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Meta-Analysis

Meta Analysis the Relationship of Social Support on Depression in Pregnant Women

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ABSTRACT

Background: Depression in pregnancy can lead to poor pregnancy outcomes, such as pre-eclampsia, insufficient weight gain, and preterm delivery which can progress to postpartum depression thereby posing a risk to the mother-infant bond and impacting the child's social development at a further level. Social support is one of the important factors that can increase the risk of depression during pregnancy, because with a lack of social support, the increased risk of depression in pregnant or postpartum women will enhance. The purpose of this study was to estimate the relationship between low social support and depression in pregnancy.
Subjects and Method: This study was conducted using a systematic review and meta-analysis, with a PICO covering Population= pregnant women. Intervention= weak social support. Comparison= sufficient social support. Outcome= depression during pregnancy. Research data was searched from several sources including: PubMed, Google Scholar, Springer Link, and Science Direct with the following keywords "pregnant woman" AND "social support" OR "family support" OR "care relationship" AND "depression" AND "cross sectional" AND "multivariate". The inclusion criteria used were full papers using English with a cross sectional study design from 2011-2021 by reporting the Adjusted Odds Ratio (aOR) value. The selection of articles was carried out using the PRISMA flow diagram. Articles were analyzed using the Review Manager 5.3 application.
Results: A total of 8 cross-sectional studies from China, Indonesia, Malaysia, India, Hungary, and Ethiopia were selected for a systematic review and meta-analysis. The data collected showed that low social support in pregnant women increased the incidence of depression 2.04 times compared to sufficient social support and was statistically significant (aOR= 2.04; 95% CI= 1.57 to 2.64; p<0.001).
Conclusion: Low social support increased the incidence of depression in pregnant women.

Keywords: Social support, pregnancy, depression, meta-analysis.

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BACKGROUND

Pregnancy is a time of social, psychological, behavioral and biological changes. When a woman is pregnant, her physical condition can change at any time. Pregnancy is a natural process that is pleasant and coveted by every woman, not only to continue offspring, but also to complete perfection as a woman (Ayuningtyas, 2019). Service activities during pregnancy require a way to mo-

nitor and support the health of normal pregnant women and detect mothers with normal pregnancies. Examination and supervision during pregnancy is an important thing that must be done. In addition, pregnancies are also prone to depression (Idhayanti et al., 2015).

About 13% of pregnant women will experience a depressive episode. Depression in pregnancy can lead to poor pregnancy outcomes, such as pre-eclampsia, insufficient weight gain, and premature delivery which can progress to postpartum depression thereby posing risks for further mother-infant bonding and social-child development (Handayani and Fourianalistyawati, 2018). Depressive disorders experienced during pregnancy can also affect the health condition of the baby. In a study conducted on mothers who had symptoms of depression, it was found that the baby's weight at birth was low. Symptoms of depression were more common in the group of mothers who gave birth to low-birth weight babies (LBW) compared to mothers who gave birth to babies with normal birth weights (Fauzy and Fourianalisyawati, 2016).

Symptoms of depression are common during pregnancy. Depression is a mood disorder experienced by a person and has symptoms including loss of interest and excitement, lack of energy, insomnia, restlessness and fatigue (Nurfatimah and Entoh, 2018). The incidence of depression in a woman has a high prevalence, especially at reproductive age, including during pregnancy and can last until the postpartum period. The high incidence of depression both during pregnancy and after labor is influenced by many things, including economic status, social support, anxiety before and during pregnancy, unwanted pregnancy and demographic factors including age, education, parity. Therefore, it is very necessary to have social support during pregnancy.

