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Meta Analysis
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Meta Analysis: Effects of Family Support, Family Income, and Domestic Violence on Postpartum Depression

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ABSTRACT

Background: Postpartum depression is a form of depression that occurs during the puerperium with specific symptoms that appear 4-6 weeks after delivery and can last for months, affecting the happiness and emotional relationship between mother and child. This study aims to analyze the effect and estimate the size of the effect of family support, family income levels and domestic violence on the incidence of depression among postpartum women with a meta-analysis.
Subjects and Method: The meta-analysis was carried out using the PRISMA flowchart and the PICO model. Population: postpartum mothers. Intervention: strong family support, high family income levels and domestic violence. Comparison: weak family support, low family income level and no domestic violence. Outcome: postpartum depression. The online databases used are Google Scholar, Hindawi, PubMed, Science Direct, Scopus, and ResearchGate. Analysis was performed using RevMan 5.3.
Results: 18 cross-sectional studies published from 2013 to 2023 were selected for meta-analysis. Total sample was 29,638 postpartum mothers. Strong family support reduced the risk of postpartum depression, but it was statistically significant (aOR= 0.69; 95% CI= 0.38 to 1.27; p=0.240). High family income significantly reduced the risk of postpartum depression (aOR= 0.50; 95% CI= 0.28 to 0.90; p=0.020). Domestic violence increased the risk of postpartum depression (aOR=4.20; CI 95% =2.56 hingga 6.88; p<0.001).
Conclusion: Strong family support reduces the risk of postpartum depression, but it is statistically significant. High family income significantly reduces the risk of postpartum depression. Domestic violence increases the risk of postpartum depression.

Keywords: postpartum depression, family suport, family income, domestic violence.

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BACKGROUND

During pregnancy, a woman experiences various physiological, psychological, hormonal and social changes. These changes can increase emotional disturbance and psychological stress during adjustment (Nugrahaeni et al., 2023). Every biological process of female and reproductive functions (since

conception) is influenced by certain psychological factors so that it can be concluded that there is a relationship between somatic and psychological factors. Therefore, a mature psychological preparation is needed to deal with it (Hanim 2022). Postpartum is a very important psychological time for every woman. Unfavorable psychological conditions can have an impact on decreasing the maternal functions of a mother (Hanim, 2022)

Postpartum depression is a mood disorder that can affect women after giving birth. Women who experience postpartum depression have feelings of deep sadness, anxiety, and fatigue that can make it difficult for mothers to take care of themselves or for others (National Institute Of Mental Health, 2019). According to Walsh (2008), postpartum psychological disorders are divided into three categories, namely postpartum blues or postpartum sadness, nonpsychotic postpartum depression and postpartum psychosis (Setiawati et al., 2020).

Various literature sources have shown that the prevalence of postpartum depression differs significantly around the world and is lower among women from Europe, Australia and the United States (US) compared to women from Asia and South Africa. The incidence of postpartum depression in developed countries is around 10% and nearly 20% in developing countries (Wake et al., 2022). According to data from the World Health Organization (WHO), it is estimated that more than 300 million people worldwide suffer from depression, which is equivalent to 4.4% of the total world population (WHO, 2017).

Research shows that the risk of developing postpartum depression increases for mothers who have babies with poor health, premature babies, and very low birth weight babies. In addition, illiteracy, poor socioeconomic status, lack of social support, obstetric complications, previous history of depression, bad marital relations, history of domestic violence, and unwanted pregnancies can also be factors causing postpartum depression (Abadiga, 2019).

According to research conducted by Pertiwi (2020), support from the family is very important for mothers after giving birth. The higher the level of assistance from the family and self-efficacy, the less likely it is for postpartum depression to occur. Mothers who get high support from the family will feel valued, loved, and can share the burden so they can reduce stress which in turn can reduce the occurrence of postpartum depression (Mulyani et al., 2022).

Unstable emotional state of feelings of sadness and lack of attention to the mother after giving birth is also influenced by financial pressure or family income. Financial circumstances, especially finances or low family income that lasts a long time can trigger stress. Continuous stress can lead to depression which can be experienced during pregnancy or after giving birth (Munisah et al., 2021).

Violence in the family environment refers to any act within a family relationship or an intimate relationship that causes physical, psychological or sexual harm to those involved. Such acts include physical aggression, sexual coercion, and various forms of controlling behavior. Partner violence is associated with fatal and non-fatal health effects, including homicide and suicide, as well as negative health behaviors during pregnancy, poor reproductive outcomes, and adverse physical and mental consequences. Violence in the family environment has been identified as one of the most important predictors of depression among women (Ahmad et al., 2018).

There are several previous systematic review articles that have been published

discussing the effects of family support, family income levels and domestic violence on the incidence of postpartum depression. The author is interested in using meta-analysis techniques in this study to make it easier to obtain evidence-based research results. With a large number of samples to find out and analyze how big the effect of family support, family income levels and domestic violence on the incidence of postpartum depression.

SUBJECTS AND METHOD

1. Study Design

This study used a systematic review method and meta-analysis using primary data, which was data from previous research results. Article search using 6 databases, namely: Google Scholar, Hindawi, PubMed, Science Direct, Scopus, and ResearchGate. The keywords used are "Postpartum Depression" OR "Postnatal Depression" AND "Family support" AND "Family income" AND "Domestic violence" AND "Multivariate" AND "Cross-Sectional". There were 18 primary studies that met the inclusion criteria of this study.

2. Steps of Meta-Analysis

1) Formulate research questions in PICO (Population, Intervention, Comparison, Outcome). The study population was postpartum mothers. Research interventions were strong family support, high family income levels and domestic violence. The comparison was weak family support, low family income levels and domestic violence. The research outcome was postpartum depression.
2) Search for primary study research articles.
3) Conduct screening and quality assessment of primary research articles.
4) Extract and analyze data into the RevMan 5.3 application.
5) Interpret the results and draw conclusions.

3. Inclusion Criteria

Primary study research article, in English, full paper using cross sectional design, using multivariate analysis with adjusted Odds Ratio (aOR).

4. Exclusion Criteria

Articles that are not in English, articles published before 2013, articles with RCT, Cohort, Case Control, and Quasi Experimental study designs.

