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Factors Associated with the Incidence of Hyperemesis Gravidarum among First-Trimester Pregnant Women

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ABSTRACT

Hyperemesis gravidarum is the grievance of nausea and severe vomiting more than 10 times in a day during pregnancy which may cause dehydration, weight loss or electrolyte disorders, that disturbing in daily activities and harm the fetus in the womb. Hyperemesis-related unfavorable baby outcomes are primarily restricted to women who have not gained enough weight during pregnancy. The hyperemesis gravidarum incidence reaches 0,3-3,2% of through amount from the pregnancy in the world and this one cause of mother treated in the hospital on first trimester of pregnancy. The purpose of this research is to determine what are the factors that influence hyperemesis gravidarum among pregnant women at first trimester in Bhakti Husada Cikarang Hospital Bekasi Regency West Java Province in 2017.This research was an analytic survey by cross-sectional design, sampling technique was total sampling which were 96 pregnant women in the first trimester. Data were collected using Hamilton Rating Scale for Anxiety (HRS-A) questionnaire. Statistic analysis performed was univariate and bivariate analysis. From the univariate analysis result is known that percentage of respondents who experienced Hyperemesis gravidarum incidence were 63.5%, the majority of respondents were primigravida was (55.2%), respondents who had a hereditary history of hyperemesis gravidarum was (55.2%), and respondents who experienced mild anxiety was (55.2%), while there was significant correlation between hyperemesis gravidarum and gravida status (p=0.005), hyperemesis gravidarum and hereditary history (p=0.005), and also hyperemesis gravidarum and anxiety levels (p=0.005). The incident rate of hyperemesis gravidarum in Bhakti Husada hospital caused by gravida status, hereditary history, and anxiety level. It is expected that health personnel to provide counselling about health lifestyle and their family to provide more mental support and attentions for pregnant women to prevent the occurrence of anxiety that resulted by hyperemesis gravidarum.

Keywords: hyperemesis gravidarum; gravida; hereditary; anxiety; pregnancy

INTRODUCTION

The number of deaths of women during pregnancy or within 42 days of termination of pregnancy, regardless of the duration and place of delivery, attributable to the pregnancy or its management, and not to other causes, per 100,000 live births is called the maternal mortality rate (MMR) (WHO, 2015). World Health Organization (WHO) data shows that in 2015 there were 216 maternal deaths per 100,000 live births due to complications of pregnancy and childbirth, while the total number of maternal deaths is estimated to reach 303,000 deaths worldwide (WHO, 2015). WHO also noted that the incidence of emesis gravidarum reached 12.5% of all pregnancies in the world (WHO, 2015) while the incidence of hyperemesis gravidarum according to Fossum et al. (2016) is between 0.3-3.2% of all pregnancies in the world. According to Depkes RI (2009), >80% of pregnant women in Indonesia experience nausea and vomiting, and hyperemesis gravidarum occurs in 1-3% of all pregnancies in Indonesia. Data on visits to pregnant women in Indonesia in 2012 showed that 14.8% of mothers experienced hyperemesis gravidarum from all pregnancies (MOH RI, 2013).

Hyperemesis gravidarum can cause dehydration and if dehydration is not treated properly, it will endanger the life of the mother and baby (Morgan, 2009). In addition to the physiological impact on a woman's life, hyperemesis gravidarum also has psychological, social, and spiritual impacts. The impact of hyperemesis gravidarum not only threatens the woman's life but can also cause adverse effects on the fetus, such as abortion, low birth weight, premature birth, and malformations in the newborn (Runiari, 2010; Azizah et al., 2022). The causes of hyperemesis gravidarum in the world

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include Helicobacter pylori (>75%) (Golberg et al., 2007), anxiety (48%) (Jueckstock et al., 2010), and heredity (33%), while impacts include 99% of mothers with hyperemesis gravidarum are vulnerable to hospitalization (Vikanes et al., 2012), limitation of patients' daily activities (82.8%) (Jueckstock et al., 2010), 35% of working women will lose productive time at work, 26% lose time from household chores (Sheehan & Penny, 2007), 17.9% of mothers are at risk of giving birth to Small of Gestational Age (SGA) babies, and 7.4% premature labor (Veenendaal et al., 2011).

