ACH Med J
(2023) 3: 202-207
ISSN:2822-5872
Doi : 10.5505/achmedj.2023.13008

RESEARCH ARTICLE

The Role Of Psychiatric And Demographic Factors In The Etiology of Hyperemesis Gravidarum

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Article Info

Received Date: 11.05.2023
Revision Date: 02.08.2023
Accepted Date: 22.08.2023

Keywords:

Hyperemesis gravidarum, Depression, Anxiety, Rosenberg scale, Multidimensional perceived social support scale, The dyadic adjustment scale

Abstract

Introduction: Our aim in this study is to show how various aspects of the psychosocial health status and demographic features relate to the development and severity of hyperemesis gravidarum (HG). **Methods:** A total of 100 women before 20 weeks of pregnancy were enrolled in a study. The pregnant women were divided into three groups, hospitalized hyperemesis gravidarum patients, HG outpatients, and control group respectively. Pregnant women were questioned by scales after written consent. These scales were Rosenberg's self-esteem scale and multidimensional perceived social support scale and The Dyadic Adjustment Scale. SPSS 20.0 software (SPSS Inc., Chicago, USA) was used for analyses. Statistical significance was set at $p< 0.05$. **Results:** Duration of marriage significantly differs between hospitalized HG group and the control group ($p=0.045$), and between the HG group and the control group ($p=0.006$). Parity significantly differs for nulliparity between hospitalized HG and nonhospitalized HG groups with the control group. According to our data among all parameters, some (age, educational status of women and husband, types of family, economic status, previous history of depression, planned pregnancy, feeling of anxiety caused by pregnancy, having health insurance, working status, anxiety, and depression) were found not to be related **Conclusion:** Our study provides powerful scientific evidence of a psychogenic etiology by putting forth that psychological factors have no effect on the risk of HG.

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Introduction

Nausea and vomiting are very common symptoms (%50-80) in the first trimester of gestation. Prolonged and severe nausea and vomiting are called hyperemesis gravidarum (HG) .[1] HG symptoms can affect daily life, working quality, and social interactions.[2-3-4] Pregnant women may experience fatigue and burden from HG due to its nature, and concerns have been expressed about the advent of psychiatric disorders at this time of vulnerability.[5] Several research has stated that HG is predisposed to psychiatric illnesses, whereas others have argued that HG itself produces symptoms of posttraumatic stress disorder (PTSD), depression, and anxiety.[6] However, it is unclear whether psychiatric symptoms may also play a role in the pathogenesis of HG. Psychological status and low social support are commonly unheeded risk factors of HG. Psychosocial health is a complex structure, enclosing psychological and social areas such as depression, stress, self-sufficiency, and social support. It is already known that the prevalence of psychosocial health issues such as depression and anxiety, which negatively affect pregnant women and infants, rises throughout pregnancy. Depression prevalence among pregnant women was reported at 14.9%.[7]

Whether depression causes HG, or HG causes depression is still a controversial issue, and studies on this subject are lacking in the literature. Evaluating the risk factors and disease etiology for women has effects on counseling, particularly for the elevated percentage of women that revise reproductive plans (37%) due to their experiences with HG.[8] In this study, we aim to show how various aspects of the psychosocial health status and demographic features relate to the development and severity of hyperemesis gravidarum.

Material and Methods

The present study was conducted in the training and research hospital, a tertiary care center from May 2019 to October 2019. The study was approved by the local ethics committee (approval number: 2019/56) and was performed per the ethical standards described in the Declaration of Helsinki. All participants signed a written informed consent prior to the study.

The women before 20 weeks of pregnancy were enrolled in a study. The pregnant women were divided into three groups, hospitalized hyperemesis gravidarum, HG, and control group respectively. The gestational week was decided with an ultrasound and the last menstruation date. If there were more than 7 days of inconsistency between gestational weeks based on crown-rump length (CRL) and last menstrual period, a gestational week was decided according to CRL.

