

Parity and Psychology Analysis with Hyperemesis Gravidarum Incidence in First Trimester Pregnant Women

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ARTICLE INFO

Keywords:

Hyperemesis
Gravidarum,
Parity,
Psychological.

ABSTRACT

Background: Parity and psychological problems are one of the factors that contribute to the high tendency to occur hyperemesis gravidarum as a condition that results in pathology for the mother and the fetus she contains.

Methods: The research design is correlational analytic with a cross sectional design approach. The independent variables are parity and psychology, while the dependent variable is the incidence of hyperemesis gravidarum. The population is all pregnant women in the first trimester at the Wairasa Health Center, Central Sumba Regency, East Nusa Tenggara, a sample of 26 respondents using the accidental sampling technique. The data collection technique used a questionnaire.

Results: The results of the ordinal regression analysis showed that the *Nagelkerke coefficient* value of 92.4% means that the independent variable is parity and psychology affects the incidence of hyperemesis gravidarum in general by 92.4% while 7.6% is influenced by other factors that are not included in the model testing.

Conclusion: there is a relationship between parity and psychology of pregnant women in the first trimester with the incidence of hyperemesis gravidarum.

I. Introduction

Hyperemesis gravidarum is a normal symptom or is often found in the first trimester of pregnancy. Nausea usually occurs in the morning, but some occur at any time of the night. These symptoms usually occur six weeks after the first day of the last menstruation and last approximately 10 weeks ([Anderson, 2021](#)). Excessive nausea and vomiting causes body fluids to decrease, so that the blood becomes thick (hemoconcentration) and blood circulation to the tissue is delayed. If that happens, then the consumption of oxygen and food to the tissues also decreases. Lack of oxygen and food to the tissues will cause tissue damage that can reduce the health of the mother and the development of the fetus it contains ([Chauhan, 2018](#)). In addition, nausea and vomiting also have a negative impact on pregnant women, such as disrupting daily activities. Usually nausea and vomiting often occur in the morning, it can even occur at any time or sometimes at night ([Jacob, 2018](#)).

Nationally in 2017 it is estimated that the incidence of Hyperemesis gravidarum is 6% - 7% of pregnancies. Meanwhile, according to data from the data and information center of the Indonesian Hospital Association East Java in 2017, the number of pregnant women who were hospitalized due to Hyperemesis gravidarum was 8.3%. This shows the high risk of hyperemesis gravidarum in pregnant women. Research conducted by [Maslin \(2021\)](#), of 217 pregnant women studied, 250 people (87%) experienced physiological emesis gravidarum and 67 people (31%) developed pathological.

Data at the Central Sumba District Health Center, East Nusa Tenggara in January - November 2019 there were 278 pregnant women, 63 people (23%) of whom had complaints of hyperemesis in the first trimester of pregnancy. The results of interviews with 10 pregnant women who had a history of hyperemesis in their pregnancy showed that 6 mothers had never given birth, 3 mothers had primiparous parity and 1 mother had multiparous parity. Regarding age, it is known that 8 people are between 20-35 years old and 2 people are <20 years old. While in terms of work, 6 people are housewives, 2 people are traders in the market and 2 people work as private employees.

In general, hyperemesis gravidarum occurs at 6-12 weeks of gestation, which can continue until 16-20 weeks of gestation ([Anderson, 2021](#)). The impact of emesis contributes to increasing emotional tension, psychological stress and undue delay in finding appropriate treatment, especially if the condition becomes pathological ([Austin, 2019](#)). Severe vomiting during pregnancy can cause disruption of activity, dehydration, and hunger (Jacob, 2018). The most severe manifestation of nausea and vomiting in pregnancy is hyperemesis gravidarum ([Chauhan, 2018](#)). The consequences that can arise are weight loss and dehydration (lack of fluids), which can cause changes in electrolyte levels in the blood so that the blood becomes acidic and thick. If vomiting continues, liver damage will occur ([Jacob, 2018](#)).

According to [Havnen \(2019\)](#) there are several factors that influence the emergence of hyperemesis gravidarum, namely hormonal, parity, psychological factors, allergies and nutrition. [Agmon \(2019\)](#) stated that psychological factors that influence hyperemesis gravidarum, namely age, pregnancy, nutritional status, anxiety, and education. Every pregnant woman experiences nausea and vomiting which results in weight loss, decreased skin turgor, and sunken eyes. If this continues and is not treated immediately, it will result in gastritis. Increased stomach acid will exacerbate nausea and vomiting in pregnant women.

