSPSS and the PPD risk, in the 4th week postpartum. A negative, low, and significant correlation was found for the friend subscale of MSPSS and PPD in the 6th week postpartum ($r = -0.15$; $p = 0.006$). Mean score for social support was higher in women with low PPD risks but was not significant. Linear regression model showed that PPD negatively affected the social and psychological qualities of life of the mothers in the 4th week postpartum.	between low PPD risk and high quality of life.
25) Almutairi, A.F., Salam, M., Alanazi, S., Alweldawi, M., Alsomali, N., & Alotaibi, N. 2017 Saudi Arabia	Impact of help-seeking behavior and partner support on postpartum depression among Saudi women	To examine the impact of general help-seeking behavior (GHSB) and partner support (PS) on PPD among Saudi women in primary health care clinics in Riyadh city	Cross-sectional study. 113 participants.	EPDS (cut off score >=13). Within 6 weeks postpartum	Partner support scale (PSS). Measure support from partner (emotional support, financial support, dependability, and assistance with childcare)	Data analysed using Student's t-test and ANOVA in SPSS version 23.0.	25.7% of women probably depressed. 9% reported good help-seeking behavior, 28% reported poor behavior, and 63% neutral behavior. 89.4% of participants sought help from their partners when they had personal or emotional problem. 84% had a good perception of their supportive partners, whereas 16% had a poor perception. Indirect correlation between partner support and PPD ($y = 77.9–0.2x$, $P = 0.023$).	PPD can be reduced by enhancing women's GHSB and partner support.
26) Cho, H., Lee, K., Choi, E., Cho, H.N., Park, B., Suh, M., Rhee, Y., & Choi, K.S. 2022 South Korea	Association between social support and postpartum depression.	To examine the association between PPD and social support among South Korean women within one year of childbirth.	Cross-sectional study. 1654 women	EPDS (cut off score>= 10). Within 1 year postpartum.	Multidimensional scale of Perceived Social Support (MSPSS). Support by significant other, family, and friends.	Data analysed using Cochran-Armitage test and multiple logistic regression in SAS version 9.4.	266 participants (16.1%) had PPD. Depending on the level of social support, 6.0%, 53.9%, and 40.1% of them had low, moderate, and high social support, respectively. Women with	Social support is important for reducing PPD, especially for women experiencing multiparity, pregnancy loss, negative body image, as well as for employed women.

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Table 1 (*continued*)

Authors, year, and country	Title	Aim/ Hypothesis	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Study outcome	Summary of support effect
							moderate or low social support were more likely to have PPD (OR = 1.78, 95% CI = 1.26–2.53; OR = 2.76, 95% CI = 1.56–4.89).	

Fujiwara, 2020; Eslahi, Bahrami, Allen & Alimoradi, 2021; Hajipoor, Pakseresht, Niknami, Roshan & Nikandish, 2021; Huang, Liu, Wang & Liu, 2021; Cho et al., 2022; Qi et al., 2022; Li, Long, D. Cao & F. Cao, 2017; Yörük, Açikgöz, Türkmen & Karlidere, 2020; Chen, Hwang, Tai & Chien, 2013; Akbari, Rahmatinejad, Shater, Vahedian & Khalajinia, 2020; Ando et al., 2021; Kızılırmak, Calpbinici, Tabakan & Kartal, 2021; Lee & Hung, 2022; Sapkota, Kobayashi & Takase, 2013; Zhang & Jin, 2016) used Edinburgh Postnatal Depression Scale (EPDS) for PPD measurement. One study (Kondou, Yasui & Haku, 2021) used the Center for Epidemiologic Studies- Depression (CES-D) scale.

18 studies used standardised scale for social support measurement (Chen, Tai, Wu, Chiang & Chien, 2012; Almutairi et al., 2017; Jahromi, Mohseni, Manesh, Pouryousef & Poorgholami, 2019; Vaezi, Soojoodi, Banihashemi & Nojomi, 2019; Eslahi, Bahrami, Allen & Alimoradi, 2021; Hajipoor, Pakseresht, Niknami, Roshan & Nikandish, 2021; Huang, Liu, Wang & Liu, 2021; Cho et al., 2022; Qi et al., 2022; Li, Long, D. Cao & F. Cao, 2017; Yörük, Açikgöz, Türkmen & Karlidere, 2020; Chen, Hwang, Tai & Chien, 2013; Akbari, Rahmatinejad, Shater, Vahedian & Khalajinia, 2020; Kızılırmak, Calpbinici, Tabakan & Kartal, 2021; Lee & Hung, 2022; Sapkota, Kobayashi & Takase, 2013; Zhang & Jin, 2016; Kondou, Yasui & Haku, 2021). Two studies (Yamada, Isumi & Fujiwara, 2020; Ando et al., 2021) used their own non-validated questionnaire. In all the quantitative studies, the research problem and aim were clearly identified. Data analysis was clearly identified in all quantitative articles, and these includes descriptive and inferential statistics.