5. Definition of Operational Variable

Postpartum depression, depression that occurs during the postpartum period with certain signs that occur at 4 to 6 weeks after delivery and can continue for months which can interfere with the mother's happiness and the emotional relationship between mother and child.

Family support, a form of interpersonal relationship that includes attitudes, actions and acceptance of family members, so that family members feel that someone cares for them and loves them**.**

Family income, income earned by family members used for the welfare of the family, arranged from low, medium, to high levels.

Domestic violence, any act against a woman that results in physical, sexual, psychological misery or suffering, and neglect of the household, including threats to commit acts of coercion within the household scope.

6. Instrument of the Study

The quality assessment of the main articles in this study used the critical assessment checklist for cross-sectional studies published by the Joanna Briggs Institute (JBI).

7. Data Analysis

The articles in this study were collected using the PRISMA diagram and analyzed using the Review Manager 5.3 application (RevMan 5.3) by calculating the effect size and heterogeneity (I^2) to determine the combined research model and form the final

results of the meta-analysis. The results of data analysis are presented in the form of forest plots and funnel plots.

RESULTS

Article search was carried out by considering the eligibility criteria which were defined using the PICO model (Population, Intervention, Comparison, Outcome). The article screening process was carried out based on the PRISMA flow guidelines which can be seen in Figure 1. The total number of articles in the initial search process was 10,100 articles with details of 2,308 articles from the Google scholar database, 2,768 articles from the Hindawi database, 862 articles from PubMed, 1,208 from Direct Science, 779 from Scopus and 2,175 articles from the ResearchGate database. After carrying out several screening processes, there were a total of 18 articles that met the quantitative requirements for a meta-analysis of the effect of family support, family income levels, and domestic violence on the risk of postpartum depression.

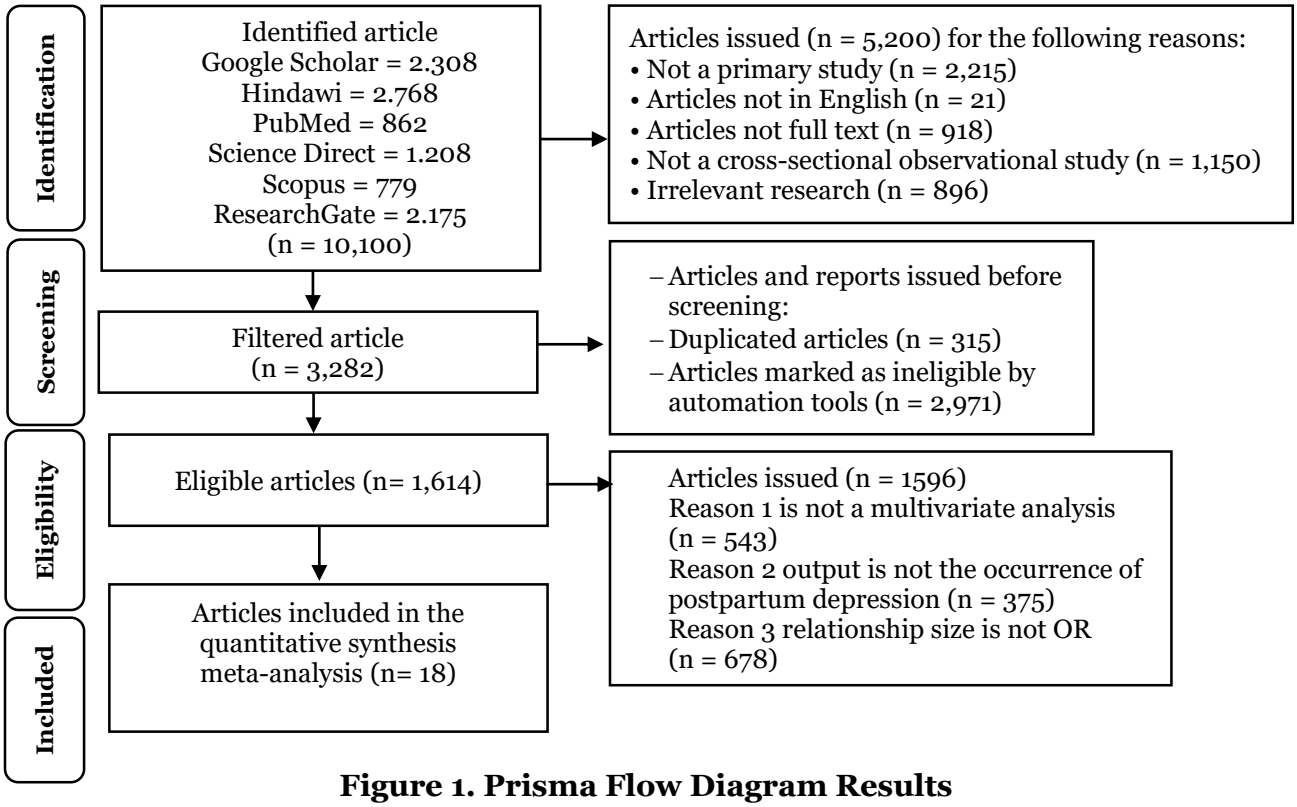

Figure 1. Prisma Flow Diagram Results

Figure 2 shows the distribution area of 18 primary articles from several countries used in this study, namely 2 countries from the European continent (Spain and Turkey), 5 countries from the African continent (Egypt, Ethiopia, South Africa, Nigeria, Ghana) and 5 countries from the Asian continent (Malaysia, Bangladesh, India, Laos, Iraq).

Table 1 shows the assessment of the quality of the primary articles used in this study using the JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies (Joanna Briggs Institute, 2017). Based on the results obtained from the study quality assessment, the total scores in the 15 selected primary studies ranged from 25 to 26. This indicates that the quality of all primary articles used in this study is worthy of meta-analysis.