Hyperemesis gravidarum is excessive nausea and vomiting that begins between 4-10 weeks of gestation in the first trimester and will disappear before 20 weeks of pregnancy in the second trimester (Varney, 2007). The cause of hyperemesis gravidarum is not known with certainty. Theories suggest that the causes of hyperemesis gravidarum include anemia, primigravida, psychosomatics (anxiety, depression, stress), hereditary history, human chorionic gonadotropin (HCG) factor, metabolic, allergy, infection, and diet (Runiari, 2010). Some studies also mention that women with young age and primigravida tend to be more at risk of hyperemesis gravidarum (McCarthy et al., 2010). In addition, hyperemesis gravidarum is an event that can be passed down from mother to daughter (Vikanes et al., 2010). Hyperemesis gravidarum can also be caused by a lack of nutritional intake by pregnant women because everything eaten and drunk is vomited all so that it can cause anemia, from anemia can cause bleeding then shock and the worse situation is death in the mother (Morgan, 2009).

From the results of the preliminary survey, researchers obtained data from Bhakti Husada Hospital Cikarang, Bekasi Regency, West Java Province, in the period January 1, 2016, to December 31, 2016, there were 380 cases of pregnant women with hyperemesis gravidarum out of 2435 total pregnant women (15.6%), while in 2017 from January to August the incidence of hyperemesis gravidarum has reached 256 cases. The causes of hyperemesis in Bhakti Husada Cikarang Hospital are primigravida 36%, psychological 32%, hereditary history 20%, and 12% others, while the impact includes limited daily activities 47%, dehydration in the mother 30%, LBW 20% and 3% others.

The incidence of hyperemesis gravidarum can be reduced, one of which is by knowing the factors that cause the incidence. Vikanes et al. (2010), in a journal entitled "Recurrence of hyperemesis gravidarum across generations: population based cohort study" which states that the incidence of hyperemesis gravidarum is influenced by genetic factors (hereditary history), while Aksoy et al. (2015) in a journal entitled "Depression levels in patients with hyperemesis gravidarum: a prospective case control study" which states that there is a relationship between psychology (level of depression) and hyperemesis gravidarum. Based on the background described above, the researcher is interested in examining "Factors associated with the incidence of hyperemesis gravidarum in first trimester pregnant women at Bhakti Husada Hospital Cikarang, Bekasi Regency, West Java Province in 2017" with variables of gravida status, hereditary history and anxiety level measured by the Hamilton Rating Scale for Anxiety (HRS-A) questionnaire.

METHOD

The method used in this study is an analytic survey, which studies the dynamics of the relationship between the independent and dependent variables using a cross-sectional approach. The population in this study were all pregnant women in the first trimester who visited the Obstetrics Clinic of Bhakti Husada Hospital Cikarang, Bekasi Regency, West Java Province in the 2017 period, November 06-27, 2017, a total of 96 people. This sampling uses inclusion criteria and exclusion criteria. The inclusion criteria in this study are first-trimester pregnant women willing to be research subjects. While the exclusion criteria are: First-trimester pregnant women who refuse to participate in the study, have chronic gastritis, multiple pregnancies, and first-trimester pregnant women with molar pregnancy. All the participants were delivered informed consent before joining the study. The research instrument in this study used questionnaire data to obtain data on the general characteristics of respondents and anxiety levels measured by the Hamilton Rating Scale for Anxiety (HRS-A) consisting of 14 question items. Data were analyzed using univariate and bivariate analysis. Activities in processing data include editing, coding, scoring, tabulating, data entry, and cleaning. The study did not conduct validity and reliability tests because the anxiety level instrument used the standardized Hamilton Rating Scale for Anxiety (HRS-A) or Hamilton Anxiety Rating Scale (HARS).

