



ANTENATAL DEPRESSION AND ITS CORRELATES: A CASE CONTROL STUDY ON MULTIPLE INFLUENCING VARIABLES

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ABSTRACT

Depression is a major global contributor to disability, particularly among women, with antenatal depression emerging as a leading source of health problems in this group. Recognizing risk factors is critical for early detection and prevention strategies. This study explores the correlation between antenatal depression and factors such as risky pregnancies, history of child abuse, financial difficulties, marital conflict, and pregnancy status in Surabaya. The case-control study, which took place from May to July 2019 at Jagir and Tanah Kali Kedinding Public Health Centers, included 58 pregnant women. The findings indicate a strong link between antenatal depression and high-risk pregnancies. When additional factors are taken into account, characteristics such as financial difficulties, pregnancy status, marital conflict, and a history of child abuse may lose significance. Caution is urged when interpreting these findings, emphasizing the importance of considering the clinical situation. The study suggests the significance of regular antenatal depression screenings in healthcare settings in order to identify and address mental health difficulties throughout pregnancy effectively.

Keywords: antenatal depression; financial difficulties; history of child abuse; marital conflict; pregnancy; risky pregnancy; status

First Received
10 September 2023

Revised
14 September 2023

Accepted
30 September 2023

Final Proof Received
25 October 2023

Published
28 November 2023

How to cite (in APA style)

Hasanah, Z., & Novembriani, R. (2023). Antenatal Depression and Its Correlates: A Case Control Study on Multiple Influencing Variables. *Indonesian Journal of Global Health Research*, 5(4), 949-962. <https://doi.org/10.37287/ijghr.v5i4.2688>.

INTRODUCTION

Depression is a significant contributor to disability and health issues on a global scale, and it is currently the primary cause of these issues among women worldwide. According to the World Health Organization (WHO), depression is expected to become the leading cause of disease burden by 2030. It is important to note that depression can affect individuals of any age, and pregnancy and childbirth can increase the risk of developing major depressive disorder (MDD) in women. While postpartum depression (PPD) is well-known, depression during pregnancy is also common. The prevalence of antenatal depression varies across different regions globally, with higher rates generally observed in low- and middle-income countries (LMICs). Studies conducted in low- and middle-income countries have revealed that antenatal depression affects a significant percentage of pregnant women. On average, the prevalence of antenatal depression is 15.6%. However, the rates of antenatal depression vary across different countries. For instance, the rates are as high as 59.7% in Jakarta, 39.5% in Tanzania, 39% in South Africa, 38.5% in South Africa, 25% in Pakistan, 20.2% in Brazil, and

16.6% in Ethiopia (Hasanah et al., 2019; Kaiyo-Utete et al., 2023; Misrawati & Afiyanti, 2020; Tesfaye & Agenagnew, 2021).

Antenatal depression can have detrimental effects on both the mother and her unborn child. If left untreated, it can lead to negative impacts on maternal-infant attachment, child development, prolonged labor, preterm birth, low birth weight values, poor APGAR scores, impaired fetal growth, and fetal mental development. Moreover, it can even result in severe consequences such as infanticide. Infants may face a higher likelihood of diarrhoea, lower rates of immunisation, and stunted growth and development if their mothers experience perinatal depression. Furthermore, stress during pregnancy can cause epigenetic changes that affect the mental health of children later in life, as well as cognitive and language development delays and behavioral issues. Cigarette and drug use during pregnancy can significantly impact a mother's health. Furthermore, research indicates that approximately 13% of women who suffer from depression during pregnancy may continue to experience depressive symptoms postpartum and during childcare. Additionally, pregnant women with depression may experience stress, social isolation, and decreased productivity (Bavle et al., 2016; Hasanah et al., 2019; Kaiyo-Utete et al., 2023; Ogbo et al., 2018; Răchită et al., 2023).

In the last few decades, extensive research has shown that stressful experiences encountered during pregnancy can have long-lasting effects on both the mother and her baby's mental health. Recent epidemiological studies in animals and humans have demonstrated that stressful experiences during fetal development or childhood can heighten the risk of neurological and mental illnesses through alterations in epigenetic regulation. Various stress experiences and environmental conditions can cause changes in epigenetic mechanisms like mRNA expression, DNA methylation, and histone alterations. These changes can influence prenatal endocrine programming and brain development across multiple generations (Babenko et al., 2015; Field, 2017). Infants of antenatally depressed mothers show greater levels of depression and anxiety than non-depressed mothers (Field, 2017).