Psychological factors can be a tool for the development of hyperemesis gravidarum. Ambivalence towards pregnancy and conflicting feelings regarding the prospective role of the mother, such as body changes and lifestyle changes, can cause episodic vomiting. Women with psychological problems who have normal reaction patterns to stress often experience gastrointestinal disorders ([Austin, 2019](#)).

In order to prevent the occurrence of hyperemesis, it is necessary to provide knowledge for pregnant women, for example through classes for pregnant women, especially for primiparous mothers, by explaining to mothers about physical and psychological changes during pregnancy, preparation for parenthood, and explaining to mothers the danger signs of pregnancy, especially hyperemesis gravidarum ([Anderson, 2021](#)). [Jacob \(2018\)](#) added, to prevent the occurrence of hyperemesis, it is necessary to pay attention since in the womb by diligently controlling pregnancy so that pregnancy disorders do not occur, especially for mothers who also work outside the home so that any health problems can be handled properly. The psychological condition of pregnant women who tend to be more unstable than women who are not pregnant so they need a lot of support from their families, especially husbands ([Ioannidou, 2019](#)). Husband's support is important in pregnancy, husbands are expected to always be able to motivate, help and assist pregnant women in dealing with pregnancy complaints so that mothers do not feel alone because continued maternal anxiety will cause the mother's appetite to decrease, physical weakness and excessive nausea and vomiting ([Chauhan, 2018](#)).

Objective study this study aimed to determine the relationship between parity and psychology with the incidence of hyperemesis gravidarum in first trimester pregnant women

II. METHODS

Research design is a description of the overall activity of researchers during research work, from preparation to research implementation. The research design used in this study is correlation research, namely research that aims to determine the relationship between two or more variables with the data collection process which is only carried out once for each research variable. The approach used is cross sectional, namely research in which the independent variable and the dependent variable are measured simultaneously and carried out for a moment or once.

The population in this study were all first trimester pregnant women at the Wairasa Health Center, Central Sumba Regency, East Nusa Tenggara with an average number of 26 people per month and the sample in this study was 26 respondents. The sampling technique used is Total Sampling.

Instrument is a measuring tool used in research. In this study, the measuring instrument used was a questionnaire. The data analysis technique used to partially test the relationship between variables is the Spearman rho test. The calculation process is carried out using the Statistical Program for Social Science (SPSS) computer program version 17.0.

The participants were assured that their engagement was voluntary, and that anonymity, privacy, and confidentiality of the data were guaranteed. Furthermore, they were informed about the purpose and the method of the study before signing a written informed consent.

III. RESULTS

Parity Identification

Table 1 Tabulation of Parity of First Trimester Pregnant Women

No	parity	Frequency	Percentage
1	Primipara	11	42.3%
2	Multipara	13	50.0%
3	Grande Multipara	2	7.7%
	Amount	26	100%

Based on the table, it is known that out of 26 respondents, half of the respondents were multiparous mothers, namely 13 respondents (50.0%).

Identification of Psychological State

Table 2 Tabulation of the Psychological Condition of First Trimester Pregnant Women

No	Psychology	Frequency	Percentage
1	Normal	4	15.4%
2	Minor disturbance	14	53.8%
3	Moderate disturbance	5	19.2%
4	Severe disturbance	3	11.5%
	Amount	26	100%

Based on the table, it is known that of the 26 respondents, most of the respondents experienced mild psychological disorders as many as 14 respondents (53.8%).

Identification of Hyperemesis Gravidarum

Table 3 Tabulation Hyperemesis Gravidarum Incident

No	Incidence of Hyperemesis Gravidarum	Frequency	Percentage
1	There is no hyperemesis gravidarum	16	61.5%
2	There is hyperemesis gravidarum	10	38.5%
	Amount	26	100%

Based on table 4.6, it is known that of the 26 respondents, the majority of respondents did not have hyperemesis gravidarum as many as 16 respondents (81.5%).