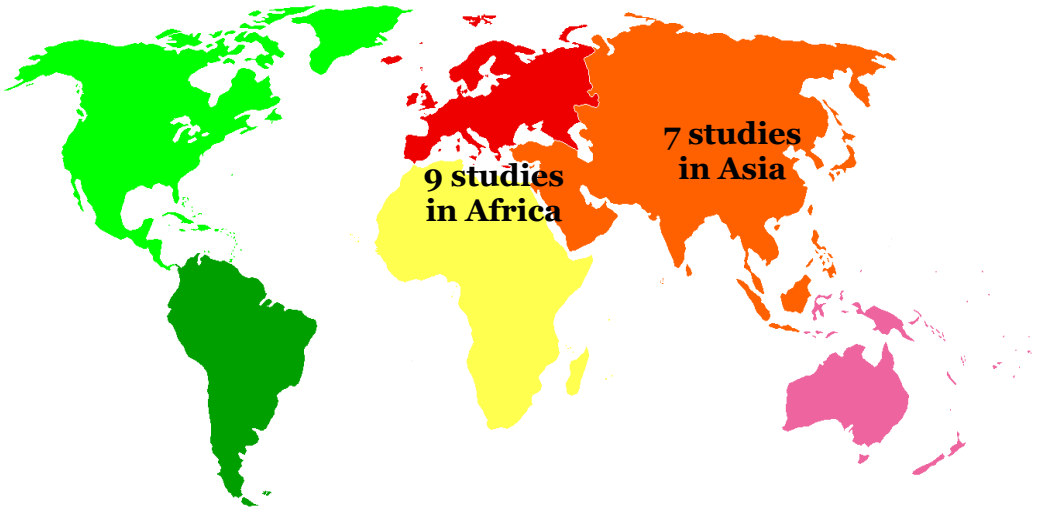

Figure 2. Map of the study area of the effect of family support, family income level and domestic violence on the risk of postpartum depression

Table 1. Critical appraisal checklist for cross-sectional studies in meta-analysis

Articles	Checklist Questions													Total
	1a	1b	1c	1d	2a	2b	3a	3b	4	5	6a	6b	7	
Mohammed et al. (2014)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Adamu and Adinew et al. (2018)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Ahmad et al. (2018)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Abadiga (2019)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Govender et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Azad et al. (2019)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Modjadji and Mokwena (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Adeyemo et al. (2020)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Alam et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Kizilirmak et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Randhawa et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Vasques et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Rahmadhani et al. (2022)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Xayyabouapha et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Wake et al. (2022)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Al-Satam et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Peters et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Kebede et al. (2022)	2	2	2	2	2	2	2	2	2	1	2	2	2	25

Description of the question criteria:

1. Formulation of research questions in PICO acronym

a. Is the population in the primary study the same as the population in the PICO meta-analysis?

b. Is the operational definition of intervention, namely the exposed status in the primary study, the same as the definition intended in the meta-analysis?

c. Is the comparison, namely the unexposed status used by the primary study, the same as the definition intended in the meta-analysis?

d. Are the outcome variables examined in the primary studies the same as the definitions intended in the meta-analysis?

2. Methods for selecting research subjects

a. In analytical cross-sectional studies, do

researchers choose samples from the population randomly (random sampling)?

b. As an alternative, if in a cross-sectional analytical study the sample is not selected randomly, does the researcher select the sample based on outcome status or based on intervention status?

3. Methods for measuring exposure (intervention) and outcome variables (outcome).

a. Are the exposure and outcome variables measured with the same instruments (measuring tools) in all primary studies?

b. If the variable is measured on a categorical scale, are the cutoffs or categories used the same across primary studies?

4. Design-related bias
   If the sample was not selected randomly, has the researcher made efforts to prevent bias in selecting research subjects? For example, selecting subjects based on outcome status is not influenced by exposure status (intervention), or selecting subjects based on exposure status (intervention) is not influenced by outcome status.

5. Methods for controlling confusion
   Whether the primary study investigators have made efforts to control the influence of confounding (for example, conducting a multivariate analysis to control for the influence of a number of confounding factors).

6. Statistical analysis methods

a. Whether the researcher analyzed the data on the study this primer with a multivariate analysis model (e.g., multiple linear regression analysis, multiple logistic regression analysis)

b. Does the primary study report effect sizes or relationships resulting from multivariate analysis (e.g., adjusted OR, adjusted regression coefficient)

7. Conflict of interest
   Is there no possibility of a conflict of interest with the research sponsor, which could cause bias in concluding the research results?

Assessment guide:

1. Total number of questions = 13 questions. Answer "Yes" to each question gives a score of "2". The answer "Undecided" gives a score of "1". The answer "No" gives a score of "0".
2. Maximum total score= 13 questions x 2= 26.
3. Minimum total score = 13 questions x 0 = 0. So the range of total scores for a primary study is between 0 and 26.
4. If the total score of a primary study is >= 22, then the study can be included in the meta-analysis. If the total score of a primary study was <22, then the study was excluded from the meta-analysis.

The effect of family support on the risk of postpartum depression

Table 2 show that there were 11 cross-sectional articles used as a source of meta-analysis of the effect of family support on the risk of postpartum depression. with a total sample of 9,583-samples.

Table 3 presents the adjusted odds ratio (aOR) and 95% confidence interval (95%CI) data on the effect of family support on the risk of postpartum depression.

Table 2. PICO summary table of cross-sectional articles of primary study sources by sample size (n=9,583)

Author (Year)	Country	Sample	P	I	C	O
Mohammed et al. (2014)	Egypt	200	Mother in 14 months post partum	Strong family support	No family support	Postpartum Depression
Ahmad et al. (2018)	Malaysia	5,727	Mother in 6-16 weeks post partum	Strong family support	Weak family support	Postpartum Depression
Govender et al. (2019)	South Africa	326	Pregnant and postnatal adolescents	Strong family support	Adequate family support	Postpartum Depression
Modjadji dan Mokwena (2020)	South Africa	228	Mother in 12 weeks post partum	Family support	No family support	Postpartum Depression
Adeyemo et al. (2020)	Nigeria	250	Mother in 6 weeks post partum partum	Family support	No family support	Postpartum Depression
Alam et al. (2021)	Banglade sh	291	Mother in 12 months post partum	Family support	No family support	Postpartum Depression
Randhawa et al. (2021)	India	250	Mother in 1-12 months post partum	Strong family support	Weak family support	Postpartum Depression
Vázquez et al. (2022)	Spanish	782	Mother in 12 months post partum	Strong family support	Weak family support	Postpartum Depression
Wake et al. (2022)	Ethiopia	461	Mother in 6 weeks post partum	Family support	No family support	Postpartum Depression
Peters et al. (2022)	West Africa	274	Mother in 12 months post partum	Family support	No family support	Postpartum Depression
Kebede et al. (2022)	Ethiopia	794	Mother in 12 months post partum	Family support	No family support	Postpartum Depression

Table 3. Adjusted Odds Ratio (aOR) and 95% Confidence Interval (95%CI) data on the effect of family support on the risk of postpartum depression.