The contributing factors to pregnancy depression can be categorized into psychological, social, and biological factors. Psychological factors encompass aspects such as personality traits, cognitive abilities, and self-perception (self-esteem), as well as exposure to child abuse, past negative experiences, and coping mechanisms. Social factors include conflicts in marital relationships, pregnancy status (unplanned and or unwanted pregnancies), family dynamics, partner and social support, and financial difficulties (Hasanah et al., 2019; Ogbo et al., 2018; Răchită et al., 2023; Tesfaye & Agenagnew, 2021). It has been found through previous research that during pregnancy, there are significant hormonal fluctuations that can lead to changes in mood and an increased vulnerability to depression. Unwanted pregnancies can worsen these effects due to the added stress and emotional turmoil. Moreover, studies indicate that unplanned pregnancies may result in higher levels of cortisol, the stress hormone, which can further impact mental health (Dadi, Miller, & Mwanri, 2020). About the child abuse history, research states that the history of child abuse is one of the factors influencing antenatal depression between subgroups, highlighting the impact of childhood trauma on maternal mental well-being during pregnancy (John Eastwood et al., 2021a). Financial difficulties, whether subjective or objective, can adversely affect depression (Dadi, Miller, & Mwanri, 2020; Guan et al., 2022).

Women with high-risk pregnancies are more likely to experience antenatal depression than women with low-risk pregnancies. Women with high-risk pregnancies were 2.5 times more likely to experience antenatal depression than women with low-risk pregnancies (Adina et al.,

2022; Cuijpers et al., 2023; Grote et al., 2010; Paulson & Bazemore, 2010). Pregnant women who experience marital conflict or lack social support from their husbands may be more vulnerable to developing antenatal depression due to the absence of emotional and practical support during a critical period of their lives. Marital conflict can create significant stress for pregnant women, potentially leading to feelings of anxiety and depression (Zegeye et al., 2018).

Effective planning and consultation during pregnancy can help prevent pregnancy depression and minimize its negative impact. The Edinburgh Postnatal Depression Scale (EPDS) is a widely recognized and utilized screening tool for identifying depressive symptoms during pregnancy and up to one year after childbirth. It has been validated for depression screening and consists of ten scale types designed for community samples. Each question is scored on a 4-point scale ranging from 0 to 3, and the total score can range from 0 to 30. The EPDS evaluates the mother's feelings during the previous seven days, including depression, anhedonia, feelings of guilt, anxiety, and suicidal ideation. The EPDS has high sensitivity (86%), specificity (78%), and positive predictive value (73%) compared to research diagnosis criteria (RDC) obtained from a standardized psychiatric interview (SPI) (Bavle et al., 2016; Ogbo et al., 2018).

Previous research conducted at Puskesmas Jagir and Puskesmas Tanah Kali Kedinding revealed that 18.95% of pregnant women were found to be at risk of antenatal depression (Hasanah et al., 2019). Although this percentage is still significant, it is crucial to address this issue and provide appropriate interventions for pregnant women to prevent and manage antenatal depression. Previous research on the risk of antenatal depression has primarily relied on cross-sectional studies. However, this study takes a different approach by utilizing a case-control study design to investigate the correlation between risky pregnancies, history of child abuse, financial difficulties, pregnancy status, and the incidence of antenatal depression in the Surabaya population. By focusing on the Jagir Community Health Center and Tanah Kali Kedinding Community Health Center, which have the highest rates of antenatal visits in Surabaya city, this study aims to provide insights representative of pregnant women in the area.

Identifying risk factors for antenatal depression, such as maternal age and history of PMDD, is crucial in order to detect individuals at risk and take preventative measures against its impact on the fetus and perinatal success. By prioritizing the risk of antenatal depression, we are acknowledging the need to treat women not just as objects but as subjects with a wide range of biological and psychological needs during pregnancy. This is in line with Sustainable Development Goal (SDG) 3, which aims to promote healthy lives and improve the well-being of all people of all ages, including women.