4. Synthesis

4.1. Social support and postpartum depression

All included studies in the review found a negative association between PPD and social support. This suggests that social support is a protective factor against PPD. However, there were some variations in a few studies (Chen, Tai, Wu, Chiang & Chien, 2012; Yörük, Açikgöz, Türkmen & Karlidere, 2020; Huang, Liu, Wang & Liu, 2021). Chen, Tai, Wu, Chiang and Chien (2012) found that the negative association was not significant in multiple regression analysis when the EPDS score >=13 was used.

Chen et al. (2012) also found a that adherence to doing-the-month practices was significantly negatively associated with postpartum depressive symptoms when EPDS score $\geq$ 10 was used. The association was such that immigrant mothers from Vietnam had higher odds of postpartum depressive symptoms than mothers from China. Similarly, Huang, Liu, Wang and Liu (2021) revealed that family function had a direct negative correlation with depression ($\beta = -0.251$, 95%CI: -0.382 to -0.118).

Of the three (support from family, support from friends, and support from a significant other) subscales, according to Yörük, Açikgöz, Türkmen and Karlidere (2020) only found a low significant correlation between the friend subscale of social support and PPD at 6 weeks. Huang, Liu, Wang and Liu (2021) found that there was no significant association between PPD and social support after controlling for the mediation effect of family function, indicating that family function fully mediates social support.

4.2. Partner support and PPD

Six studies (Sapkota, Kobayashi & Takase, 2013; Almutairi et al., 2017; Yamada, Isumi & Fujiwara, 2020; Eslahi, Bahrami, Allen & Alimoradi, 2021; Hajipoor, Pakseresht, Niknami, Roshan & Nikandish, 2021; Kızılırmak, Calpbinici, Tabakan & Kartal, 2021) specifically pointed out the importance of partner support in the postpartum period. Three studies (Almutairi et al., 2017; Yamada, Isumi & Fujiwara, 2020; Eslahi, Bahrami, Allen & Alimoradi, 2021) also showed a significant correlation between partner support and PPD even after accounting for covariates and confounding variables. A low partner support alone was associated with 7.18 times increase in the risk of PPD and after accounting for intimate partner violence (IPV), it was associated with 3.13 times increase in the risk of PPD (Yamada, Isumi & Fujiwara, 2020). While Kızılırmak, Calpbinici, Tabakan and Kartal (2021) found that IPV was associated with a 5.69 times increase in the risk of PPD. Sapkota, Kobayashi and Takase (2013) found that receiving partner support during labor invariably leads to a better perception of social support.

4.3. Social support and PPD in immigrant women

Two studies (Chen, Tai, Wu, Chiang & Chien, 2012, 2013) specifically discussed the relationship between social support and PPD in immigrant women. They did not compare the difference in the prevalence of PPD and social support among immigrant women and local citizens of Taiwan, however, the prevalence of PPD was higher in immigrants (Chen, Hwang, Tai & Chien, 2013: 24.1% at one month postpartum; Chen, Tai, Wu, Chiang & Chien, 2012: 41.6% within one year postpartum) compared to Taiwanese women in another study (Lee & Hung, 2022: 11.7% at one month postpartum) with an almost equal number of participants (203 participants in Chen, Hwang, Tai & Chien, 2013; 190 participants in Chen, Tai, Wu, Chiang & Chien, 2012; 223 participants in Lee & Hung, 2022). Nevertheless, in both studies, authors speculated that social support was low in immigrant women as they live in faraway countries away from their families and hence the higher prevalence of PPD.

4.4. Postpartum cultural practices and PPD

Two studies (Chen, Tai, Wu, Chiang & Chien, 2012; Lee & Hung, 2022) found that postpartum cultural practices are protective against PPD. While one study (Ali-Saleh, Goldblatt & Baron-Epel, 2022) mentioned both the negative and positive aspects of postpartum cultural practices. Chen, Tai, Wu, Chiang and Chien (2012) found that of the many domains of Chinese postpartum practice, acceptance and adherence were highest for 'not moving around' and lowest for 'consuming

Table 2
Data extraction for qualitative study.

