



## Research Article

# Relationship between personality traits and perinatal depression at Muhammadiyah Hospital Surabaya

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## ABSTRACT

Perinatal depression is a feeling disorder that occurs in a woman during pregnancy and after childbirth. Perinatal depression can be seen from various factors, one of which is personality traits. This study aims to determine the relationship of personality traits with perinatal depression at Muhammadiyah Hospital Surabaya. This study was observative analytic using a cross-sectional approach, conducted on 96 respondents using the Edinburgh Postnatal Depression Scale (EPDS) and the OCEAN personality trait questionnaire. The result of the multiple linear statistical tests on the F test is  $p=0.00$  ( $p<0.05$ ), the t-test on the extraversion personality trait is  $p=0.031$  ( $p<0.05$ ), and the neuroticism personality trait is  $p=0.000$  ( $p<0.05$ ). The coefficient of determination test  $R^2= 37.0\%$ . In conclusion, there is a relationship between personality traits and perinatal depression at Muhammadiyah Surabaya Hospital.



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### INTRODUCTION

Pregnancy is a condition when in a woman's uterus, there is fertilization as the result of the meeting of the ovum and spermatozoa. During pregnancy, natural and physiological processes occur (Widiadnyani, 2021). Pregnancy is a condition where depression often appears; therefore, pregnant women need regular services for care and self-care (Lowdermilk *et al.*, 2013).

Depression is a global public health problem with a prevalence between 7% and 20%. Perinatal depression has adverse medical and psychological outcomes for both mother and child. Frequent negative consequences for depressed mothers include decreased support from the family unit and social support network, reduced ability to care for oneself, poor nutrition and weight gain, substance use, relationship difficulties with partners, and impaired infant interactions (Muzik, 2010).

The number of pregnant patients with perinatal depression globally reaches 23%, Asia 15-20%, and Indonesia 25%. A study by Nursanti (2012) reported that out of 72 third-trimester pregnant women at Fatmawati General Hospital, Jakarta, 26.4% of mothers experienced mild depression and 6.9% moderate depression. Mothers with depressive symptoms and their babies tend to have physiological markers characterized by increased cortisol, decreased peripheral dopamine and serotonin levels, relatively greater activation of the right frontal electroencephalogram, and lower vagal tone (Kusuma, 2018).

Depression in pregnant women is a mood disorder that can occur before or after childbirth, with an inability to maintain mental stability as a sign of major depressive symptoms. Major depression is defined as the

following five symptoms. One of them must be a depressed mood or decreased interest, such as depressed mood with confusion, reduced interest and pleasure in activities, disturbed appetite, decreased body weight, difficulty sleeping or uncomfortable sleeping, psychomotor slowing, weakness, decreased energy, decreased concentration, suicidal ideation (Pradnyana *et al.*, 2013).

There was previously conducted research on 25 midwives in Balen District using the True Experimental Design type with the "Before-After Research Design". The experiment group consisted of 13 people midwives, and during the research, one was removed. Only 12 people remained, and the control group consisted of 12 midwives, and one was removed, so only 11 people remained (Dewi, 2012). The research showed a need to prevent or reduce the number of perinatal depression because if left untreated, it will be detrimental to the mother and fetus.

Many experts have put forward various theories, one of which is the Personality Trait Theory, the most frequently used theory in the world of work. The OCEAN Personality Traits Theory, or the "Big Five Personality Traits Model" was put forward by Lewis Goldberg (Udovičić, 2014). For this reason, this research will be conducted using the big five personality theories, namely Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, abbreviated as OCEAN. The research was conducted by distributing questionnaires using the cross-sectional method with an assessment using the EPDS theory and the OCEAN scale.

From the background above, this research was compiled to discover the relationship between personality traits and perinatal depression at the Muhammadiyah Hospital in Surabaya. This research is expected to add general insight to the medical team, patients, patient families, and



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the wider community to be able to do or prevent in advance factors from personality traits that can cause perinatal depression in pregnant women to maintain stability during pregnancy, especially during childbirth or postpartum.