Analysis of the Relationship of Parity with the Incidence of Hyperemesis Gravidarum

Table 4 Tabulation Cross Relationship with Parity with Hyperemesis Gravidarum Incidence

parity	Hyperemesis				Total	
	There is no hyperemesis gravidarum		There is hyperemesis gravidarum			
	F	%	F	%	F	%
Primipara	1	9.1	10	90.9	11	100
Multipara	13	100	0	0.0	13	100
Grande Multipara	2	100	0	0.0	2	100
Amount	16	61.5	10	38.5	26	100
P value : 0.001 α : 0.05 CC : -0.884						

Based on table 4. 7 it is known that from 11 primiparous respondents almost entirely (90.1%) hyperemesis gravidarum occurred, while from 13 multiparous mothers and 2 grande multiparous mothers all (100%) did not occur hyperemesis gravidarum.

Based on data analysis using the Spearman Rank test, the value of sig (2-tailed) or $p = 0.001$ and error level or $\alpha = 0.05$, so $p < \alpha$, $0.001 < 0.05$ so H_1 is accepted, meaning that there is a parity relationship with the incidence of hyperemesis gravidarum in Wairasa Health Center, Central Sumba Regency, East Nusa Tenggara. *Coefficient value correlation* of -0.884 means that the strength of the relationship is included in the very strong category. The relationship between variables is negative, meaning that the more often the mother experiences parity, the less the incidence of hyperemesis gravidarum.

Analysis of the Psychological Relationship with the Incidence of Hyperemesis Gravidarum

Table 5 Tabulation Cross Relationship with Psychological Conditions with Hyperemesis Gravidarum Incidence

Psychological	Hyperemesis				Total	
	There is no hyperemesis gravidarum		There is hyperemesis gravidarum			
	F	%	F	%	F	%
Normal	4	100	0	0.0	4	100
Minor disturbance	10	71.4	4	28.6	14	100
Moderate disturbance	2	40.0	3	60.0	5	100
Severe disturbance	0	0.0	3	100	3	100
Amount	16	61.5	10	38.5	26	100
P value : 0.003 α : 0.05 CC : 0.566						

Based on table 4. 8 it is known that of the 4 respondents with normal psychology entirely (100%) there is no hyperemesis gravidarum, of the 14 respondents who experience mild psychological disorders most (71.4%) do not have hyperemesis gravidarum, of the 5 respondents who experience the disorder In moderate psychology, most (60.0%) had hyperemesis gravidarum and of the 3 respondents who had severe psychological disorders (100%) had hyperemesis gravidarum.

Based on data analysis using the Spearman Rank test, the value of sig (2-tailed) or $p = 0.003$ and error level or $\alpha = 0.05$, so $p < \alpha$, $0.003 < 0.05$ so H_1 is accepted, meaning that there is a relationship between psychological disorders and the incidence of hyperemesis gravidarum at the Wairasa Health Center, Central Sumba Regency, East Nusa Tenggara. *Coefficient value correlation* of 0.566 means that the strength of the relationship is in the medium category. The

relationship between variables is positive, meaning that the more severe the psychological disorder of pregnant women, the incidence of hyperemesis gravidarum will also occur.

Data analysis

The value of the coefficient of determination in the logistic regression model is shown by the value of Mc Fadden, Cox and Snell, Nagelkerke R Square. The table of determination can be seen in the table below:

Table 6 Results of Ordinal Regression Test Analysis

Pseudo R-Square	
Cox and Snell	.680
Nagelkerke	.924
McFadden	.856
Link function: Logit.	

The table above shows the Mc Fadden coefficient of determination of 0.856 while Cox and Snell's coefficient of determination is 0.680 and Nagelkerke's coefficient of determination is 0.924 or 92.4%. The Nagelkerke coefficient of 92.4% means that the independent variables parity and psychology are associated with the incidence of hyperemesis gravidarum in general by 92.4% while 7.6% is associated with other factors not included in the model testing.

IV. DISCUSSION

Based on the ordinal regression results, the Mc Fadden coefficient of determination is 0.856 while the Cox and Snell coefficient of determination is 0.680 and Nagelkerke's coefficient of determination is 0.924 or 92.4%. The Nagelkerke coefficient of 92.4% means that the independent variables parity and psychology are associated with the incidence of hyperemesis gravidarum in general by 92.4% while 7.6% is related to other factors not included in the model test.