Author (Year)	aOR	CI 95%	
		Upper Limit	Lower Limit
Mohammed et al. (2014)	0.43	0.12	1.54
Ahmad et al. (2018)	1.79	1.12	2.86
Govender et al. (2019)	0.23	0.05	1.06
Modjadji dan Mokwena (2020)	0.10	0.03	0.33
Adeyemo et al. (2020)	0.42	0.26	0.68
Alam et al. (2021)	4.12	2.14	7.93
Randhawa et al. (2021)	0.93	0.24	3.60
Vázquez et al. (2022)	0.13	0.04	0.42
Wake et al. (2022)	0.37	0.04	3.57

Peters et al. (2022)	1.36	1.10	1.68
Kebede et al. (2022)	0.42	0.26	0.68
Mohammed et al. (2014)	0.43	0.12	1.54
Ahmad et al. (2018)	1.79	1.12	2.86

The forest plot in Figure 4 shows the effect of family support on the risk of postpartum depression. Mothers who received high family support had a risk of experiencing postpartum depression by 0.69 times lower compared to those who received low family support and the relationship was not statistically significant (aOR= 0.69; 95% CI= 0.38 to 1.27; p=0.240). The forest plot also shows high heterogeneity of effect estimation (I^2=87%; p=0.240), thus the risk distribution of effect estimation was carried out using a random effect model.

The funnel plot in Figure 4 shows a more or less symmetrical distribution of effects between studies to the right and left of the line vertical mean of the estimate, thus the funnel plot does not indicate publication bias.

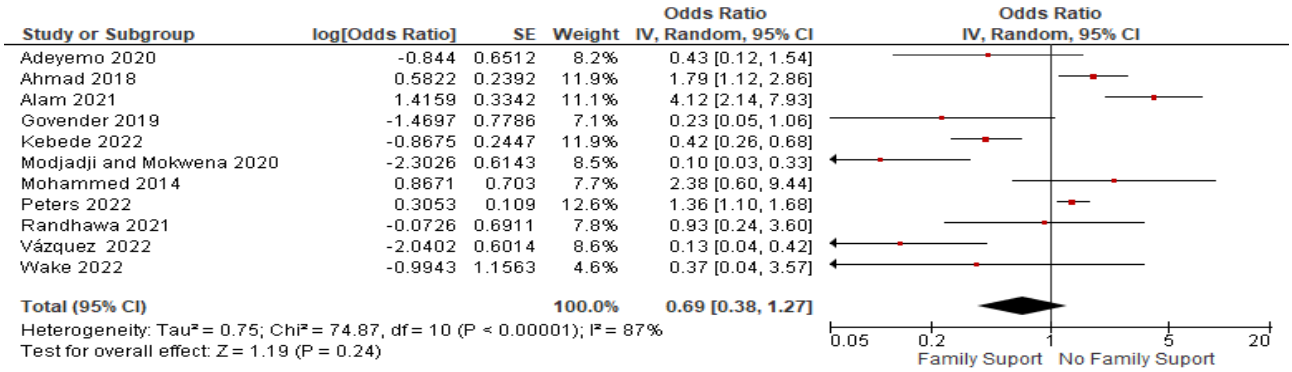

Figure 3. Forest plot of the effect of family support on the risk of postpartum depression

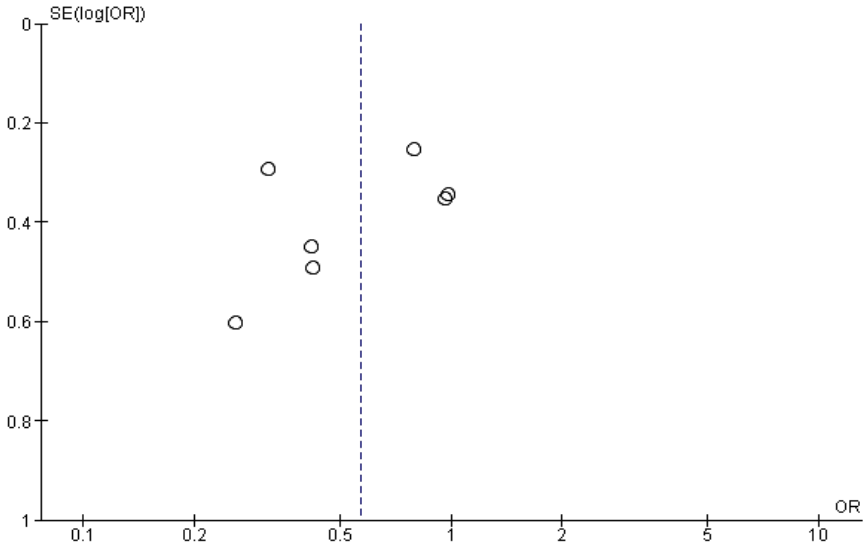

Figure 4. Funnel plot of the influence of family support on the risk of postpartum depression

The effect of family income level on the risk of postpartum depression

Table 4 presents a description of the 7 cross-sectional articles used as a source of meta-analysis of the effect of family income level on the risk of postpartum depression with a total sample of 8,256 research subjects.

Table 4. Summary of the article on the effect of family income level on the risk of postpartum depression with a large sample size (n= 8,256)

Author (Year)	Country	Sample	P	I	C	O
Mohammed et al. (2014)	Egypt	200	Mother 14 months post partum	High	Low	Postpartum Depression
Adamu and Adinew (2018)	Ethiopia	629	Mother in 6 weeks post partum	>3501	< 445	Postpartum Depression
Ahmad et al. (2018)	Malaysia	5727	Mother in 6-16 weeks post partum	> RM5001	< RM1500	Postpartum Depression
Abadiga (2019)	Ethiopia	295	Mother in 12 months post partum	>2000 EB	< 500EB	Postpartum Depression
Modjadji and kwena (2020)	South Africa	228	Mother in 12 weeks post partum	>$464,16	<$115,55	Postpartum Depression
Alam et al. (2021)	Bangladesh	291	Mother in 12 weeks post partum	> 50,000 Taka	<20,000 Taka	Postpartum Depression
Rahmadhani et al. (2022)	Asia	886	Adolescent mother at 6 weeks post partum	High	Low	Postpartum Depression

Table 5. Adjusted Odds Ratio (aOR) and 95% Confidence Interval (95%CI) data on the effect of family income level on the risk of postpartum depression.