Social support is help or support that individuals receive from certain people in their lives and are in certain social environments such as husbands, parents, in-laws, friends or neighbors who make recipients feel cared for, valued and loved, while for people who receive social support understand the meaning of social support provided by others (Maharani and Fakhrurrozi, 2014). Social support is needed for pregnant women and after birth. The closest social support for pregnant women is from their partner (husband), in this case the husband can provide support in the form of giving encouragement and attention to his wife, fostering good relationships with partners, taking a walk while chatting, speaking softly, positively and so on. Therefore, the wife can be mentally strong to face everything during her pregnancy and also before the delivery.

Social support is one of the important factors that can increase the risk of depression during pregnancy, because with a lack of social support, the increased risk of depression in pregnant or postnatal women will enhance (Wurisastuti and Mubasyiroh, 2020). Sources of social support for new mothers come from various sources. Social support for mothers who have just given birth is able to increase their sense of self-confidence, thereby strengthening the role of a mother and indirectly affecting the health of mothers and babies and also has a positive effect on their marital relationship. The purpose of this study was to predict the relationship of low social support to the occurrence of depression in pregnancy.

SUBJECTS AND METHOD

1. Study Design

This research was conducted using a systematic review and meta-analysis where the

data sources used were secondary data obtained from previous studies. This study were carried out by searching and conducting a data selection process from the results of clinical trials conducted across ethnicities, races, and locations in the world when the results of the studies to be selected are in the period 2011 - 2021. The data were searched from several indexes. including: PubMed, Google Scholar, Springer Link, and Science Direct with the following keywords "pregnant woman" AND "social support" OR "family support" OR "care relationship" AND "depression" AND "cross sectional" AND "multivariate".

2. Inclusion Criteria

The inclusion criteria used were full papers in English with a cross sectional study design and the subjects were pregnant women where the intervention provided was weak social support for pregnant women. which can result in depressive outcomes during pregnancy. The study used multivariate analysis with the statistical value used was the Adjusted Odds Ratio (aOR) value.

3. Exclusion Criteria

The exclusion criteria used in this study were the research of published articles with the year of publication before 2011. The articles were in languages other than English and the articles were those that did not use multivariate analysis in the results of their statistical analysis.

4. Definition of Operational Variables

The search for articles was carried out by considering the eligibility criteria determined using the PICO model. The population in the study were pregnant women. The intervention used was the lack of social support for pregnant women. The comparison criteria were the presence of sufficient social support and depression during pregnancy as an outcome.

Social support is the help or support that an individual receives from certain people in their life and is in a certain social environment that makes the recipient feel cared for, loved and appreciated both in material and non-material forms.

Depression is an emotional condition of a person which is usually characterized by extreme sadness, feelings of meaninglessness and guilt, withdrawal from others, sleeplessness, loss of appetite, sexual desire, and interest and pleasure in usual activities that are felt during pregnancy.

5. Data Analysis

Articles were collected based on the PRISMA flow diagram. Then the results of the data from the article were analyzed using the Review Manager 5.3 application to calculate the effect size and heterogeneity of the extracted data.

RESULTS

The study conducted in this research is to combine statistical results from several journals through Meta Analysis. Research related to the effect of social relationships on depression in pregnant women on 3 continents, namely Asia, Africa, and Europe. 4 studies came from the Asian continent (1 from China, Indonesia, Malaysia and India), 1 study from the European continent (Hungary), 3 studies from the African continent (Ethiopia). The study used was previously assessed quantitatively. Quality study from research with a cross-sectional study design used is critical appraisal tools from the center for evidence-based management. The study quality assessment table can be seen in the following table.