METHOD

This case-control study was conducted at Jagir Public Health Center and Tanah Kali Kedinding Public Health Center, Surabaya, from May to July 2019. The independent variables in this study were risky pregnancy, pregnancy status, marital conflict, financial difficulties, and history of child abuse. The dependent variable in the study was the risk of antenatal depression. Risk pregnancies are classified into two categories, namely low-risk pregnancies and high-risk pregnancies. Pregnancy status is categorized into two, namely desired/planned pregnancy and unwanted/planned pregnancy. The variables marital conflict and financial difficulty are also each categorized into two, namely, there is marital conflict and no marital conflict, as well as there are financial difficulties and no financial difficulties.

Finally, respondents were grouped into two groups, namely those with a history of child abuse and those with no history of child abuse.

The risk of antenatal depression was measured with the Edinburgh Postnatal Depression Scale (EPDS), a depression screening tool that has been tested for validity and reliability. The study sample consisted of 58 pregnant women, consisting of 29 samples with EPDS scores of 10-30, and 29 other samples with EPDS scores of 0-9. This study was limited to pregnant women with a minimum of high school education, pregnancy from the first husband, Madurese/Javanese ethnicity, the number of surviving children ≤ 5 people, the distance between pregnancy and the last child ≤ 10 years, and willing to be the subject of the study. Data were collected through questionnaires filled out by mothers accompanied by researchers.

Univariate analyses were performed across all variables (antenatal depression, risky pregnancies, pregnancy status, marital conflict, financial difficulties, and history of child abuse) using frequency distribution tables. A bivariate quantitative analysis technique is also performed with the Chi-Square test (χ^2). If it does not meet the requirements of the chi-square test, the bivariate test will be continued with Fisher's Exact. Binary logistic regression tests using computer programs were conducted to see the relationship between the incidence of antenatal depression with risky pregnancies, pregnancy status, marital conflict, financial difficulties, and history of child abuse. This analysis used the SPSS version 20 computer application. This study posed relatively no risk to the subjects because there were no invasive interventions. The subjects only answered questions from the researcher through a questionnaire accompanied by the researcher. The questions asked relate to baseline data and risk factors for antenatal depression in subjects. This research is also relatively risk-free for respondents and researchers. All possible risks have been anticipated through appropriate research design and in accordance with the research objectives. The researcher guarantees the confidentiality of the information collected from the subject, and only certain groups of data are presented in the study results. The Ethics Committee of the Faculty of Medicine, Universitas Airlangga, has approved all research procedures.

RESULTS

Table 1.
Respondent characteristics (n= 58)

Respondent characteristics	f	%
Dependent Variables		
No Antenatal Depression	29	50
Antenatal depression	29	50
Independent Variables		
Risky pregnancy		
Low risk	24	41.4
High risk	34	58.6
Pregnancy Status		
Wanted/planned	11	19
Unwanted/planned	47	81
Marital Conflict		
No marital conflict	6	10.3
There is a marital conflict	52	89.7
Financial Difficulties		
No financial difficulties	10	17.2
There are financial difficulties	48	82.8
History of Child Abuse		
No history of child abuse	14	24.1
There is a history of child abuse	44	75.9

Table 1, it is known that more than half of the respondents (58.6%) had a high-risk pregnancy. In addition, the majority of respondents stated that their pregnancy was not wanted/planned (81%), there was marital conflict (89.7%), there was financial difficulty (82.8%), and had a history of child abuse (75.9%).

Table 2.
Bivariate Analysis of Factors Associated with Antenatal Depression

	Antenatal depression				p-value	OR	95% CI
	No (n=29)		Yes (n=29)				
	f	%	f	%			
Risky pregnancy							
Low risk	6	20.7	18	62.1	0.001	0.159	0.049-0.514
High risk	23	79.3	11	37.9			
Pregnancy Status							
Wanted/planned	4	13.8	7	24.1	0.32	0.503	0.130-1.950
Unwanted/planned	25	86.2	22	75.9			
Marital Conflict							
No marital conflict	2	6.9	4	13.8	0.67	0.463	0.078-2.752
There is a marital conflict	27	93.1	25	86.2			
Financial Difficulties							
No financial difficulties	4	13.8	6	20.7	0.49	0.613	0.153-2.453
There are financial difficulties	25	86.2	23	79.3			
History of Child Abuse							
No history of child abuse	6	20.7	8	27.6	0.54	0.685	0.204-2.302
There is a history of child abuse	23	79.3	21	72.4			