Author (Year)	aOR	CI 95%	
		Upper Limit	Lower Limit
Mohammed et al. (2014)	1.36	0.76	2.43
Adamu and Adinew (2018)	0.37	0.19	2.86
Ahmad et al. (2018)	0.33	0.18	0.81
Abadiga (2019)	0.84	0.12	5.88
Modjadji and Mokwena (2020)	2.32	0.32	16.82
Alam et al. (2021)	0.93	0.24	3.60
Rahmadhani et al. (2022)	0.24	0.14	0.41

The forest plot in Figure 5 shows the effect of family income level on the risk of post-partum depression. Mothers with high levels of family income have a risk of experiencing postpartum depression by 0.50 times lower compared to low levels of family income and the relationship was statistically significant (aOR= 0.50; 95% CI= 0.28 to 0.90; p= 0.020). The forest plot also shows high heterogeneity of effect estimation (I^2=75%; p=0.020) thus the risk distribution of effect estimation was carried out using a random

effect model.

The funnel plot in Figure 6 shows the distribution of effect estimates that lie more on the left than on the right of the estimated vertical mean line, thus indicating publication bias. Because the distribution of these effects is mostly located on the same left as the location of the diamond shape in the forest plot of Figure 5, the publication bias tends to overestimate the true effect.

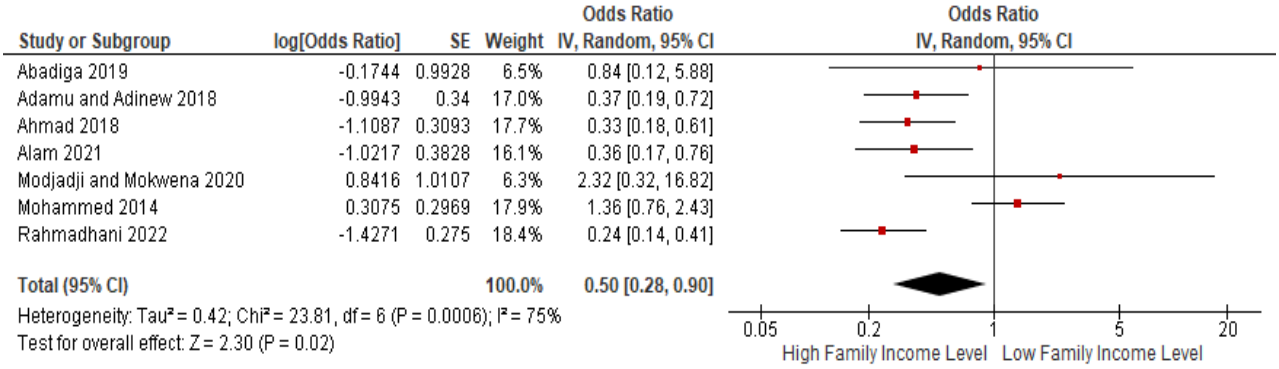

Figure 5. Forest plot of the effect of family income on the risk of postpartum depression

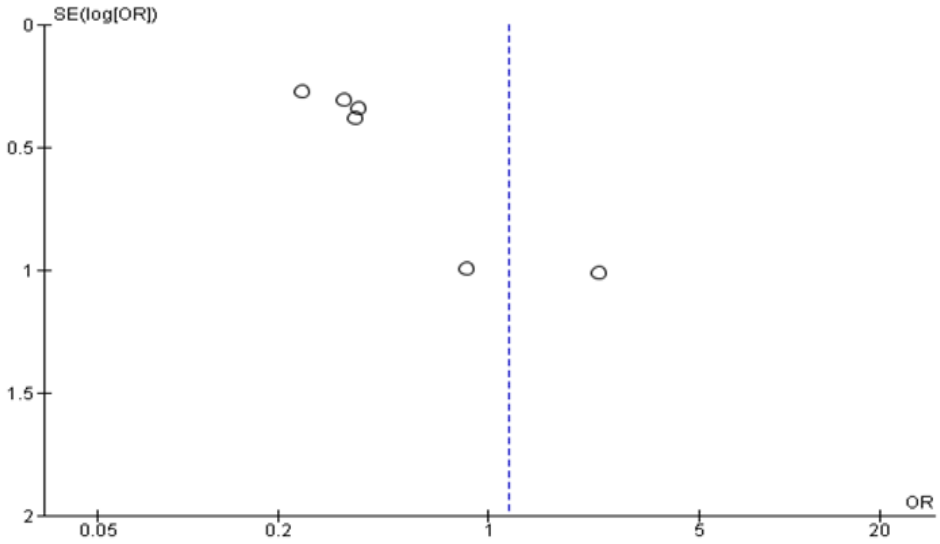

Figure 6. Funnel plot of the effect of family income Levels on the risk of postpartum depression

The effect of domestic violence on the risk of postpartum depression

Table 6 presents 13 cross-sectional articles used as a source for a meta-analysis of the effect of domestic violence on the risk of postpartum depression with a total sample of 11,799 research subjects.

Table 5 presents the aOR and Confidence Interval 95% (95% CI) data on the effect of domestic violence on the risk of postpartum depression.