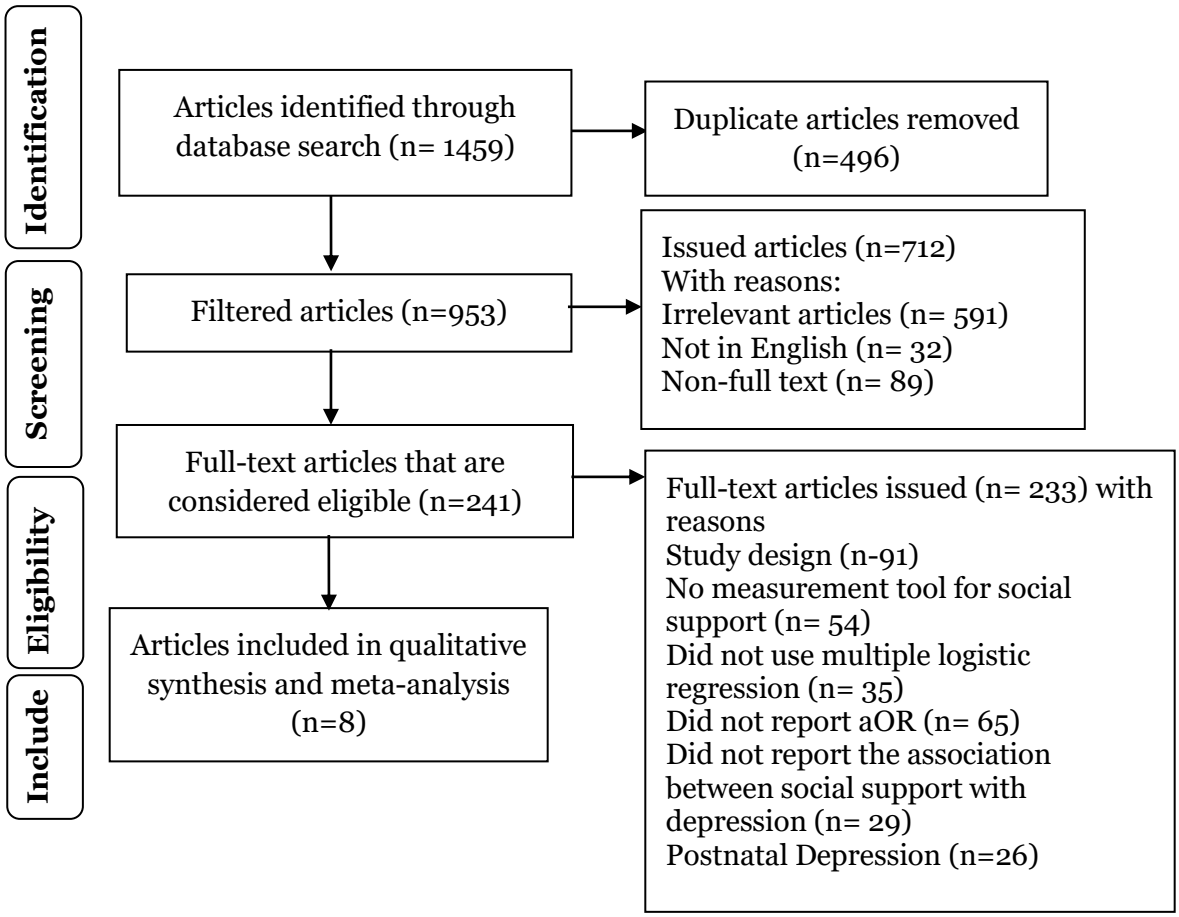

Figure 1. PRISMA Flow Diagram

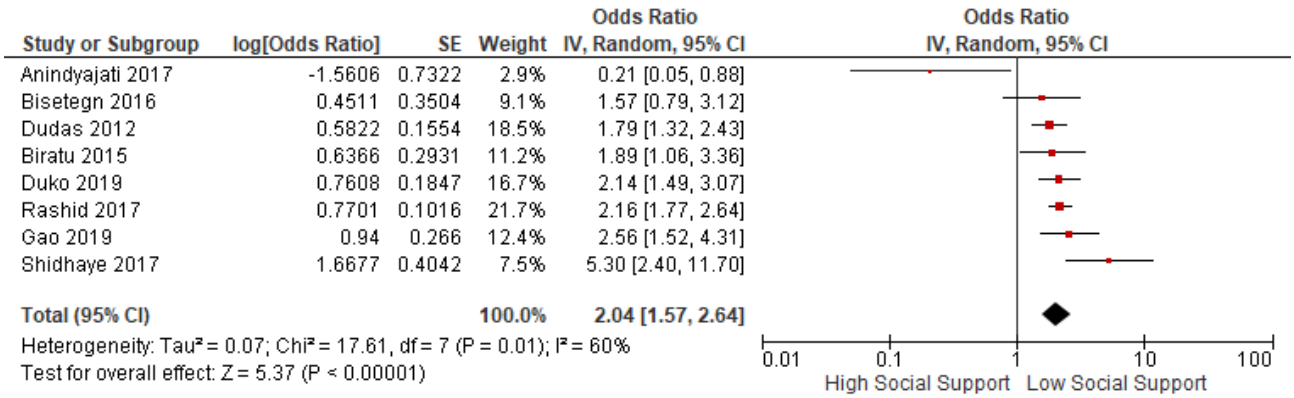

Figure 2. Forest Plot of the relationship of social support and depression in pregnant women

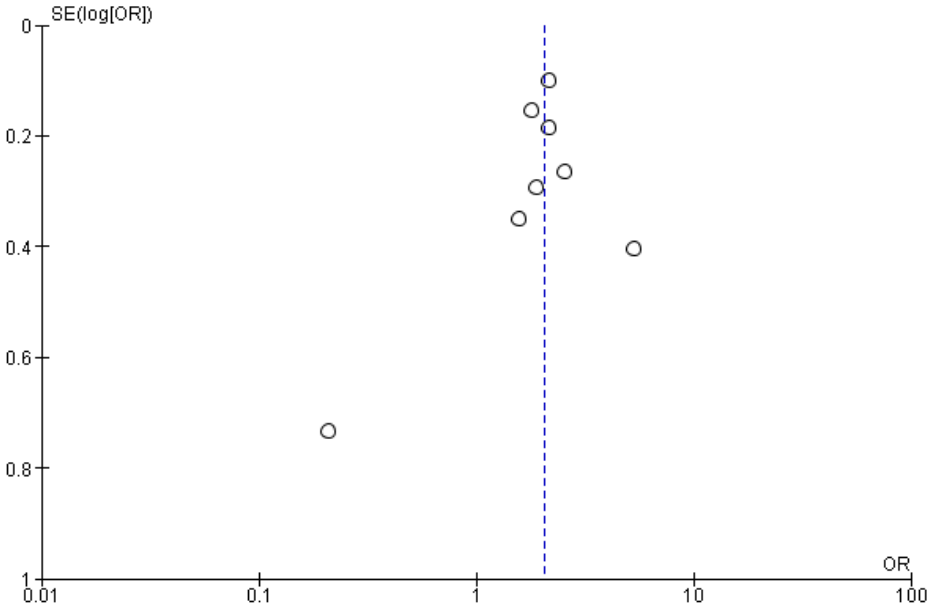

Figure 3. Funnel Plot of the relationship of social support to depression in pregnant women

The results of the meta-analysis process can be seen through the forest plot in Figure 2. Low social support was 2.04 times increased the incidence of depression in pregnant women compared to social support (environment, family or partners) and statistically significant (aOR= 2.04; 95% CI= 1.57 to 2.64; p<0.001). The heterogeneity of the research data shows I^2= 60% so that the distribution of the data is said to be heterogeneous (random effect model).

Figure 3 showed the results of a funnel plot that illustrated the estimated effect size of each study on the estimate of its accuracy which is usually the standard error. Based on Figure 3, it showed that there was a publication bias which was indicated by the asymmetry of the right and left plots, where 4 plots were on the right and 4 plots were on the left. The plot on the left of the graph has a standard error between 0.2 and 0.8 and the plot on the right has a standard error between 0.2 and 0.6.