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RESULTS

Table 1. Distribution of First Trimester Pregnant Women with Hyperemesis Gravidarum

Variables	Group	Frequency (f)	Percentage (%)
Incidence of Hyperemesis gravidarum	Yes	61	63.5
	No	35	36.5
Gravida status	Primigravida	53	55.2
	Multigravida	43	44.8
Hereditary Factors	Yes	53	55.2
	None	43	44.8
Anxiety Level	None	7	7.3
	Mild	24	25
	Moderate	53	55.2
	Severe	12	12.5
	Very severe	0	0

Based on table 1, it can be concluded that out of 96 respondents, 61 (63.5%) respondents experienced hyperemesis gravidarum, 53 people (55.2%) respondents who are primigravida (first time pregnant), 53 people (55.2%) had a hereditary history of hyperemesis gravidarum, the number of respondents who experienced moderate anxiety ranked the highest, which is 53 people (55.2%), and followed by respondents who experience mild anxiety, which is 24 people (25.0%).

Table 2. The Relationship Between Gravida Status and The Incidence of Hyperemesis Gravidarum

Gravida status	Incidence of Hyperemesis Gravidarum				Total		p-value
	Yes		No				
	f	%	f	%	N	%	
Primigravida	44	45.8	9	9.4	53	55.2	0.000
Multigravida	17	17.7	26	27.1	43	44.8	
Total	61	63.5	35	36.5	96	100	

Based on table 2, it is known that the majority of respondents who experienced hyperemesis gravidarum are primigravida respondents, which consisted of 44 (45.8%) respondents, while the majority of respondents who did not experience hyperemesis gravidarum were multigravida, which consisted of 26 people (27.1%). From the statistical test, the p-value (0.000) < α (0.05) it can be concluded that there is a significant relationship between gravida status and the incidence of hyperemesis gravidarum among first trimester pregnant women at Bhakti Husada Hospital Cikarang, Bekasi Regency, West Java Province in 2017.

Table 3. The Relationship Between Hereditary History and The Incidence of Hyperemesis Gravidarum

Hereditary Factors of Hyperemesis Gravidarum	Incidence of Hyperemesis Gravidarum				Total		p-value
	Yes		No				
	f	%	f	%	N	%	
Present	53	55.2	0	0	53	55.2	0.000
None	8	8.3	35	36.5	43	44.8	
Total	61	63.5	35	36.5	96	100	

Based on table 3, it is known that the majority of respondents who experienced hyperemesis gravidarum are respondents who had a hereditary history of hyperemesis gravidarum, which consisted of 53 people (55.2%), and the majority of respondents who did not experience hyperemesis gravidarum are respondents who did not have a hereditary history of hyperemesis gravidarum, which consisted of 35 people (36.5%). From the statistical test, the p-value (0.000) < α (0.05), it can be concluded that H0 was rejected and that there is a significant relationship between hereditary history and the incidence of hyperemesis gravidarum among first-trimester pregnant women at Bhakti Husada Hospital Cikarang, Bekasi Regency, West Java Province in 2017.

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Table 4. The relationship between anxiety level and the incidence of hyperemesis gravidarum

Anxiety Levels	Incidence of Hyperemesis Gravidarum				Total		p-value
	Yes		No				
	f	%	f	%	N	%	
No Anxiety	0	0	7	7.3	7	7.3	0.000
Mild Anxiety	5	5.2	19	19.8	24	25	
Moderate Anxiety	44	45.8	9	9.4	53	55.2	
Severe Anxiety	12	12,5	0	0	12	12.5	
Very Severe Anxiety	0	0	0	0	0	0	
Total	61	63.5	35	36.5	96	100	

Based on table 4, it is known that the majority of respondents who experienced hyperemesis gravidarum were respondents who experienced moderate anxiety, which consisted of 44 people (45.8%), and followed by respondents who experienced severe anxiety, which consisted of 12 people (12.5%), while the majority of respondents who did not experience hyperemesis gravidarum were respondents who experienced mild anxiety, which consisted of 19 people (19.8%), and followed by respondents who experienced moderate anxiety, which consisted of 9 people (9.4%). From the statistical test, the p-value (0.000) < α (0.05) can be concluded that H0 was rejected, that there is a significant relationship between anxiety level and the incidence of hyperemesis gravidarum among first-trimester pregnant women at Bhakti Husada Hospital Cikarang, Bekasi Regency, West Java Province in 2017.