In all groups, the pregnant women's sociodemographic and clinical characteristics such as ages, parities, gestational weeks, etc. were questioned with a form at the admission to the hospital whether inpatient or outpatient clinics. HG was defined as repeated nausea and vomiting in early pregnancy, not due to other causes (e.g., gastroenteritis) with any of the following: inpatient admission, day stay with IV fluids, or vomiting associated with loss of 5% of her weight.[9] McCarthy FP, Khashan AS, North RA, et al.SCOPE Consortium A prospective cohort study investigating associations between hyperemesis gravidarum and cognitive, behavioral, and emotional well-being in pregnancy. PLoS One. 2011;6(11):e27678.). Women with hospitalized HG were considered as severe HG and set out as one of the study groups. Women with systemic disease or psychiatric disorders, antenatal bleeding, fetal anomaly, multiple pregnancies, and pregnant women with difficulty understanding the questions of scales in the present study were excluded from the study.

Measurements:

Pregnant women were questioned by scales after written consent. These scales were Rosenberg's self-esteem scale and multidimensional perceived social support scale and Dyadic Adjustment Scale. The pregnant women were evaluated by scales about the relation between self-esteem, social support, and perception of the relationship as a couple with HG.

The Multidimensional Scale of Perceived Social Support (MSPSS) was originally developed by Zimet et al. in 1988.[10] The scale Turkish validation was conducted and the MSPSS consists of 12 items including a subjective evaluation of the sufficiency of social support perceived from three sources (family, friends, and special person). The higher the score means the higher the perceived social support.[11]

Rosenberg Self-Esteem Scale (RSES) is developed to measure self-esteem. The 10-item RSE scale is used to assess self-esteem. The instrument was initially created to gauge high school students' self-esteem. Nonetheless, since its creation, the scale has been applied to a wide range of populations, including adults, for which norms are available.[12] The scale includes 10 items that are

rated on a 4-point Likert-type scale. Higher scores correlate to higher levels of self-esteem. The Turkish version was validated by Çuhadaroğlu.[13]

The Dyadic Adjustment Scale (DAS) assesses the quality of relationships as perceived by couples. A relationship's one or both partners may complete the 32-item DAS rating test, which is written at an eighth-grade reading level.[14] This scale was developed in 1976 by Spanier. Turkish validity and reliability study was conducted by Fışıloğlu and Demir in 2000.[15]

The DAS is composed of 32 items and 4 sub-dimensions; dyadic satisfaction, couples commitment, dyadic consensus, dyadic cohesion, and dyadic affectional expression respectively. The majority of items use a 6-point format, with options scored from 0 to 5, ranging from either always agree to disagree or all the time to never. The total score is the sum of all items, higher scores reflect a higher perception of the quality of the relationship.

Statistical Analysis:

Continuous variables are reported as mean ± SD for normally distributed data and median (interquartile range) for skewed continuous data. Categorical variables are declared as numbers (percentages). Kruskal-Wallis test and the chi-square test or Fischer's Exact Test were applied to compare continuous and categorical data study groups. One-way ANOVA post-hoc tests were used for subgroup analyses. Normality assumption was tested using Shapiro–Wilk test. SPSS 20.0 software (SPSS Inc., Chicago, USA) was used for analyses. Statistical significance was set at $p< 0.05$.

Results

The study included a total of 100 pregnant women of which 17 pregnant women (17%) were in the group with hospitalized HG patients (inpatients), 46 pregnant women (46%) were in the group with nonhospitalized HG (outpatients), and 37 pregnant women were formed the control group (37%). The sociodemographic and clinical characteristics of the study groups were presented in Table 1.