Table 1. Assessment of study quality using Critical Appraisal Skills Program (CASP)

No	Indicators	Author (Year)							
		Anindyajati et al. (2017)	Biratu et al. (2015)	Bisetegn et al. (2016)	Dudas et al. (2012)	Duko et al. (2019)	Gao et al. (2019)	Rashid et al. (2017)	Shidhaye et al. (2017)
1	Does the research provide a clear question/problem focus?	2	2	2	2	2	2	2	2
2	Is the study design appropriate to answer the research question?	2	2	2	2	2	2	2	2
3	Is the study subject selection method clearly explained?	2	2	2	2	2	2	2	2
4	Does the way in which the sample is obtained is biased?	1	2	2	2	2	2	2	2
5	Is the sample of the subject representative of the population to which the findings will be referred?	2	2	2	2	2	2	2	2
6	Is the sample size based on pre-study statistical power considerations?	2	2	2	2	1	1	2	2
7	Is a satisfactory response rate achieved	2	2	2	2	2	2	2	2
8	Do measurements (questionnaires) tend to be valid and reliable?	2	2	2	2	2	2	2	2
9	Is statistical significance assessed?	2	2	2	2	2	2	2	2
10	Is a confidence interval given for the main outcome?	2	2	2	2	2	2	2	2
11	Could there be confounding factors that have not been taken into account?	2	1	2	2	2	2	2	2
12	Can the results be applied?	2	2	2	2	2	2	2	2
	Total Score	**23**	**23**	**24**	**24**	**23**	**23**	**24**	**24**

Note: 2 = Yes; 1= Can't tell; 0 = No

Table 2. Description of primary studies included in meta-analysis.

Author (Year)	Country	Study Design	Sample	Popula-tion	Intervention	Comparison	Outcome	aOR (95%CI)
Anindyajati et al. (2017)	Indonesia	Cross sectional	107	Pregnant mothers	No Income generating activity, First number of pregancy, No live birth, No social support, stress during pregrancy	Income generating activity, Multiple number of pregancy, live birth, have strong social support, no stress during pregrancy	Antenatal depression	0.21 (0.05 to 0.84)
Biratu and Haile (2015)	Ethiopia	Cross sectional	422	Pregnant mothers	Non married, unplanned pregancy, low patner support, have history in depresion	Married, planned pregancy, strong patner support, no history in depresion	Antenatal depression	1.89 (1.06 to 3.35)
Bisetegn et al. (2016)	Ethiopia	Cross sectional	527	Pregnant mothers	Hunger in past month, history of abortion, fear of pregancy, previous history of depression, income instability, low social support	No hunger in past month, no history of abortion, no fear of pregancy, no history of depression, income stability, strong social support	Antenatal depression	1.57 (0.79 to 3.35)
Dudas et al. (2012)	Hungary	Cross sectional	1719	Pregnant mother	Lack of support from patner and family, history of major depression, previous sterilty, unplanned pregancy	Lack of support from patner and family, history of major depression, previous sterilty, unplanned pregancy	Antenatal depresision	1.79 (1.32 to 1.89)
Duko et al. (2019)	Ethiopia	Cross sectional	317	Pregnant mother	Current pregancy complication, unplanned pregancy, previous history of depression, history of abortion, social support	No pregancy complication, planned pregancy, no history of depression, no history of abortion, lower social support	Antenatal depresision	2.14 (1.49 to 3.11)
Gao et al. (2020)	China	Cross sectional	278	Pregnant mother	Anxiety, no social support	No anxiety, social support	Antenatal depresion	2.56 (1.52 to 4.30)

Author (Year)	Country	Study Design	Sample	Popula-tion	Intervention	Comparison	Outcome	aOR (95%CI)
Rashid and Mohd, (2017)	Malaysia	Cross sectional	3000	Pregnant woman	Poor social support	High social support	Antenatal depresion	2.16 (1.77 to 2.64)
Shidhaye et al. (2017)	India	Cross sectional	302	Pregnant woman	Gender disadvantage factor, low of social supports	Gender advantage factors, high social support	Antenatal depresion	5.3 (2.4 to 11.6)