From the results of the bivariate analysis presented, it appears that the independent variable shows a different level of significance and strength of the relationship with the dependent variable, namely antenatal depression. First, risky pregnancy showed a significant association with antenatal depression with a p-value of 0.001. A low Odds Ratio (OR) of 0.159 indicates that women who experience risky pregnancies are 0.159 times less likely to develop antenatal depression compared to those who do not experience risky pregnancies. A 95% confidence interval (0.049-0.514) indicates that this effect is consistent and likely to produce a significant difference.

However, when looking at the pregnancy status variable, there was not enough statistical evidence to support a significant association with antenatal depression, along with a p-value of 0.32. An OR of 0.503 indicates that women who have an unwanted/planned pregnancy are 0.503 times less likely to develop antenatal depression. However, a 95% confidence interval (0.130-1.950) involving a value of 1 indicates a fairly high level of uncertainty. Likewise, the variables marital conflict, financial hardship, and history of child abuse also showed no significant association with antenatal depression. High P-values for all three variables (0.67, 0.49, and 0.54) indicate an insignificant relationship. An OR of less than 1 for each variable signifies that the association is likely to lead to a reduced risk of antenatal depression. However, a 95% confidence interval that includes a value of 1 indicates greater uncertainty.

Table 3.
Multivariate Analysis

Variable	p value	OR	95% CI
Risky pregnancy	0.001	12.049	2.865-50.669
Pregnancy Status	0.366	2.072	0.427-10.058
Marital Conflict	0.344	2.710	0.344-21.359
Financial Difficulties	0.103	4.324	0.745-25.085
History of Child Abuse	0.144	3.130	0.677-14.473

From the results of the multivariate logistic regression analysis performed, it appears that several independent variables show different potential relationships with the dependent variable, namely antenatal depression, after controlling for other variables. First, there is strong statistical evidence for an association between risky pregnancies and antenatal depression, along with a low p-value (0.001). An OR of 12,049 suggests that, taking other variables into account, women who experience risky pregnancies are 12 times more likely to develop antenatal depression than those who do not have risky pregnancies. Nonetheless, the relatively wide 95% confidence interval (2,865-50,669) indicates a fairly high degree of uncertainty.

On the other hand, pregnancy status and marital conflict showed high p-values, at 0.366 and 0.344, respectively, suggesting that there was insufficient statistical evidence to support a significant association with antenatal depression after controlling for other variables. The OR for pregnancy status was 2,072 with a 95% confidence interval (0.427-10.058), and for marital conflict was 2.710 with a 95% confidence interval (0.344-21.359), indicating greater levels of uncertainty and relationship weakness. When looking at financial distress, a p-value of 0.103 indicates a significant potential relationship at a 90% confidence level after controlling for other variables. An OR of 4,324 indicates that women who experience financial difficulties are 4 times more likely to develop antenatal depression than those who do not experience financial difficulties. Nonetheless, a wide 95% confidence interval (0.745-25.085) indicates a fairly high level of uncertainty.

Finally, the history of child abuse showed a p-value of 0.144, suggesting that the association between this variable and antenatal depression may not be significant at 95% confidence levels after controlling for other variables. An OR of 3.130 with a 95% confidence interval (0.677-14.473) indicates a moderate relationship with a high degree of uncertainty. Overall, the results suggest that risky pregnancies and financial hardship may have a significant association with antenatal depression, while other variables, such as pregnancy status, marital conflict, and history of child abuse, may not be significant after controlling for other variables.