Authors, year, and country	Title	Research Questions	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Key findings
27) Ali-Saleh, O., Goldblatt, H., Baron-Epel, O. 2022, Israel	"My problem is that I live next door to my mother-in-law": Arab women's postpartum experiences with positive and negative social interactions and the impact on their well-being: A qualitative study	1) How do postpartum Arab women experience and interpret the social support they received in the postpartum period? 2. How do postpartum Arab women perceive the norms and practices associated with supporting women during the postpartum period? 3. How do postpartum Arab women describe the impact of social support and negative social interactions during the postpartum period on their relationships with their husbands, with their new baby and with their other children?	Qualitative study. 15 women	EPDS. Within 40 days postpartum	Semi-structured interview on support types and providers, level of satisfaction, and interactions during support provided.		
Data analysis was done by interpretive phenomenological analysis (IPA) principles as proposed by Smith and Osborn (2008).	1) Support from the family and community: Positive impact on the Mother (instrumental and emotional support). 2) Negative social interactions as invasion of mother's personal space (Infringement of privacy and independence, Criticism & interference, Impact of negative social interactions on mothers' physical health). 3) Impact of negative social interactions on mother's relationship with her family						

Table 3
Data extraction for mixed-methods study.

Authors, year, and country	Title	Aim	Study design and sample	Tool used for depression and time points	Social support dimension and tool used	Data Analysis	Results of phase 1	Results of phase 2
28) Jin, Q., Mori, E., & Sakajo, A. 2016, Japan	Risk factors, cross-cultural stressors, and postpartum depression among immigrant Chinese women in Japan.	To examine potential contributors of depression that included stress, cultural stressors, personal characteristics, and social support.	Mixed-method study (initial phase quantitative and final phase qualitative). 22 women in quantitative phase and 2 women in qualitative phase.	EPDS (cut off score >=10). Quantitative phase at 1–3 weeks postpartum, qualitative phase for semi-structured interviews at 2 months postpartum.	Social support scale (SSS) by T, Chen et al. Measured household activity support, emotional support, and informational support.	Cross-tabulation analysis and descriptive statistics done in SPSS version 22.0. Content analysis was done in qualitative phase of the study.	Mean EPDS score was 9 (SD ±3.7; range: 2–16). A significant positive association found between the Cross-Cultural Stressors and the Stress Visual Analogue Scale (VAS) compared with EPDS scores. A moderate negative association between SSS and stress VAS. No significant association between SSS and EPDS.	Case A: Emotional support was reported satisfactory in phase, but phase 2 uncovered a feeling of lack of support and lack of informational support from nurses. Also felt stressed as she could not perform Chinese postpartum cultural practices at hospital. Case B: lack of informational support from family. Also felt stressed as she could not perform Chinese postpartum cultural practices at hospital.

(Yörük, Açikgöz, Türkmen & Karlidere, 2020; Kızılırmak, Calpbinici, Tabakan & Kartal, 2021), 3 studies were from Taiwan (Chen, Tai, Wu, Chiang & Chien, 2012, 2013; Lee & Hung, 2022), 1 each from Nepal (Sapkota, Kobayashi & Takase, 2013), Saudi Arabia (Almutairi et al., 2017), Israel (Ali-Saleh, Goldblatt & Baron-Epel, 2022) and South Korea (Cho et al., 2022).Two studies included immigrant women (Chen, Tai, Wu, Chiang & Chien, 2012, 2013) as participants.

tonic food.' Moreover, they also found that Chinese immigrant women in Taiwan had a higher adherence and acceptance than Vietnamese women in Taiwan as they were more accustomed to the practice than Vietnamese. Hence, this also led to a lower risk of PPD among Chinese immigrant women compared to Vietnamese immigrant women. They concluded that the beneficial association of postpartum practices with PPD symptoms was independent of social support. Lee and Hung (2022) study found that perceived social support was highest in the first month after childbirth (41.1± 7.5) followed by the third month (39.9 ± 8.2) and the sixth month after childbirth (39.7 ± 8.3) respectively. The qualitative study by Ali-Saleh, Goldblatt and Baron-Epel (2022) found that '40 days of confinement at home' in Arabic culture provided

Table 4
Quality assessment of qualitative study (Adapted from CASP, 2018).