Meanwhile, from the results of the correlation coefficient between parity and psychology, there are differences in the level of strength of the relationship, where the correlation coefficient value of the parity relationship with the incidence of hyperemesis gravidarum is 0.884, meaning that the strength of the relationship is included in the very strong category (Fejzo, 2019). While the correlation coefficient value of the psychological relationship with the incidence of hyperemesis gravidarum is 0.566, meaning that the strength of the relationship is in the medium category. Based on this, parity has a stronger relationship with the incidence of hyperemesis gravidarum compared to psychological (Mitchell-Jones, 2017).

According to the researcher's assumption, hyperemesis in primiparous pregnancies is biologically not optimal in terms of emotions, tends to be unstable, mentally immature so that it is easy to experience shocks which result in a lack of attention to meeting nutritional needs during pregnancy. In mothers with primiparous parity, psychological factors play an important role in this disease, fear of pregnancy and childbirth, fear of responsibility as a mother can cause mental conflicts that can aggravate nausea and vomiting as an unconscious expression of reluctance to become pregnant (Jansen, 2021).

Parity is one of the factors that contribute to the high tendency of hyperemesis gravidarum to occur as a condition that results in pathology for the mother and the fetus she contains (Ariatna Aguilera, 2021). Hyperemesis gravidarum is more common in women who are pregnant for the first time and in women with high parity such as mothers who have experienced their fourth pregnancy. their children, this can cause mental conflicts that can exacerbate nausea and vomiting (Beevi, 2016).

Parity 2-3 is the safest parity in terms of maternal mortality. Parity 1 and parity > 3 have higher maternal mortality. Higher parity, higher maternal mortality. Nausea and vomiting occur in 60-80% primigravida and 40-60% multigravida, this feeling of nausea is caused by increased levels of the hormone estrogen and chioronic gonodotropin (HCG) possibly due to the central nervous system or reduced gastric emptying (Hizli, 2012). This theory is supported by the research of Kjeldgaard et al

(2017), which found that primiparous parity tends to experience hyperemesis gravidarum, multipara parity tends not to experience hyperemesis gravidarum.

Based on data analysis using the Spearman Rank test, the value of sig (2-tailed) or $p = 0.003$ and error level or $= 0.05$, so $p < 0.003 < 0.05$ so H_1 is accepted, meaning that there is a relationship between psychological disorders and the incidence of hyperemesis gravidarum at the Wairasa Health Center, Central Sumba Regency, East Nusa Tenggara. The correlation coefficient value of 0.566 means that the strength of the relationship is in the medium category. The relationship between variables is positive, meaning that the more severe the psychological disorder of pregnant women, the incidence of hyperemesis gravidarum will also increase.

The relationship between psychological factors is likely that women refuse to get pregnant or are not wanted, are uncomfortable with their pregnancy, are afraid of losing their jobs, and break up with their husbands. Suspected to be a factor hyperemia gravidarum from the atmosphere (trovik, 2016). Hyperemesis gravidarum can be caused by psychological effects in the form of anxiety, guilt and anger if the symptoms of nausea and vomiting are getting worse. In addition, there can be a conflict between dependence on a partner and loss of control if a woman stops working. Contact with other people also changes because women go through very complex changes to their pregnancy (CakalozDamla, 2020). This can lead to feelings of isolation and loneliness. This statement is supported that one in three women with nausea and vomiting experience stress and family divisions, emotional disturbances and impaired social functioning. This happens to women who work where almost 50% experience a decrease in work efficiency and 25% need time to take a break from work (Mitchell-Jones, 2020)

V. CONCLUSION

There is a parity relationship with the incidence of hyperemesis gravidarum at the Wairasa Health Center, Central Sumba Regency, East Nusa Tenggara. Coefficient value correlation of -0.884 means that the strength of the relationship is included in the very strong category. There is a relationship between psychological disorders and the incidence of hyperemesis gravidarum at the Wairasa Health Center, Central Sumba Regency, East Nusa Tenggara. Coefficient value correlation of 0.566 means that the strength of the relationship is in the medium category. The results of ordinal logistic regression analysis with the Nagelkerke coefficient value of 92.4% means that the independent variables parity and psychology affect the incidence of hyperemesis gravidarum in general by 92.4% while 7.6% is influenced by other factors not included in the model test.

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