DISCUSSION

Risky Pregnancy

Several studies have investigated the relationship between high-risk pregnancy and antenatal depression. These studies have found that women with high-risk pregnancies are more likely to experience antenatal depression than women with low-risk pregnancies. Women with high-risk pregnancies were 2.5 times more likely to experience antenatal depression than women with low-risk pregnancies. Research suggests that some factors, such as biological and psychological factors, may contribute to this relationship (Adina et al., 2022; Cuijpers et al., 2023; Grote et al., 2010; Paulson & Bazemore, 2010). Biological factors may contribute to the relationship between high-risk pregnancy and antenatal depression, including: 1) Pregnancy is associated with several hormonal changes, which can alter brain chemistry and increase the risk of depression; 2) Inflammation is a typical stress response, and it has been linked to depression. High-risk pregnancies are often associated with increased inflammation, which may increase the risk of antenatal depression; and 3) There is some evidence that genetics may play a role in the risk of both high-risk pregnancy and antenatal depression (Adina et al., 2022; Cuijpers et al., 2023; Grote et al., 2010; Paulson & Bazemore, 2010).

High-risk pregnancies often lead to emotional distress due to the physical vulnerabilities involved. Medical conditions like chronic illnesses, gestational diabetes, and preeclampsia can

result in frequent hospital visits, invasive procedures, and a sense of uncertainty about the future. This medical rollercoaster can leave women feeling helpless, isolated, and overwhelmed, triggering depressive symptoms like low mood, loss of interest, and fatigue. The fear of potential complications or adverse outcomes for the baby adds another layer of emotional burden, amplifying anxieties and fuelling depressive spirals (Adina et al., 2022; Cuijpers et al., 2023; Grote et al., 2010; Ilbert & Marfuah, 2022; Paulson & Bazemore, 2010). Despite the biological factor, Some psychological factors also may contribute to the relationship between high-risk pregnancy and antenatal depression, including 1) High-risk pregnancies can be stressful for women, and stress can increase the risk of depression; 2) Women who have poor coping mechanisms may be more likely to develop depression in response to stress; and 3) Women with social solid support may be less likely to develop depression (Adina et al., 2022; Cuijpers et al., 2023; Grote et al., 2010).

High-risk pregnancies not only pose physical challenges but also have a significant impact on the mental and emotional well-being of women. The stigma attached to medical complications during pregnancy can lead to feelings of isolation and shame, making it difficult for women to seek support from their networks. Financial difficulties arising from medical expenses can also add to the stress and anxiety of women, making it harder for them to cope. Furthermore, women who have a history of mental health problems may find it harder to deal with the altered body image and hormonal changes that come with pregnancy, potentially exacerbating their vulnerability to depression (Adina et al., 2022; Cuijpers et al., 2023; Grote et al., 2010; Ilbert & Marfuah, 2022; Paulson & Bazemore, 2010). It is worth noting that a high-risk pregnancy can have long-lasting effects beyond the emotional stress it causes. Antenatal depression is a serious concern as it has been linked to adverse outcomes for both the mother and the baby. Research has shown a correlation between maternal depression and an increased risk of premature birth, low birth weight, and impaired fetal development. Additionally, depressed mothers may struggle with bonding with their infants and have difficulty with early parenting interactions, which can negatively affect the child's emotional and social development well into childhood (Adina et al., 2022; Grote et al., 2010; Paulson & Bazemore, 2010).

It is essential to acknowledge the relationship between high-risk pregnancies and antenatal depression to provide effective intervention and prevention. To achieve this, screening for depression should be done routinely among women with high-risk pregnancies. It is crucial to use validated screening tools and open communication to identify early signs of emotional distress and initiate timely interventions (Grote et al., 2010). Additionally, providing comprehensive support systems that address not only the medical complexities but also the psychosocial needs of these women is paramount. This includes offering access to psychotherapy, mindfulness-based interventions, and support groups that foster a sense of connection and empower women to navigate the challenges of their pregnancies.

Financial Difficulties

Financial difficulties are a risk factor for antenatal depression, which can lead to increased levels of stress hormones like cortisol. This, in turn, can impact fetal growth. Financial stress and insecurity can contribute to increased stress levels, potentially exacerbating the risk of antenatal depression. Psychological stress, such as financial stress or financial hardship, can have adverse effects on depression. Some studies suggest that subjective financial stress is more important than objective measures such as the amount of debt (Dadi, Wolde, Baraki, et al., 2020; Guan et al., 2022).