## METHODS

This type of research uses analytic observational methods in quantitative research. Analytical observational is more directed at explaining a situation, and a cross-sectional approach is used because the independent variables (risk factors) and dependent variables (effects), or cases that occur in the object of research are measured or collected at one time.

In this study, the target population used for research was pregnant women from the Muhammadiyah Hospital Surabaya. The sample was taken using the random sampling technique. The unknown number of samples was calculated using the Lemeshow formula, in which then a sample size of 96 was found. The results were analyzed using bivariate analysis and the data using the SPSS version 20 application.

## RESULT

### Research Subject Demographics

The demographics or characteristics of the respondents in this study can be identified based on age, occupation, education, and gravidity. Each of these characteristics can be analyzed descriptively in **Table 1**. Based on Table 1, of the 96 respondents in this study, 60.4% were aged 20 to 29 years which is as much as 58 people. The fact shows that in this study, most

were women of childbearing age. In this study, 67 people (69.8%) were respondents who were housewives. Most respondents have high school/vocational high school education, as many as 54 people (56.3%). Meanwhile, there were 12 respondents with primary school education (12.5%), 11 respondents with junior high school education (11.5%), six respondents with a diploma (6.3%), and 13 respondents (13.5%) with undergraduate education. Furthermore, respondents with their first pregnancy (primipara) were 46 people (47.9%). Respondents with second or more pregnancies (multipara) were 50 people (52.1%).

### Description of Research Variables

This study used perinatal depression variables and personality traits measured by five factors, openness, conscientiousness, extraversion, agreeableness, and neuroticism. The researcher conducted a descriptive analysis to discover the description of the subject and the level category limits for each research variable. The goal is to make it easier for readers to understand the characteristics of research data.

Based on Table 2, 40 people (41.7%) are experiencing low risk, 21 people are experiencing moderate risk (21.9%), and 35 people are experiencing high risk (36.5%).

Following **Figure 1** above, it is known that openness, extraversion, agreeableness, and neuroticism personalities are dominated by respondents in the medium or moderate category. Meanwhile, the conscientiousness personality is dominated by respondents in the low category.



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**Table 1.** Respondents' demographic (n=96)

Characteristics	Frequency	Percentage
<b>Age (in years)</b>		
20 – 29	58	60,4%
30 – 39	33	34,3%
40 or more	5	5,2%
<b>Occupation</b>		
Housewife	67	69,8%
Private	18	18,8%
Entrepreneur	7	7,3%
Educational Worker	2	2,1%
Health Worker	2	2,1%
<b>Education level</b>		
Primary School	12	12,5%
Junior High School	11	11,5%
High School	54	56,3%
Diploma	6	6,3%
Bachelor	13	13,5%
<b>Gravidity</b>		
Primipara	46	47,9%
Multipara	50	52,1%

**Table 2.** Level of Depression (n=96)

Level of Depression	Total	Percentage
Low Risk	40	41,7%
Moderate Risk	21	21,9%
High Risk	35	36,5%
<b>Total</b>	<b>96</b>	<b>100,0%</b>