DISCUSSION

The results of the study showed that of the total first trimester pregnant women, 96 respondents, the majority of respondents experienced hyperemesis gravidarum (63.5%). According to Rukiyah (2010), one of the complications or complications in first trimester pregnancy is hyperemesis gravidarum. Some studies also mention that women with young age and primigravida tend to be more at risk of hyperemesis gravidarum (McCarthy et al., 2014). The statement of McCarthy et al and Vikanes et al is in line with the research conducted by the researchers, namely there were 61 people (63.5%) who experienced hyperemesis gravidarum from a total of 96 first trimester pregnant women who visited the Obstetrics Clinic of Bhakti Husada Hospital Cikarang. The first trimester pregnant women who were recorded at the Obstetrics Clinic of Bhakti Husada Hospital Cikarang consisted of pregnant women who were referred from midwives or doctors at the first level of health facilities and post-hospitalization pregnant women with a diagnosis of hyperemesis gravidarum at Bhakti Husada Hospital Cikarang. Based on the results of the researcher's observations, most of the incidence of hyperemesis gravidarum occurred due to first pregnancy factors, a hereditary history of hyperemesis gravidarum from her mother, and psychological factors. This is in accordance with the theory about the factors that cause the incidence of hyperemesis gravidarum mentioned above. Based on the results of the study, it can be concluded that of the total first trimester pregnant women, consisted of 96 respondents, the majority of respondents were primigravida (55.2%). This is in accordance with Manuaba's (2010) statement that nausea and vomiting occurs in 60-80% of primigravida and 40-60% of multigravida. Gravida is a woman who is pregnant (Oxorn, 2010) while primigravida is a woman who is pregnant for the first time.

Based on the results of the study, it is known that out of 96 respondents, the majority of respondents have a hereditary history of hyperemesis gravidarum (55.2%). This is in accordance with the opinion of the researchers, Hyperemesis gravidarum is passed from mother to daughter. Maternal intergenerational effects have been observed with an increased likelihood of hyperemesis gravidarum among women whose mothers have also experienced hyperemesis gravidarum during previous pregnancies (Fejzo et al., 2012; McCarthy et al., 2011; McCarthy et al., 2014;). Vikanes et al. (2010) in their research entitled "Recurrence of hyperemesis gravidarum across generations: population based cohort study" also found that if the mother has hyperemesis gravidarum, the risk of hyperemesis gravidarum that will be experienced by her daughter (recurrence risk) is 3.00% compared to mothers who do not experience hyperemesis gravidarum (1.05%).Based on the results of the study, it is known that out of 96 respondents, the number of respondents who experienced moderate anxiety ranked the highest (55.2%) and followed by respondents who experienced mild anxiety (25%). In the study, it was found that the majority of respondents experienced moderate anxiety, characterized by maternal complaints including fatigue, feeling an increased pulse, increased breathing, decreased concentration, irritability and forgetfulness, followed by mild anxiety where the majority of mothers experienced fatigue as stated by Poursharif et al. (2008) Women reported fatigue, unable to care for themselves. According to psychosomatic theory, hyperemesis gravidarum is a state of psychological disorder that is transformed into physical symptoms. An unplanned and unwanted

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pregnancy and the pressures of work and income cause feelings of anxiety, grief, ambivalence, and conflict and these can be psychological factors that cause hyperemesis gravidarum (Runiari, 2010). One of these psychological factors is anxiety. Excessive anxiety can spur the incidence of hyperemesis gravidarum (Mullin et al., 2012).

Respondents who experienced hyperemesis gravidarum were primigravida respondents, while most respondents who did not experience hyperemesis gravidarum were multigravida respondents. From the statistical test, the p-value = 0.000 was obtained, indicating a significant relationship between gravida and the incidence of hyperemesis gravidarum in trimester pregnant women. Winkjosastro, (2007) revealed that primigravida mothers have not been able to adapt to the hormones such as estrogen and HCG. This hormone increase increases stomach acid levels, so complaints of nausea appear. This complaint usually appears in the morning when the mother's stomach is empty and there is an increase in stomach acid. The results of this study are in accordance with the results of research conducted by (Mariantari, 2014) in her research entitled "The Relationship between Husband Support, Maternal Age, and Gravida to the Incidence of Hyperemesis Gravidarum", namely there is a relationship between gravida to the incidence of hyperemesis gravidarum with p-value = 0.028. And (Warsuli, 2016), in his research entitled "The Relationship between Primigravida and the Incidence of Hyperemesis Gravidarum at the Pringapus Health Center, Pringapus District, Semarang Regency in 2016", that there is a relationship between primigravida and the incidence of hyperemesis gravidarum with p-value = 0.000.