Table 6. Summary of the article on the effect of domestic violence on the risk of postpartum depression with a large sample size (n=11,799)

Author (Year)	Country	Sample	P	I	C	O
Ahmad et al. (2018)	Malaysia	5727	Mother in 6-16 weeks post partum	Domestic violence	No domestic violence	Postpartum Depression
Abadiga (2019)	Ethiopia	295	Mother in 12 months post partum	Domestic violence	No domestic violence	Postpartum Depression
Govender et al. (2019)	South Africa	326	Pregnant and postnatal adolescents	Domestic violence	No domestic violence	Postpartum Depression
Azad et al. (2019)	Bangladesh	376	Mother in 1-12 months post partum	Domestic violence	No domestic violence	Postpartum Depression
Modjadji dan Mokwena (2020)	South Africa	228	Mother in 12 weeks post partum	Domestic violence	No domestic violence	Postpartum Depression
Adeyemo et al. (2020)	Nigeria	250	Mother in 6 weeks post partum	Domestic violence	No domestic violence	Postpartum Depression
Randhawa et al. (2021)	India	250	Mother in 1-12 months post partum	Domestic violence	No domestic violence	Postpartum Depression
Kızılırmak et al. (2021)	Turkey	181	Post partum mother	Domestic violence	No domestic violence	Postpartum Depression
Vázquez et al. (2022)	Spanish	782	Mother in 12 months post partum	Domestic violence	No domestic violence	Postpartum Depression
Xayyabouapha et al. (2022)	Laos	521	Mother in 4 – 24 weeks post partum	Domestic violence	No domestic violence	Postpartum Depression
Wake et al. (2022)	Ethiopia	461	Mother in 6 weeks post partum	Domestic violence	No domestic violence	Postpartum Depression
Al-Sattam et al. (2022)	Iraq	1608	Mother in 6 weeks post partum	Domestic violence	No domestic violence	Postpartum Depression
Kebede et al. (2022)	Ethiopia	794	Mother in 12 months post partum	Domestic violence	No domestic violence	Postpartum Depression

Table 4.8 Adjusted Odds Ratio (aOR) and 95% Confidence Interval (95%CI) data on the effect of domestic violence on the risk of postpartum depression.

Author	aOR	Upper Limit	Lower Limit
Ahmad et al. (2018)	2.34	1.12	4.89
Abadiga (2019)	5.92	2.44	14.36
Govender et al. (2019)	9.18	1.58	53.34
Azad et al. (2019)	2.00	1.20	3.33
Modjadji dan Mokwena (2020)	6.89	1.49	31.86

Author	aOR	Upper Limit	Lower Limit
Adeyemo et al. (2020)	5.20	2.23	12.13
Randhawa et al. (2021)	6.35	2.15	18.76
Kızılırmak et al. (2021)	5.69	1.65	19.62
Vázquez et al. (2022)	2.65	1.79	3.92
Xayyabouapha et al. (2022)	26.0	13.00	52.00
Wake et al. (2022)	4.15	0.78	22.08
Al-Sattam et al. (2022)	1.32	1.02	1.72
Kebede et al. (2022)	3.13	1.96	5.00

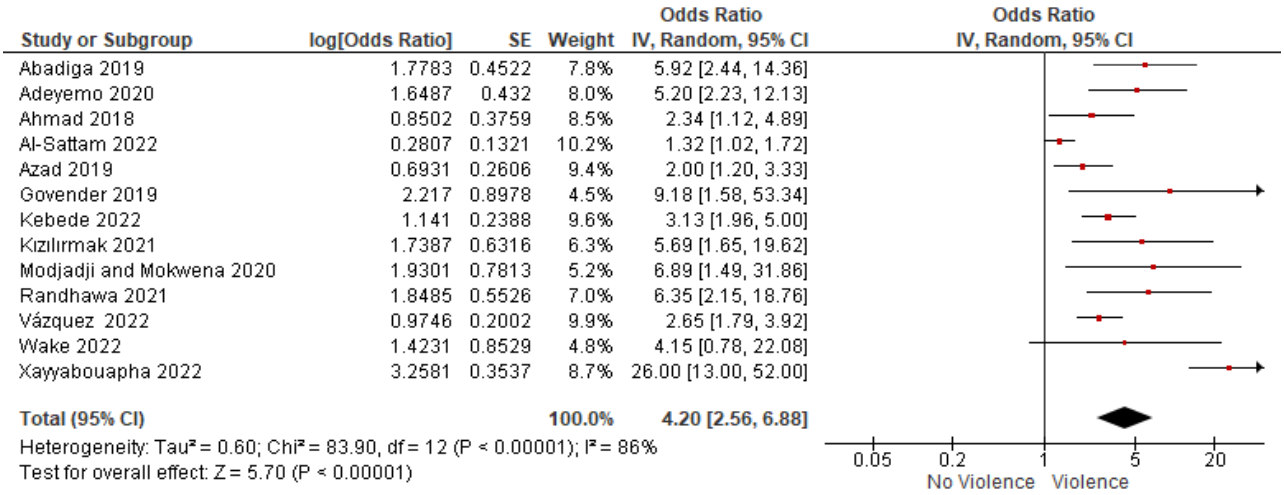

Figure 7. Forest plot of the effect of domestic violence on the risk of postpartum depression

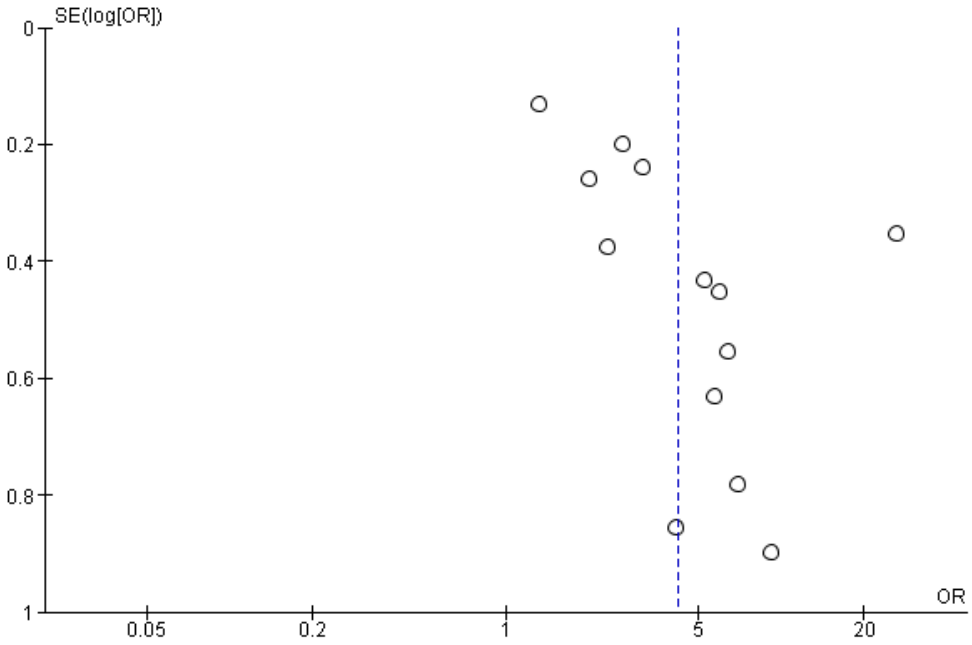

Figure 8. Funnel plot of the effect of domestic violence on the risk of postpartum depression