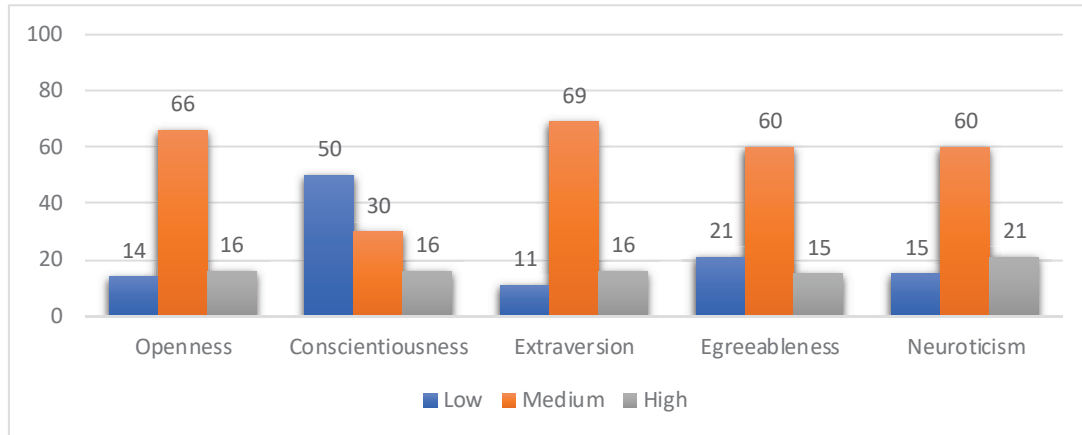


Figure 1. Distribution of Respondents by Personality Category (n=96)

Table 3. Normality Test

	Kolmogorov Smirnov Z	p
Unstandardized Residual	0,043	0,200

### Effect of Personality Traits on Perinatal Depression

#### Classical Assumption Test

Before carrying out multiple linear regression analysis, it is necessary to carry out an assumption test, including the normality test, multicollinearity test, and heteroscedasticity test.

#### Normality Test

The normality test tests whether the regression model residuals have a normal distribution. The normality test carried out with the Kolmogorov-Smirnov test has the following results:

The normality test results using the Kolmogorov-Smirnov test showed a significance value of 0.200 ( $p > 0.05$ ). The residuals of the regression model in this study were distributed normally. Thus, the assumption of normality is fulfilled.

#### Multicollinearity Test

The multicollinearity test was done in this research. The magnitude of the tolerance value

and the Variance Inflation Factor (VIF) can be used to discover symptoms of multicollinearity. The criterion used is that if the tolerance value is  $> 0.1$  or the VIF value is  $< 10$ , then multicollinearity does not occur. The results of the multicollinearity test are presented in **Table 4**. The calculation results show that the tolerance value is  $> 0.1$  or the VIF value is  $< 10$ . It can be concluded that the regression model equation does not contain multicollinearity problems, which means there is no significant correlation between the independent variables, so it is feasible to use for further analysis.

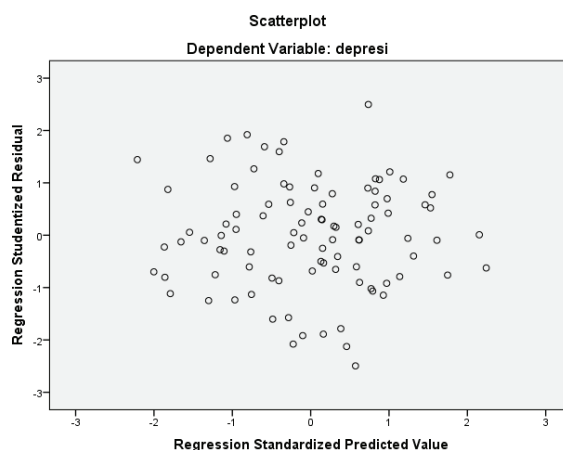
#### Heteroscedasticity Test

The heteroscedasticity test aims to test whether there is an inequality of variance from one residual observation to another. Heteroscedasticity testing using the scatterplot is presented in **Figure 2**. It can be concluded that there is no clear pattern in testing the dependent variable, and the points spread above and below 0 on the Y-axis, so there is no heteroscedasticity.



**Table 4.** Multicollinearity Test

Personality	Tolerance	VIF
Openness	0,799	1,252
Conscientiousness	0,781	1,280
Extraversion	0,945	1,058
Agreeableness	0,788	1,269
Neuroticism	0,807	1,239



**Figure 2.** Scatterplot Diagram

**Multiple Linear Regression Analysis**

The stages of testing the hypothesis using multiple linear regression are the simultaneous test (F test), partial test (T-test), and the *coefficient of determination*.