The results shows that majority of respondents who experienced hyperemesis gravidarum were respondents who had a hereditary history of hyperemesis gravidarum, and the majority of respondents who did not experience hyperemesis gravidarum were respondents who did not have a hereditary history of hyperemesis gravidarum. From the statistical test, the p-value = 0.000 was obtained, which means that there is a significant relationship between hereditary history and the incidence of hyperemesis gravidarum in first trimester pregnant women. Genetics (hereditary history) can also be related to the incidence of hyperemesis gravidarum because there is an increased incidence of nausea and vomiting in women who have mothers who experience these symptoms during their pregnancy (Tiran, 2008). Zhang et al. (2011) stated that patients who have a hereditary history of hyperemesis gravidarum have an 18-fold risk compared to patients who do not have a history of hyperemesis gravidarum. The results of this study are in accordance with the results of research conducted by Zhang et al. (2011) in their research entitled "Familial Aggregation of Hyperemesis Gravidarum", that women who have a hereditary history of hyperemesis gravidarum have a significantly increased risk of experiencing the incidence of hyperemesis gravidarum themselves (OR = 17.3, p = 0.005). other than that research Vikanes et al. (2010) that there is a relationship between the incidence of hyperemesis gravidarum and hereditary history. and the risk of hyperemesis in pregnant women is tripled if the woman's mother has experienced hyperemesis in pregnancy.

Based on the results of the study, it is known that the majority of respondents who experienced hyperemesis gravidarum were respondents who experienced moderate anxiety and followed by respondents who experienced severe anxiety, while the majority of respondents who did not experience hyperemesis gravidarum were respondents who experienced mild anxiety and followed by respondents who experienced moderate anxiety. From the statistical test, the p-value = 0.000 was obtained, indicating that there was a significant relationship between the level of anxiety and the incidence of hyperemesis gravidarum in first trimester pregnant women. The results of the research conducted by this researcher are in accordance with the results of a cohort study conducted by (Tan et al., 2014) The study showed that anxiety in first trimester pregnancy was strongly associated with the incidence of hyperemesis gravidarum. Of the 100% of first trimester pregnant women who experienced the incidence of hyperemesis gravidarum, there were 69% of pregnant women who experienced anxiety, this percentage dropped in the third semester to 19%. In addition, in another study, Tan et al. (2010) reported that women with hyperemesis gravidarum met the criteria for anxiety by 47%, and depression and anxiety scores were significantly higher in women with hyperemesis gravidarum ($p<0.05$) (McCharty et al., 2014). Simsek et al. (2011) also stated that there was an association between anxiety and the incidence of hyperemesis gravidarum (p-value 0.049), while Poursharif (2008) found in his study that there was an association between psychiatric conditions (eg, depression, anxiety or drug abuse) pre-pregnancy diagnosed with hyperemesis gravidarum ($p < 0.001$).

CONCLUSION

The majority of respondents at the Obstetrics Clinic of Bhakti Husada Hospital, Cikarang, Bekasi Regency, West Java Province experienced hyperemesis gravidarum. The majority of respondents were primigravida, had a hereditary history of hyperemesis gravidarum, and experienced moderate anxiety levels, and were followed by respondents who experienced mild anxiety. There is a significant relationship between primigravida (p=0.000), hereditary history (p=0.000), and moderate anxiety (p=0.000) with the incidence of hyperemesis gravidarum among first-trimester pregnant women at Bhakti Husada Hospital Cikarang, Bekasi Regency, West Java Province. Researchers are expected to develop and continue this research in more depth by using other variables that have not been studied by expanding the variables to be

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studied, research subjects, and different research methods, such as the relationship between diet before pregnancy and the incidence of hyperemesis gravidarum.

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