The forest plot in Figure 7 shows that there was an effect of domestic violence on postpartum depression. Mothers who experienced domestic violence had a risk of postpartum depression by 4.20 times higher compared to those who did not experience domestic violence and the relationship was statistically significant (aOR=4.20; 95% CI= 2.56 to 6.88; p<0.001). The forest plot also shows high heterogeneity of effects (I^2= 86%; p<0.001) thus the distribution of the average effect estimates using the random effect model.

The funnel plot in Figure 8 shows that the distribution of effect estimates is more to the right than to the left of the mean vertical line, indicating publication bias. Because the distribution of these effects is more to the right of the average vertical line, which is the same as the location of the diamond forest plot in Figure 8 which is also on the right, the publication bias tends to overestimate the actual effect.

DISCUSSION

1. The effect of family support on the risk of postpartum depression

Postpartum depression is a mood disorder that can affect women after giving birth. Women experiencing postpartum depression have feelings of deep sadness, anxiety, and exhaustion that can make it difficult for mothers to take care of themselves or for others (National Institute Of Mental Health, 2019).

According to research conducted by Pertiwi (2020), support from the family is very important for mothers after giving birth. The higher the level of assistance from the family and self-efficacy, the less likely it is for postpartum depression to occur. Mothers who get high support from the family will feel valued, loved, and can share the burden so they can reduce stress which in turn can reduce the occurrence of postpartum depression (Mulyani et al., 2022).

Based on the results of a meta-analysis of 11 primary studies in this study, it is known that there is an effect of family support on the risk of postpartum depression. Mothers who received high family support had a risk of experiencing postpartum depression by 0.69 times lower compared to those who received low family support and the relationship was statistically significant (aOR= 0.69; 95% CI= 0.38 to 1.27; p= 0.240). The results of this study are in line with research by Adeyemo et al. (2020) which showed that the ratio of the likelihood of having an unsupportive partner of 2.60 times (95% CI= 1.17 to 5.78) was identified as a predictor of post partum depression, so mothers who have unsupportive partners are almost 3 times more likely to experience post partum depression than those who receive support from family or partners. Studies in developed and developing countries have illustrated the importance of having good family support in reducing the risk of experiencing post partum depression. This finding is consistent with research conducted by Modjadji and Mokwena (2020) which stated that psychological factors are also very important in the risk of developing postnatal depression. Having support from spouses and other family members protected against the likelihood of developing postnatal depression in this study, which means that a lack of support can predispose women to postnatal depression.

2. The effect of family income level on the risk of postpartum depression

Unstable emotional state of feelings of sadness and lack of attention to the mother after giving birth is also influenced by financial pressure or family income. Financial circumstances, especially finances or low family income that lasts a long time can trigger

stress. Continuous stress can lead to depression which can be experienced during pregnancy or after giving birth (Munisah et al., 2021).

Based on the results of a meta-analysis of 7 primary studies in this study, it is known that there is an influence between high levels of family income on a reduced risk of postpartum depression in pregnant women. Mothers with high family income levels have a risk of experiencing postpartum depression 0.50 times compared to low family income levels and the relationship was statistically significant (aOR= 0.50; 95% CI= 0.28 to 0.90; p=0.020).

The results of this study are in line with research by Alam et al, (2021) which showed that postpartum women with a family income of more than 50,000 Bangladeshi Taka per month had a 0.36 times lower prevalence of depression (95% CI = 0.17 to 0.76) and was a protective factor.

Research by Rahmadhani et al (2022) shows a variable level of family monthly income (95% CI= 4.09 to 6.75, p= 0.001). Economic status has a direct and indirect relationship with postpartum depression. Low monthly family income is associated with postpartum depression with an incidence of 4.06 times greater than high family income. The birth of a baby is a challenge to the economic status of the family because of the cost of caring for the baby and changes in work schedules for childcare responsibilities. Family economic status can make the mother experience psychological disorders in the form of depression. The presence of a newborn as a new family member can be an economic burden for families with low economic status because they are worried about the cost of meeting family needs, including the health of the baby and the mother's health.

3. The effect of domestic violence on the risk of postpartum depression

Violence in the family environment refers to any act within a family relationship or an intimate relationship that causes physical, psychological or sexual harm to those involved. Such acts include physical aggression, sexual coercion, and various forms of controlling behavior. Partner violence is associated with fatal and non-fatal health effects, including homicide and suicide, as well as negative health behaviors during pregnancy, poor reproductive outcomes, and adverse physical and mental consequences. Violence in the family environment has been identified as one of the most important predictors of depression in women (Ahmad et al., 2018)

Based on the results of a meta-analysis of the 13 primary studies in this study, it is known that there is an influence between high levels of family income on a reduced risk of postpartum depression in pregnant women. Mothers with high family income levels have a risk of experiencing postpartum depression by 0.50 times lower compared to low family income levels and the relationship was statistically significant (aOR= 0.50; 95% CI= 0.28 to 0.90; p= 0.020).

The results of this study are in line with research by Al-Sattam et al. (2022) which showed that more than half of the participants who had emotional problems or domestic violence with their husbands or other close relatives (51.4%) significantly suffered from postpartum depression. This research reveals that marital discord or intimate partner violence has a negative impact on postpartum mental health.

Research by Azad et al. (2019) shows that around 69.1% of mothers faced intimate partner violence before their last pregnancy and 47.7% also faced it during pregnancy. Postpartum depression was most common among women who faced intimate partner

violence both before and during pregnancy by 3.0 times (95% CI = 1.9 to 4.9; p<0.001) and violence during pregnancy by 2.3 times (95% CI = 1.6 to 3.2; p<0.001). In a recent study in Bangladesh, Ziaie found that all forms of domestic violence were also strongly associated with higher levels of emotional distress during pregnancy. In this study, it was also found that a poor marital relationship (never sharing personal feelings and practical support in household chores) with a husband is a strong predictor of postpartum depression. Intimate partner violence and poor marital relations may be related to each other.