**Simultaneous Test (F Test)**

The F test was conducted to determine whether the independent variables simultaneously (together) influence the dependent variable or none. Simultaneous test results are presented in **Table 5**. The significance value obtained is 0.000 ( $p < 0.05$ ). Thus, it can be concluded that openness, conscientiousness, extraversion, agreeableness, and neuroticism have a significant influence on perinatal

depression at Muhammadiyah Hospital Surabaya. Therefore, the hypothesis states that there is a relationship between personality traits and perinatal depression at Muhammadiyah Surabaya Hospital is accepted.

**Partial Test (T-Test)**

The T-test tests the partial regression coefficients of the independent variables and whether the big five personality influences perinatal depression. The decision criterion is determined by each variable’s significance value, which will be compared to the degree of error value of 5%. Following the partial test results in **Table 6**, the personality traits that significantly influence perinatal depression are extraversion and neuroticism ( $p < 0.05$ ).





**Table 5.** Result of F Test

Model	Sum of Square	Mean Square	F	p
Regression	866,933	173,387		
Residual	1284,973	14,277	12,144	0,000
<b>Total</b>	<b>2151,906</b>			

**Table 6.** Partial Test (T-Test)

Variable	Coefficient	t	P
Constant	36,302	6,550	0,000
<i>Openness</i>	-0,189	-1,621	0,109
<i>Conscientiousness</i>	-0,108	-1,084	0,281
<i>Extraversion</i>	-0,182	-2,196	0,031*
<i>Agreeableness</i>	0,223	1,340	0,184
<i>Neuroticism</i>	-0,404	-5,892	0,000*

\* shows significant result

**Table 7.** Coefficient of Determination

R	R Square	Adjusted R Square
0,635	0,403	0,370

**Coefficient of Determination Test**

The coefficient of determination test ( $R^2$ ) measures the model's ability to explain variations in the dependent variable. In this study, the coefficient of determination uses the value of adjusted  $R^2$ . From the results of the coefficient of determination (**Table 7**), the adjusted  $R^2$  value is 0.370 or 37.0%. This shows that OCEAN personality traits can affect perinatal depression by 37.0%, while other factors outside this study influence the other 63%.

**DISCUSSION**

This study aims to determine the relationship of personality traits to the occurrence of perinatal depression at the Muhammadiyah Hospital in Surabaya. The study was conducted on 96 pregnant women from Muhammadiyah Surabaya Hospital respondents. Based on the research, the relationship between extraversion and neuroticism on perinatal depression at the Muhammadiyah Hospital in Surabaya is confirmed. The analysis results showed a negative relationship between extraversion



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and perinatal depression with a coefficient of -0.182; the higher the extraversion personality possessed by pregnant women, the lower the risk of depression they would experience. Whereas in the personality traits of neuroticism, there is a positive relationship between neuroticism and perinatal depression with a coefficient of 0.404; the higher the neuroticism personality possessed by pregnant women, the higher the risk of depression they experience.

This study's results align with research conducted by Roman (2019) on 672 new mothers who were given the EPDS questionnaire, which would assess their personality traits, postpartum anxiety, and postpartum depression 3 or 4 days after giving birth (T1). They also reported postpartum depression two weeks after delivery. The results of this study stated that neuroticism and extraversion had a relationship with postnatal depression and the type of delivery performed.

Individuals with neuroticism tend to negatively value problems with unpleasant emotions such as anger, anxiety, depression, or vulnerability. This makes individuals with high neuroticism vulnerable to experiencing psychological distress. Neuroticism becomes a vulnerability factor for health anxiety, general anxiety, and depressive symptoms (Nikčević et al., 2021).