Checklist questions	Ali-Saleh et al., 2022
Was there a clear statement of the aims of the research?	Yes, "To understand the subjective experience as well as to examine positive and negative aspects of social interactions of postpartum Arab women"
Is qualitative methodology approprate?	Yes, For understanding to provide culturally sensitive support for postpartum Arab women
Was the research design appropriate to address the aims of the research?	Yes, Qualitative design for better understanding
Was the recruitment strategy appropriate to the aims of the research?	Yes, Purposive criterion sampling used to recruit participants
Was the data collected in a way that addressed the research issue?	Yes, Semi-structured interviews conducted
Has the relationship between researcher and participants been adequately considered?	Can't tell
Have ethical issues been taken into consideration?	Yes, Verbal and written informed consent gained, Ethical approval obtained from the University
Was the data analysis sufficiently rigorous?	Yes, Thematic analysis used
Is there a clear statement of findings?	Yes, Findings stated and discussed within identified themes
How valuable is the research?	Yes, Limitations, implications for further research and practice discussed

emotional and instrumental support to women. However, they mentioned these practices as a 'double-edged sword' as this also led to a lack of privacy and freedom and frequent interference from the mother-in-law regarding caring for the baby. They found that all these affected their family relationship, physical and mental health, and parenting efficacy.

4.5. Relationship with mother-in-law

Three studies (Hajipoor, Pakseresht, Niknami, Roshan & Nikandish, 2021; Ali-Saleh, Goldblatt & Baron-Epel, 2022; Qi et al., 2022) mentioned the impact of women interaction with their mothers-in-law. All these studies found that women interaction with their mother-in-law can have a serious impact on postpartum mental health except for one study (Hajipoor, Pakseresht, Niknami, Roshan & Nikandish, 2021), which could not find any significant correlation between the social support score of the partner's parents and PPD. One study (Qi et al., 2022) measured the perceived caring of mother-in-law (PCMIL) using an unvalidated own questionnaire and found that PCMIL was significantly positively correlated with social support and significantly negatively correlated with EPDS directly and indirectly through social support. Meanwhile, Ali-Saleh, Goldblatt and Baron-Epel (2022) demonstrated the downsides of relationships with mothers-in-law. They found that frequent interference and criticism regarding baby care from the mother-in-law led to negative effects on mental health, physical health, and the mother-baby relationship, lack of privacy and independence, and even led to conflicts with the partner.

5. Discussion

All the studies in this review found a negative association of PPD with social support. It can therefore be concluded that social support is an important risk factor for PPD as found in previous studies (Xie, He, Koszycki, Walker & Wen, 2009; Xie et al., 2010; Jones & Coast, 2013; Reid & Taylor, 2015; Ngai & Ngu, 2015). However, some studies in this review found that this correlation became insignificant during multivariate analysis, similar to the findings of Jones and Coast (2013). This review could not find the differences between perceived social support and actual support as none of the studies compared these. Hence, the fact that perceived social support is a more important predictor of mental health than actual support (McDowell & Serovich, 2007) cannot be extrapolated from this study. This review also found that partner support is an important protective factor for PPD, and its significance was relevant even after accounting for other variables.

Even though no direct data on the higher risk of PPD and low social support in immigrant women in Taiwan were provided, the correlation can be deduced from this review. This study found a higher prevalence of PPD and lower social support in immigrant women in Taiwan compared to local citizens in the same country. Several studies have found similar findings in different contexts (Alhasanat-Khalil et al., 2018; Chen, Cross, Plummer, Lam & Tang, 2019; Kassam, 2019; Xiong & Deng, 2020).

The study found conflicting evidence on the impact of postpartum cultural practices on social support and PPD. Studies on Chinese culture found positive effects of these practices. While the study among Arab Muslim women residing in Israel revealed that Arabic culture can also affect the mothers negatively especially when women were staying with their mothers-in-law. Previous studies have found that these practices increase social support and are a protective factor for PPD (Gregoriadis et al., 2009; Hanlon et al., 2010). Some studies point out that this can either cause stress to new mothers (Wan et al., 2009; Zhao et al., 2022) or have no effect on PPD (Abdollahi, Etemadinezhad & Lye, 2016). Moreover, this review found that not all domains of postpartum cultural practices are followed strictly. This could be due to modernization and the personal preferences of mothers in following the traditions. Hence, it can be said that the impact of traditional practices depends on the geographical location, type of practices, whom they live with, and personal preferences.