AUTHORS CONTRIBUTION

Noris Hadi Sri Mulyani is the main researcher who selects topics, searches for and collects study data. Hanung Prasetya and Bhisma Murti analyzed the data and reviewed atudy documents.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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REFERENCES

Abadiga M (2019). Magnitude and associated factors of postpartum depression among women in Nekemte town, East Wollega zone, west Ethiopia, 2019 A community-based study. PLoS ONE. 14(11). https://doi.org /10.1371/journal.pone. 0224792.

Adeyemo EO, Oluwole EO, Kanma-Okafor OJ, Izuka OM, Odeyemi KA (2020). Prevalence and predictors of postpartum depression among postnatal women in Lagos, Nigeria. Afr. Health Sci. 20(4): 1943–1954. https://doi.org/10.4314/ahs. v20i4.53.

Adamu AF, Adinew YM (2018) Domestic violence as a risk factor for postpartum depression among Ethiopian women: facility based study.Clin. Pract. Epidemiology Ment. 14(1): 109–119. https://doi.org/10.2174/1745017901814010109.

Ahmad NA, Silim UA, Rosman A, Mohamed M, Chan YY, Kasim MN, Yusof M, et al (2018). Postnatal depression and intimate partner violence: A nationwide clinic-based cross-sectional study in Malaysia. BMJ Open. 8(5). https://doi.org/10.1136/bmjopen-2017-020649.

Alam MM, Haque T, Uddin KMR, Ahmed S, Islam MM, Hawlader MDH (2021). The prevalence and determinants of postpartum depression (PPD) symptomatology among facility delivered mothers of Dhaka city. Asian J Psychiatr. 62. https://doi.org/10.1016/j.ajp.2021.102673.

Al-Sattam (2022). Postpartum depression among mothers attending primary health care centers, Iraq 2019. AMJ. AMJ. 62(4): 0005–2523.

Azad R, Fahmi R, Shrestha S, Joshi H, Hasan M, Khan ANS, Chowdhury MAK, Arifeen S, Billah SM (2019). Prevalence and risk factors of postpartum depression within one year after birth in urban slums of Dhaka, Bangladesh. PLoS ONE. 14(5). https://doi.org/10.1371/journal.pone.0215735

Govender D, Naidoo S, Taylor M. (2020) Antenatal and postpartum depression:

prevalence and associated risk factors among adolescents' in KwaZulu-Natal, South Africa. Depress Res Treat. https://doi.org/10.1155/2020/5364521.

Hanim LM (2022). Depresi postpartum kajian pentingnya dukungan sosial pada ibu pasca salin: vol. cetakan pertama (Postpartum depression studies the importance of social support for postpartum mothers: vol. first print). CV. Adanu Abimata.

Kebede AA, Gessesse DN, Aklil MB, Temesgan WZ, Abegaz MY, Anteneh, TA, Tibebu NS, et al. (2022) Low husband involvement in maternal and child health services and intimate partner violence increases the odds of postpartum depression in northwest Ethiopia: A community-based study. PLoS ONE. 17(10). https://doi.org/-10.1371/journal. pone.0276809

Kızılırmak A, Calpbinici P, Tabakan G, Kartal B (2021). Correlation between postpartum depression and spousal support and factors affecting postpartum depression. Health Care Women Int. 42(12): 1325–1339. https://doi.org/10.1080/07399332.2020.1764562

Modjadji P, Mokwena K (2020). Postnatal depression screening among postpartum women attending postnatal care at selected community health centres situated in the nkangala district of South Africa. Open Public Health J. 13(1): 696–704. https://doi.org/10.-2174/1874944502013010696.

Mohammed ES, Mosalem FA, Mahfouz EM, ElHameed AMA. (2014) Predictors of postpartum depression among rural women in Minia, Egypt: An epidemiological study. Oxf. 128(9): 817–824. https://doi.org/10.1016/j.puhe.2014.06.006.

Mulyani C, Dekawaty A, Suzanna S (2022). Faktor-faktor penyebab depresi pasca persalinan (Factors causing postpartum depression). IPM2KPE. 6(1): 635–649. https://doi.org/10.31539/-jks. v5i2.3462

Munisah M, Ika R, Yuliati L, Hanum DF (2021). Faktor-faktor yang mempengaruhi terjadinya depresi pascapersalinan (Factors that influence the occurrence of postpartum depression). IJMT . 1(1). https://doi.org/10.30587/ijmt.v1i1. 3318

Nugrahaeni MT, Prasetya H, Murti B (2023). Effects of marital status and social support on antenatal depression: a meta-analysis. JHPB. 02: 102–115.

Rahmadhani W, Kusumastuti K, Chamroen P (2022). Prevalence and determinants of postpartum depression among adolescent mothers. Int. J. Health Sci. 6(2):533–544. https://doi.org/-10.53730/ ijhs.v6n2.6422

Randhawa A, Chaudhary N, Brar M, Verma V, Munder S. (2021) A community-based cross-sectional study to assess the prevalence of post-partum depression: why are the mothers depressed?. Fam. Med. Prim. 10(12):4536. https://doi.org/10.4103/jfmpc.jfmpc_2532_20.

Martinez-Vázquez S, Hernández-Martínez A, Rodríguez-Almagro J, Delgado-Rodríguez M, Martínez-Galiano JM. (2022). Relationship between perceived obstetric violence and the risk of postpartum depression: An observational study. Midwifery 108. https://-doi.org/10.1016/j.midw.2022.103297.

Wake GE, Fitie GW, Ashenafi B, Tadese M, Tessema SD (2022) Magnitude and determinant factors of postpartum depression among mothers attending their postnatal and vaccination services at public health institutions of

addis ababa, Ethiopia. Front. Public Health. 10. https://doi.org/10.3389/-fpubh. 2022. 882205

Xayyabouapha A, Sychareun V, Quyen BTT, Thikeo M, Durham J. (2022) Prevalence and risk factors associated with postpartum depressive symptoms among women in Vientiane Capital, Lao PDR. Front. Public Health. 10. https://doi.org/10.3389/fpubh.2022.791385