Women who are pregnant and living in low-income countries often face economic pressures that can indirectly affect their ability to maintain a healthy diet during pregnancy. Financial difficulties may make it harder for these women to access adequate prenatal care, which is crucial for the well-being of both the mother and the unborn child. Limited access to healthcare due to financial constraints can also lead to increased stress and anxiety during pregnancy, which may contribute to antenatal depression. Additionally, financial difficulties can impact a woman's social support network, as economic stressors may strain relationships and limit access to supportive resources. Social causation suggests that individuals or households with low income or wealth are more likely to be exposed to economic uncertainty, unhealthy lifestyles, poor living conditions, malnutrition, decreased social capital, and other factors that increase the risk of developing depressive symptoms. Social selection suggests that people with pre-existing depression or other mental health concerns may be more likely to experience financial stress due to factors such as reduced work capacity, lower income, and higher healthcare costs. Good social support is essential during pregnancy as it has been shown to reduce the risk of antenatal depression (Dadi, Wolde, Baraki, et al., 2020; Guan et al., 2022).

In summary, financial status can impact antenatal depression through its influence on stress levels, access to healthcare, nutrition, and social support. These factors collectively contribute to the complex relationship between financial status and antenatal depression (Dadi, Wolde, Baraki, et al., 2020; Guan et al., 2022). Other research stated that Financial hardship and unwanted pregnancy are associated with antenatal and postpartum depressive symptoms (Rich-Edwards et al., 2006). This study has presented some distinct outcomes, which could be attributed to various factors that influence the likelihood of antenatal depression. However, the limitation of this research is that it only asked a single question about financial difficulties, which could potentially introduce a bias.

Pregnancy Status

Unplanned pregnancies can cause significant disruptions to an individual's life plans, career, and educational goals, leading to increased levels of anxiety, stress, and uncertainty. This is especially true for young women, adolescents, and those facing financial difficulties. Such emotional turmoil can trigger depressive symptoms, notably if the person lacks adequate coping mechanisms or social support. Research indicates that women experiencing unplanned pregnancies may report more negative emotions, such as disappointment, fear, and regret, compared to those with planned pregnancies. These negative emotions can further increase the risk of depression (Barton et al., 2017).

Unplanned pregnancies can lead women to feel socially isolated, especially if they face criticism or stigma from their family, friends, or community. Such lack of support can worsen feelings of loneliness, guilt, and shame, which are all known factors contributing to depression. Moreover, unexpected pregnancies can put a strain on existing relationships, leading to conflicts within families or between partners, which can further reduce the social support network necessary for good mental well-being (Surkan et al., 2018). During pregnancy, there are significant hormonal fluctuations that can lead to changes in mood and increased vulnerability to depression. Unwanted pregnancies can exacerbate these effects due to the added stress and emotional turmoil. Additionally, research indicates that unplanned pregnancies may result in higher levels of cortisol, the stress hormone, which can further impact mental health. During pregnancy, there are significant hormonal fluctuations that can lead to changes in mood and increased vulnerability to depression. Unwanted pregnancies can exacerbate these effects due to the added stress and emotional turmoil. Additionally, research

indicates that unplanned pregnancies may result in higher levels of cortisol, the stress hormone, which can further impact mental health (Dadi, Miller, Bisetegn, et al., 2020) When a couple has different opinions about having a baby, it can create severe problems and disagreements in their relationship. If one partner feels forced or manipulated into getting pregnant, it can lead to bitterness and emotional disconnection. These negative feelings can contribute to depression and have a detrimental effect on the couple's mental health (Qiu et al., 2020).

This study shows different results; it may be affected by the instrument that contains only a single question. Even though the researcher obtained the questionnaire through a guided interview, the result of this research cannot be very objective. It can also relate to another factor that affects the risk of antenatal depression. Principally, It is essential to understand that not all individuals who experience an unplanned pregnancy will develop antenatal depression. Personal resilience, coping mechanisms, and access to support can significantly mitigate the risk. However, it is crucial to recognize the potential relationship between these two factors for early intervention and prevention efforts. Healthcare professionals should routinely screen pregnant women for depression, with a particular focus on those who report unplanned pregnancies or exhibit signs of emotional distress. Additionally, providing access to counseling, support groups, and stress management resources can help pregnant women navigate the challenges associated with unplanned pregnancies and improve their mental well-being.