Table 1: Sociodemographic and clinical characteristics of study groups

	Hospitalized HG (N=17)	HG (N=46)	Control group (N=37)	*P*
	Mean± SD	Mean± SD	Mean± SD	
Age	27±5,1	26,7±4,3	28±5,1	0.441
Duration of marriage	4.1±3.7	4.3±3.5	6,84±4.4	**0.007[a]**
Age at marriage	22.9±3.4	22.4±3.7	21.2±3.3	0.172
	Median (IQR)	Median (IQR)	Median (IQR)	
Gestational week	9 (2)	8.5 (3)	8 (4)	0.375
Number of household members	3 (3)	3 (2)	3 (1)	0.405
	N (%)	N (%)	N (%)	
Parity				**0.035[b]**
Nulliparity	9 (52.9%)	23 (50%)	7 (18.9%)	
Primiparity	4 (23.5%)	14 (30.4%)	16 (43.2%)	
Multiparity	4 (23.5%)	9 (19.6%)	14 (37.8%)	
Types of family				0.467
Nuclear family	13 (76.5%)	38 (82.6%)	33 (89.2%)	
Extended family	4 (23.5%)	8 (17.4%)	4 (10.8%)	
Employed women	3 (17.6%)	8 (17.4%)	5 (13.5%)	0.873
Employed husband	14 (82.4%)	45 (97.8%)	34 (91.9%)	0.097
Education of women				
Primary/ secondary school	11 (64.7%)	16 (34.8%)	24 (64.9%)	**0.011**
High school/ university	6 (35.3%)	30 (65.2%)	13 (35.1%)	
Education of husband				
Primary/ secondary school	7 (41.2%)	22 (47.8%)	18 (48.6%)	0.867
High school/ university	10 (58.8%)	24 (52.2%)	19 (51.4%)	
Economic status				
middle income				
Adequate income				
Having health insurance	13 (76.5%)	40 (87%)	34 (91.9%)	0.294
Previous history of depression	3 (17.6%	4 (8.7%)	5 (13.5%)	0.586
Planned pregnancy	16 (94.1%)	44 (95.7%)	35 (94.6%)	0.960
The feeling of anxiety caused by pregnancy				0.610
No	4 (23.5%)	19 (41.3%)	14 (37.8%)	
A little	8 (47.1%)	15 (32.6%)	16 (43.2%)	
Yes	5 (29.4%)	12 (26.1%)	7 (18.9%)	

HG: hyperemesis gravidarum,

[a]Duration of marriage significantly differs between hospitalized HG group and the control group (p=0.045), and between the HG group and the control group (p=0.006).

[b]Parity significantly differs for nulliparity between hospitalized HG and HG groups with the control group

The scores of the Dyadic Adjustment Scale with subscales, the Rosenberg Self-Esteem Scale, and the Multidimensional Scale of Perceived Social Support with subscales by study groups of pregnant women were presented in Table 2.

Tablo 2: The scores of the Dyadic Adjustment Scale with subscales, Rosenberg Self-Esteem Scale, and the Multidimensional Scale of Perceived Social Support with subscales by study groups of pregnant women

	Hospitalized HG Mean± SD	HG Mean± SD	Control group Mean± SD	*P*
Dyadic Adjustment Scale				
Dyadic satisfaction	41,8±4,2	41,7±4,6	41,4±6,8	0.945
Dyadic Cohesion	57,9±6,4	53,8±9,7	56,5±8,2	0.173
Dyadic Consensus	15,7±4,3	13,6±5	14,9±5	0.250
Affectional Expression	10,6±1,4	9,9±2,1	10,3±2	0.415
Rosenberg Self-Esteem Scale	31,4±7,2	32,2±4,8	32,9±4	0.599
Multidimensional Scale of Perceived Social Support				
Special person	11,1±7,9	15±8,5	15,8±8,1	0.137
Family	24,7±4,2	24±5,8	25±5,3	0.670
Friends	20,1±7,5	20,1±7,1	20,1±7,5	0.832

HG: Hyperemesis gravidarum, SD: standard deviation

Due to our data among all parameters; age, educational status of the woman and her husband, types of families, economic status, previous history of depression, planned pregnancy, the feeling of anxiety caused by pregnancy, having health insurance, working status, anxiety, and depression were found unrelated. Parity and duration of marriage were found to be related. Duration of marriage significantly differs between hospitalized HG group and the control group (p=0.045) and between the HG outpatient group and the control group (p=0.006). Parity significantly differs for nulliparity between hospitalized HG and HG outpatient groups with the control group.

Discussion

The health problems that HG patients experience throughout pregnancy and because of their quality of life may be a factor in their psychiatric problems.

In the current study, sociodemographic characteristics and self-esteem, perception of social support, and couple relations were investigated with regard to effects on the HG. According to our data among all parameters, some (age, educational status of women and husbands, types of families, economic status, previous history of depression, planned pregnancy, feeling of anxiety caused by pregnancy, having health insurance, working status, anxiety, and depression) were found unrelated, whereas others (parity, duration of marriage) were found related.