5.1. Limitations

The major limitations of this study are that the current review is that there were limited number of qualitative and mixed-methods studies, huge cultural diversity of Asia, and the limitations of making generalisations; and studies from many countries in south Asia and west Asia were not included. The exclusion of studies not published in English was also a limitation. There is also a possibility of bias as most of the studies in this review used self-reported scales for PPD and social support measurements. Moreover, there is a chance of publication bias as grey literature was not included. The study does not provide information on PPD in adolescent mothers and the change in the impacts of social support on PPD during the COVID-19 pandemic.

5.2. Recommendations for practice

This study is relevant for maternal healthcare professionals for tailoring postpartum care and social support needs to each individual especially, immigrant women as their cultures may be different. It is also particularly important to have discussions with women and their families regarding postpartum care and provide adequate informational support. This study also implies that screening for PPD should be done at least 6 months postpartum, especially in communities that follow postpartum cultural practices.

Table 5
Quality assessment of quantitative studies.

	Qi et al., 2022	Ando et al., 2021	Hajipoor et al., 2021	Yamada et al., 2020	Chen et al., 2013
Purpose/ Research problem	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Logical consistency	Logically presented and clear	Logically presented and clear	Logically presented and clear	Logically presented and clear	Logically presented and clear
Literature review	Logically organised. Majority of the research from 2009 to 2019. Included both primary and secondary researches	Logically organised. Majority of the research from 1996 to 2018	Logically organised. Included research from 1989 to 2018	Logically organised. Included research from 1995 to 2017	Logically organised. Majority of the research from 2001 to 2011
Aim/ Objectives/ Hypothesis	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review
Sample	Clear. Only inclusion criteria stated	Clear. Both inclusion and exclusion criteria not clearly stated	Clear. Inclusion criteria clearly stated	Clear. Exclusion criteria stated	Clear. Inclusion and exclusion criteria not clearly stated
Ethical consideration	considered	Yes, but anonymous questionnaire distributed	considered	considered	Approved from university
Definitions	Clear and present	Not clearly identified or present	Clear and present	Not clearly identified or present	Definition of acculturation clearly stated, but not others
Methodology	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity of postnatal depression scale discussed, but not of social support. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity of social support scale discussed, but not of postnatal depression scale. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity of postnatal depression scale discussed. Questionnaire adapted for social support, but validity not discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken
Data analysis/ Results	Clear and identified	Clear and identified	Clear and identified	Clear and identified	Clear and identified

Cont'd: Quality Assessment of Quantitative studies

	Vaezi et al., 2019	Jahromi et al., 2019	Li et al., 2017	Zhang & Jin, 2016	Huang et al., 2021
Purpose/ Research problem	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Logical consistency	Logically presented and clear	Logically presented and clear	Logically presented and clear	Logically presented and clear	Logically presented and clear
Literature review	Logically organised. Related articles not discussed, rather given statistics on prevalence of PPD. Majority of research from 2004 to 2018	Logically organised. Related articles not discussed. Majority of research from 2000 to 2016	Logically organised. Majority of research from 2011 to 2015	Logically organised. Included research from 2003 to 2013	Logically organised. Included research from 2000 to 2020
Aim/Objectives/ Hypothesis	Identified and clear.	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review
Sample	Clear. Inclusion and exclusion criteria not clearly stated	Clear. Inclusion criteria stated	Clear. Inclusion and exclusion criteria clearly stated	Clear. Inclusion and exclusion criteria not clearly stated	Clear. Inclusion and exclusion criteria not clearly stated
Ethical consideration	Considered and data handled anonymously	considered	considered	considered	considered
Definitions	Clear and present	Clear and present	Clear and present	Clear and present	Clear and present
Methodology	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity of depression scale discussed, but not of social support. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken	Research design not stated. Validity not discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken
Data analysis/ Results	Clear and identified	Clear and identified	Clear and identified	Clear and identified	Clear and identified