DISCUSSION

This study was a systematic review and meta-analysis examining the relationship between social support and depression during pregnancy, revealing a number of interesting findings. Our review identified that pregnant women who received low social support were more likely to experience depression during pregnancy compared to pregnant women who received good social support. The independent variable is the lack of social support. This meta-analysis study used research with multivariate analysis and the statistical results report the Adjusted Odds Ratio (aOR). Estimates of the combined association between poor social support and depression during pregnancy were processed using the RevMan 5.3 application. The results of the systematic study and meta-analysis were presented in the form of forest plots and funnel plots.

Most of the previous studies reported a significant positive relationship between low social support and antenatal depression. Furthermore, combined estimates from meta-analyses indicate that low social support has a significant positive relationship with antenatal depression. Pregnant women with low social support may not have someone to trust, get important information/advice from, or help to reduce negative emotions associated with distressing situations, and as a result, they may be exposed to stress and may develop depression. In addition, pregnant women with low social support are less satisfied with their families and have lack of interaction with their social environment, therefore, they can be exposed to loneliness, become less emotional and release stress and then become more anxious than before.

The results of the meta-analysis process can be seen through the forest plot. Figure 1 shows that the absence of social support was 2.04 times increased the incidence of depression in pregnant women compared to the presence of social support (environment, family or partners) and was statistically significant (aOR= 2.04; 95% CI= 1.57 to 2.64; p<0.001). These results are in accordance with a study conducted by Dong et al., (2013) where pregnant women who did not get social support from around the time of pregnancy had the potential to experience depression during pregnancy (OR =1.75 95%CI= 0.16 to 19.28). Pregnant women with low social support may not have someone to talk to, get important information/advice from, or helps to reduce negative emotions associated with distressing situations, and as a result, they may be exposed to stress and may develop depression. In addition, pregnant women with low social support from family and low interaction with the social environment, stated in a previous systematic review study that social support is also associated with improved mental health and decreased levels of depressive symptoms among pregnant women who are also heads of the households. Good social support may play a protective role against mental illness during pregnancy. Pregnant women who have good social support are more likely to experience improved mental, psychological, and emotional health compared to their peers. Also, other research findings suggest that individuals with constructive social relationships and good social support enjoy more efficient communication skills, helping to provide protection from depression and other mental illnesses. On the other hand, good social support protects people from illness and can help provide additional coping mechanisms for stress. As a result, they may be exposed to loneliness, become less emotional and able to cope with stress and then become more anxious.

In this study, there was a significant degree of heterogeneity among studies examining the relationship between social support and antenatal depression. This high degree of heterogeneity could be due to the different conceptualizations and measures of social support used in the study. Our review identified that there were different types of social support assessment tools used to measure social support. This showed the different understandings of social support among the many individuals and community members who come from different countries with different socioeconomic settings. The lack of comprehensive agreement on the best method for measuring social support was one of the challenges identified throughout the current literature.

From this study, it was found that low social support has a significant relationship with the risk of mental health problems (depression) during pregnancy. This indicated that health professionals discuss with pregnant women about their level and sources of social support. Policymakers and other relevant stakeholders should consider helping to develop community-based social support programs for pregnant women in order to integrate effectively with other commonly used maternal health services. It is also necessary to carry out longitudinal studies in the future, which can confirm the temporal sequence of events. Finally, study on future interventions is needed to further explore the effects of social support in preventing mental health problems during pregnancy.

AUTHORS CONTRIBUTION

Mitha Amelia Rahmawati and Muthia Syafira are the researchers who choose a topic, look for and processe the data, which then compile this study.

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This study is self-funded.

CONFLICT OF INTEREST

There was no conflict of interest.

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