Marital Conflict

The mechanism of how marital status is linked with antenatal depression can be complex and multifaceted. Several factors may contribute to this association such as social support, stress and conflict, hormonal and physiological changes, and psychological well-being. Marriage often provides a source of social support, and lack of support from a spouse or partner can lead to feelings of isolation and distress, which are known risk factors for depression. Pregnant women who experience marital conflict or lack social support from their husbands may be more vulnerable to developing antenatal depression due to the absence of emotional and practical support during a critical period of their lives. Marital conflict can create significant stress for pregnant women, potentially leading to feelings of anxiety and depression. Conflict within the marital relationship can disrupt emotional well-being and contribute to a negative emotional state during pregnancy. Pregnancy is a time of significant hormonal and physiological changes, and the presence of marital conflict or lack of support may exacerbate the impact of these changes on a woman's mental health. The quality of a woman's intimate partner relationship can have a profound impact on her psychological well-being during pregnancy. Factors that threaten the stability and security of the marital relationship may contribute to antenatal depression (Zegeye et al., 2018).

This study has presented some distinct outcomes, which could be attributed to various factors that influence the likelihood of antenatal depression. However, the limitation of this research is that it only asked a single question about marital conflict, which could potentially introduce a bias. It's important to note that the relationship between marital status and antenatal depression is likely influenced by a combination of biological, psychological, and social factors. Understanding these mechanisms can help healthcare providers and support systems to identify at-risk individuals and provide appropriate support and interventions during pregnancy. Several limitations must be considered when interpreting the results of this study. First, the study design was case-control and, therefore, only able to provide evidence of an association between risk factors and outcomes, not causation, because data were collected

after the event. In addition, information about past exposures can be affected by remembrance or reporting bias, given that respondents often have to rely on their memory. Second, clinical interviews are the gold standard for antenatal depression diagnosis, whereas the analysis of this study focused on self-report assessments using EPDS screening tools, which tend to produce higher estimates of antenatal depression than clinical interviews. The lack of sample size also has the potential to affect the results of this study. Results that seem statistically insignificant can also happen by chance. P-values slightly above the significance level may be due to natural variations in the data.

History of Child Abuse

The quality of attachment and a woman's relationship with her parents is another important risk factor. For example, childhood abuse has been recognized as an apparent risk factor for depression and anxiety, specifically during pregnancy, over and above the increased lifetime risk for psychiatric disorders that childhood abuse (Biaggi et al., 2016). Childhood trauma is associated with the development of depression and anxiety in adulthood. The study suggests that childhood trauma can directly predict adulthood mood status. The disruption of stress-related neural systems induced by early childhood trauma plays a critical role in the development of depression and anxiety (Kim et al., 2017). This intergenerational impact and the solid dose-response relationship between exposure to adversity and poor health outcomes highlight the long-term effects of childhood trauma on mental health. Additionally, maternal mental health plays a crucial role in the intergenerational transmission of experienced adversity, further emphasizing the link between childhood trauma and depression (John Eastwood et al., 2021).

Another study shows that childhood trauma and stressful life events not only have a direct effect on depression but also increase individuals' risk of depression by decreasing their cognitive flexibility (Huang et al., 2022). In lower-middle-income countries, childhood abuse is highly prevalent as compared to higher-income countries, and therefore, these factors could have a more significant impact on pregnant women in lower-middle-income countries (Abe et al., 2022). The study's findings indicate that a known history of child abuse is one of the factors influencing antenatal depression between subgroups, highlighting the impact of childhood trauma on maternal mental well-being during pregnancy. These findings underscore the importance of addressing childhood trauma as a potential risk factor for depression, particularly during the perinatal period. Interventions and support systems that take into account the impact of childhood trauma on maternal mental health can play a crucial role in mitigating the risk of perinatal depression and its adverse outcomes (John Eastwood et al., 2021). The mechanisms underlying this relationship are complex and likely involve a combination of factors that contribute to depression, including Psychobiological factors, Cognitive factors, and social factors.