The individual's degree of confidence was assessed using the Rosenberg Self-Esteem Scale (RSES). However, there was no connection between a person's level of confidence and the occurrence or seriousness of HG. The Dyadic Adjustment Scale (DAS) measures how couples perceive the quality of their relationships. In our study when compared, the duration of marriage significantly differs between hospitalized HG group and the control group (p=0.045), and between the HG group and the control group (p=0.006). Parity significantly differs for nulliparity between hospitalized HG and HG groups with the control group. Anxiety and depressive symptoms were not different between HG patients and the control group in this study.

It is well known that parity rises with marital longevity. Since nulliparity is a recognized risk factor for HG, parity and the length of the marriage may serve as dependent variables. Hence, rather than psychological issues, the length of the marriage and the number of children are more likely to be dependent variables.

Our study has limitations, especially since the number of patients is limited and the subjects are not randomized from the whole population of HG sufferers. However, the results of this study have inferences for counseling.

Shorter overnight sleep durations and several daytime dysfunctions were detected, especially in the HG group, according to research by Yıldırım and colleagues. These outcomes may be a result of the mental health conditions of the individuals or their symptoms of nausea and vomiting.[16] In a study done in 2017, it is shown that not only depression but also anxiety disorders were more common among patients with HG compared to the control group.[17]

Most women with HG have no psychological diagnoses before HG development during pregnancy. The etiology of HG is unknown and studies still focus on psychiatric causes although the fact that this hypothesis has never been scientifically proven and most studies refute it.[18] In a study made in 2021, 60

pregnant women diagnosed with HG in the first trimester of their pregnancies, and 97 healthy pregnant women with characteristic features as the HG group were compared in terms of psychological resilience and anxiety levels. They detected no significant differences between the groups in terms of anxiety levels. Psychological resilience was measured using the Resilience Scale for Adults, and there was a significant difference between the groups.[19] Simpson et al. Found that pregnant women with HG scored significantly higher on the scales related to conversion disorder (p values <0.01) than did a control group. But there were no significant differences among HG women and the control group after their pregnancy.[20] D'Orazio et al. did not find any evidence for a psychosomatic etiology and association between HG and personality. Based on the findings of this pilot investigation, pregnant women with mild to moderate levels of NVP are no more likely than those without it to experience higher psychiatric problems. On the other hand, in terms of personality and psychological traits, women with HG were comparable to pregnant women with normal levels of NVP.[21]

There are no factors that have been clearly defined to increase the risk of HG including depression and anxiety symptoms. The Depression scale is high in women with HG and it is still a matter of debate which is the cause and which is the result. Unfortunately, an emphasis has been placed on the theory of psychiatry as the etiological factor of HG in the past, which was not supported very much by the current literature. Psychiatric disorders HG patients experience could be a result of HG's complicated pregnancy. The psychological theory that describes the pathogenesis of HG puts forward that the presence of conversion or somatization disorder or a patient's exaggerated response to stress can cause HG.[17] Although it is incorrectly assumed that emotional anguish causes HG, it is secondary to the extreme pain that it causes.[22]

In a study by Magtira et al., the psychological sequelae related to HG are found to be presumably the outcome of physical symptoms such as severe nausea and vomiting, medication, and hospitalization, and probably have no role in the etiology of the disease.[8]

In our study, we haven't found evidence to support that HG may have psychogenic etiology. Although the etiology of HG is not fully defined, we believe that physiological and genetic aspects may be more thoroughly identified. In this context, it may be more useful to conduct research in this direction.

Conclusion

In our study, we concluded that the duration of marriage reduces the risk of developing HG. Parity which is a known risk factor of HG increases with the duration of the marriage. The healthcare provider needs to understand the etiology of HG and it has effects on counseling. The effect of genetic factors in HG is becoming more and more clear It became more and more apparent that there is a genetic component of HG.[23] HG is not an enough studied condition of enough pregnancy that causes both short-term maternal physical and mental health problems. Besides, it may potentially result in lifetime effects on the fetus.[24] Considering this situation, analysis and prevention of HG etiological risk factors are important. According to the analysis we conducted and the conclusion we came to; although mistakenly believed to be the root of HG, depression and anxiety are secondary to the extreme misery induced by the condition. Our study provides powerful scientific evidence of a psychogenic etiology by putting forth that psychological factors do not affect the risk of HG.

Disclosures:

The authors declared no conflict of interest.

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