cont'd: Quality Assessment of Quantitative studies					
	Kizilirmak et al., 2021	Kondou et al., 2021	Akbari et al., 2020	Sapkota et al., 2013	Eslahi et al., 2021
Purpose/ Research problem	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Logical consistency	Logically presented and clear	Logically presented and clear	Logically presented and clear	Logically presented and clear	Logically presented and clear
Literature review	Logically organised. Majority of the research from 2006 to 2018.	Logically organised. Included research from 2001 to 2018.	Logically organised. Included research from 1996 to 2019	Logically organised. Included research from 1999 to 2012	Logically organised. Included research from 2005 to 2018
Aim/Objectives/ Hypothesis	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review
Sample	Clear. Inclusion and exclusion criteria stated	Clear. Inclusion criteria stated	Clear. Both inclusion and exclusion criteria clearly stated	Clear. Inclusion and exclusion criteria stated	Clear. Inclusion and exclusion criteria stated
Ethical consideration	Considered	Considered	Considered	Considered	Considered
Definitions	Not clearly identified or present	Not clearly identified or present	Clear and present	Clear and present	Definition of social support stated, but not others.
Methodology	Research design clearly identified and appropriate. Validity of depression scale discussed, but not of social support. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity not discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken	Research design not clearly stated. Validity of depression scale discussed, but not of social support. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken
Data analysis/ Results	Clear and identified	Clear and identified	Clear and identified	Clear and identified	Clear and identified

cont'd: Quality Assessment of Quantitative studies					
	Chen et al., 2012	Lee & Hung, 2022	Yoruk et al., 2020	Almutairi et al., 2017	Cho et al., 2022
Purpose/ Research problem	Clearly identified	Clearly identified	Clearly identified	Clearly identified	Clearly identified
Logical consistency	Logically presented and clear	Logically presented and clear	Logically presented and clear	Logically presented and clear	Not clear as methodology discussed last
Literature review	Logically organised. Majority of the research from 1997 to 2008.	Logically organised. Included research from 2011 to 2017.	Logically organised. Included research from 2004 to 2017	Logically organised. Included research from 1997 to 2012	Logically organised. Majority of the research from 2000 to 2019
Aim/Objectives/ Hypothesis	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review	Identified and clear. Reflects the information presented in the literature review
Sample	Clear. Inclusion and exclusion criteria not clearly stated	Clear. Inclusion and exclusion criteria stated	Clear. Inclusion and exclusion criteria stated	Clear. Only exclusion criteria stated	Clear. Inclusion and exclusion criteria not clearly stated
Ethical consideration	Approved from university	Considered	Considered	Considered	Approved by institutional review board
Definitions	Definition of postpartum cultural practices clearly stated, but not others	Clear and present	Clear and present	Clear and present	Clear and present
Methodology	Research design clearly identified and appropriate. Validity not discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity discussed. Results discussed. Pilot study not undertaken	Research design clearly identified and appropriate. Validity not discussed. Results discussed. Pilot study not undertaken
Data analysis/ Results	Clear and identified	Clear and identified	Clear and identified	Clear and identified	Clear and identified

Table 6
Quality Assessment of mixed method study.

	Jin et al., 2016
Are there clear research questions?	Yes
To examine potential contributors of depression that included stress, cultural stressors, personal characteristics, and social support.	
Do the collected data allow to address the research questions?	Yes
Quantitative data used to assess the association between cross-cultural stressors and social support on postpartum. Qualitative data used to explore the experience of participants in depth	
Is there an adequate rationale for using a mixed method design to address the research question?	No. Rationale not provided
Are the different components of the study effectively integrated to answer the research question?	Yes
Quantitative responses used to explore qualitative results	
Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Yes
Descriptive statistics and themes discussed	
Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	Can't tell
Divergence noted	
Do the different components of the study adheres to the quality criteria of each tradition of the methods involved?	Yes
Design, aim and data collection and analysis addressed	

5.3. Recommendations for future research

As most of the studies in this review were mainly quantitative, further qualitative studies are recommended to know more about the subjective experiences of postpartum women of different cultures. Future research is recommended in less explored countries and on the impact of each domain of social support on PPD in these countries.

5.4. Conclusion

This systematic review explored the impact of social support on postpartum depression in Asian countries. Support from close relatives like partner and mothers are important for the well-being of new mothers during the postpartum period. The prevalence of PPD is high and varied across different cultures in Asia and hence maternity health care providers should address the variations in cultural practices and social support provided.

CRediT authorship contribution statement

Conceptualization; MM & MSE Data curation; MM & MSE, Formal analysis; MM &MSE, Investigation; MM &MSE Methodology; MM & MSE Project administration; MM & MSE Resources; MSE & MM, Supervision; MSE, Validation; MSE, Roles/Writing - original draft; MM, Writing - review & Editing; MSE.

Declaration of Competing Interest

None.

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Supplementary materials

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