Psychobiological factors state that child abuse can lead to changes in brain structure and function that increase the risk of depression. At the neurobiological level, childhood abuse can leave indelible marks on the developing brain. Child abuse can lead to changes in the hippocampus, a brain region that is involved in learning, memory, and emotion. The hippocampus is particularly vulnerable to damage from stress, and damage to the hippocampus has been linked to depression. Child abuse can lead to alterations in the hypothalamic-pituitary-adrenal (HPA) axis, a central and complex system responsible for the regulation of stress and mood. In stressed conditions, the HPA axis releases cortisol, a hormone that helps the body cope with stress. Chronic stress experienced during this critical period can lead to dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, a central

system responsible for stress response. This dysregulation manifests as an overactive HPA axis, leading to excessive cortisol production, which can contribute to depressive symptoms and impair emotional regulation. Additionally, childhood abuse can alter the functioning of neurotransmitters like serotonin and dopamine, which are critical for mood, motivation, and emotional processing. These neurochemical changes can persist into adulthood, rendering individuals more susceptible to developing depression, including during pregnancy. However, chronic stress can lead to overactivation of the HPA axis, which can lead to several health problems, including depression (Abe et al., 2022b; Biaggi et al., 2016; John Eastwood et al., 2021b; Kim et al., 2017; Teicher et al., 2016).

Cognitive factors state that child abuse can lead to negative cognitive schemas, such as a belief that one is worthless or unlovable. These schemas can contribute to feelings of depression and hopelessness. These schemas can contribute to feelings of depression and despair. A woman who was abused as a child may believe that she is not worthy of love or happiness. This belief can make it difficult for her to cope with the demands of pregnancy and motherhood and can increase her risk of developing antenatal depression (Abe et al., 2022b; Biaggi et al., 2016; John Eastwood et al., 2021b; Kim et al., 2017; Teicher et al., 2016).

Social factors state that child abuse can disrupt social relationships and lead to feelings of isolation and loneliness. These factors can also contribute to depression. A woman who was abused as a child may have difficulty trusting others or forming close relationships. This can make it difficult for her to receive support from her partner, family, or friends, which can increase her risk of developing antenatal depression. Survivors of childhood abuse are more likely to experience social isolation, lack of supportive relationships, and inadequate access to mental health services. These factors, particularly during the vulnerable period of pregnancy, can exacerbate depressive symptoms by limiting emotional support and resources needed for healthy coping mechanisms. Moreover, societal stigma surrounding mental health concerns, especially during pregnancy, can discourage women from seeking help, furthering the cycle of isolation and perpetuating the depressive spiral. Recent research delves deeper into this complex web of interconnectedness. Additionally, a 2022 study in the *American Journal of Public Health* explored the influence of social support on this association. They reported that a solid social support network could act as a protective factor, mitigating the negative impact of childhood abuse on antenatal depression (Abe et al., 2022b; Biaggi et al., 2016; John Eastwood et al., 2021b; Kim et al., 2017; Teicher et al., 2016).

This study shows different results; it may be affected by the instrument that contains only a single question. Even though the questionnaire was obtained through a guided interview by the researcher, it can be a bias for the result of this research. It can also related to another factor that affects the risk of antenatal depression. Principally, early intervention and therapeutic support for survivors of childhood abuse, emphasizing mindfulness practices, stress management techniques, and trauma-informed therapy, can pave the way for healthier pre-pregnancy coping mechanisms. Building strong social support networks, reducing stigma around mental health, and ensuring accessible prenatal mental health services are also essential components of comprehensive prevention and intervention strategies.

CONCLUSION

The statistical analysis indicates that there may be a significant link between antenatal depression and risky pregnancy, as well as financial hardship. Other variables, such as pregnancy status, marital conflict, and history of child abuse, may not have a significant association. However, it is important to interpret these results carefully and consider the

clinical context before drawing definitive conclusions. These findings are observational and cannot demonstrate causation. It is suggested that antenatal depression screening should be implemented regularly and periodically in healthcare facilities. One effective way to do this is by using the EPDS scale. Public health centers with their own psychology clinic can use this scale as part of an integrated program with the clinic. The EPDS scale is simple to use, making it a feasible option for screening.

ACKNOWLEDGEMENTS

The authors wish to extend their profound gratitude to all persons and organizations whose steadfast support, guidance, and contributions were critical to the successful completion of this research.

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