This research is also in line with Maria Kaźmierczak (2020) research. The regression test results showed a significant positive relationship between neuroticism and perinatal depression, while extraversion had a significant negative relationship with perinatal depression. However, there is no significant relationship between openness (openness to experience) and agreeableness to perinatal depression. This is in line with research conducted by Geshica and Musabiq (2017),

where extraversion and conscientiousness have a significant negative relationship with psychological distress. Meanwhile, neuroticism has a positive and significant relationship to perinatal depression. No significant relationship was found in conscientiousness, agreeableness, and openness to perinatal depression.

The results of research conducted by Fatemeh Nouri (2019) are not in line with this study. This study aimed to explore the relationship between five personality trait factors, as predictor variables, with anxiety and depression as co-dependent variables in an Iranian adult population. The results of this study indicate that openness personality has the most significant influence compared to other personality traits.

Individuals with openness to experience tend to be curious, imaginative, aesthetic, and want to entertain with unique values. Individuals with high openness are more aware of their thoughts, impulses, and emotions, so they experience positive and negative emotions equally intensely, thus making the direction of the relationship between openness and psychological distress different between studies (Musabiq *et al.*, 2017)

In this study, openness had no significant relationship with psychological distress. However, it contrasted with research by Musabiq et al. (2021), where there was a significant positive relationship between openness and psychological distress.

Postpartum depression is a behavioral domain, and tiered and continuous observations are crucial to observe the origins of behavior. One of the studies provided recommendations on the use of the depression scale instrument (EPDS) to ascertain whether a woman has postpartum depression or not. It is necessary to do an EPDS screening. Thus, data on postpartum depression will be achieved with high precision. Research related to the relationship between personality





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and postpartum depression is still under development in the last few decades. As a result, information on this topic is still limited and can not be accepted raw.

Concerning postpartum depression, neuroticism (neurotism) and extraversion (extraversion) are often linked as the primary indicator, with conscientiousness (discipline) as a secondary indicator. Albeit openness and agreeableness do not have definite results as actors to postpartum depression. Personality is frequently investigated in the context described, and high levels of neuroticism are potential risk factors. This general tendency towards low mood and negative emotions makes the patient adapt poorly to difficult situations.

The neuroticism personality type is a personality that tends to be anxious, emotional, and temperamental. Personal anxiety and insecurity can lead to escape, so as to gain a sense of security, the individual does not focus on himself or others. Actions such as these lead to avoiding conflict management because this style does not focus on anyone and chooses to avoid problems.

Neuroticism shows a structural relationship with depression, consistent with the concept of this disorder as a solid pathological expression of negative affect. Individuals who score high on Neuroticism are at increased risk of being diagnosed with major depressive disorder. Poor control of drives and impulses and excessive concern with physical functions are also characteristics associated with neuroticism. Neuroticism is essentially a dispositional factor in experiencing psychological distress, and individuals who seek psychiatric help are almost always distressed.

Extraversion personality consists of gregariousness (easy to socialize), activity (active), positive emotion, assertiveness, and warmth. The trait of gregariousness that characterizes the association of the extraversion personality shows individuals who are interested in making friends and socializing with their environment. Individuals tend to talk a lot and are more active in opening up interactions. This explanation is also related to the nature of the activity, which indicates that individuals have high spirits.

Then, a typical extraversion personality with positive emotion, enthusiasm, and high enthusiasm can indirectly raise the spirits of others because communication is built on the desire to make good friends. Despite their preference for positive relationships with others, individuals still have high assertiveness in the form of assertive behavior in saying refusal when something should not happen. Individuals are also not easily controlled and follow other people's paths for no apparent reason.

The trait of warmth in the form of warm and friendly behavior is very attached to the extraversion personality. Thus, individuals tend to have more friends and quickly establish relationships. Individuals with extraversion tend to be sociable, active, talkative, people-oriented, optimistic, fun, and compassionate (Costa & McCrae, in Widiger & Costa, 2013)

## CONCLUSION

Based on the research and discussion results, there is a relationship between extraversion and neuroticism personality traits on perinatal depression at the Muhammadiyah Hospital in Surabaya.



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