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Research / Araştırma

Psychiatric Symptoms, Perceived Social Support, Coping Styles, and Dyadic Adjustment in Pregnant Women with Hyperemesis Gravidarum

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ABSTRACT

Psychiatric symptoms, perceived social support, coping styles, and dyadic adjustment in pregnant women with hyperemesis gravidarum

Objective: Hyperemesis gravidarum (HG) is a condition with severe nausea and vomiting, which is seen in 0.3-2% of pregnancies. In addition to biological factors, psychosocial factors were also reported to play a role in the development of HG. However, the impact of psychosocial factors in HG has not been elucidated yet. In this research, we aimed to investigate psychiatric symptoms in patients with HG and their relationships with perceived social support, coping styles, and dyadic adjustment.

Method: Forty-eight women with HG hospitalized in the Obstetrics and Gynecology Inpatient Unit and 48 healthy pregnant women consulted to the Obstetric Outpatient Unit for their routine obstetric control were recruited for the study. The subjects were evaluated with sociodemographic form, Symptom Check List (SCL-90-R), Multidimensional Scale of Perceived Social Support (MSPSS), Ways of Coping Scale (WCS), and Dyadic Adjustment Scale (DAS).

Results: All sociodemographic variables except nausea and vomiting history in previous pregnancies were similar in both groups. All subscales and global symptom index scores of SCL-90-R were higher; optimistic and submissive subscale scores of WCS were lower, satisfaction, consensus and total scores of DAS were higher in HG group ($p<0.05$).

Conclusion: Psychiatric symptom levels are higher in women with HG compared to the controls. No difference for previous psychiatric history among groups shows that previous psychiatric history is not a predictor for HG. The psychiatric symptoms in HG is self-limiting and possibly due to HG symptoms. Psychosocial factors such as perceived social support, coping styles, and dyadic adjustment may contribute to the psychiatric symptoms.

Keywords: Coping styles, dyadic adjustment, hyperemesis gravidarum, perceived social support, psychiatric symptoms

ÖZET

Hiperemezis gravidarumu olan gebelerde ruhsal belirtiler, stresle başa çıkma tarzları, algılanan sosyal destek ve çift uyumu

Amaç: Hiperemezis gravidarum (HG), şiddetli bulantı-kusma ile giden ve gebelerin yaklaşık %0.3-2'sinde görülen bir tablodur. Biyolojik etkenler yanında psikososyal etkenlerin de HG gelişiminde rol oynayabileceği bildirilmiştir. Fakat, HG'de psikososyal etkenlerin rolü tam olarak gösterilememiştir. Bu çalışmada HG ile ruhsal belirtiler ve bu belirtilerin algılanan sosyal destek, stresle başa çıkma tarzları ve çift uyumu arasındaki ilişkisini değerlendirmeyi hedefledik.

Yöntem: Kadın Hastalıkları ve Doğum Kliniği'nde HG tanısı ile yatırılan 48 gebe ile hastanenin Kadın Hastalıkları ve Doğum polikliniğine rutin doğum öncesi kontroller için başvuran 48 sağlıklı gebe çalışmaya alındı. Denekler, sosyodemografik form, Belirti Tarama Listesi (SCL-90-R), Çok Boyutlu Algılanan Sosyal Destek Ölçeği (ÇBASDÖ), Stresle Başaçıkma Tarzları Ölçeği (SBTÖ) ve Çift Uyum Ölçeği (ÇUÖ) ile değerlendirildi.

Bulgular: Bulantı kusma öyküsü dışında tüm sosyodemografik değişkenler her iki grupta eşitti. HG grubunda kontrol grubuna göre SCL-90-R tüm alt ölçek ve genel belirti düzeyi puan ortalamaları yüksek ($p<0.05$); SBTÖ iyimser yaklaşım ve boyun eğici yaklaşım puan ortalamaları düşük ($p<0.05$); ÇUÖ tatmin ve fikirbirliği alt ölçekleri ile toplam ÇUÖ puan ortalamaları yüksekti ($p<0.05$).

Sonuç: HG'de kontrollere göre ruhsal belirti düzeyleri yüksektir. Ruhsal hastalık öyküsü açısından gruplar arasında fark olmaması, ruhsal hastalık öyküsünün HG'nin öngörücüsü olmadığını gösterir. HG'de ruhsal belirtiler kendi kendini sınırlayıcıdır ve olasılıkla HG belirtilerine bağlıdır. Algılanan sosyal destek, stresle başa çıkma tarzları ve çift uyumu gibi psikososyal etkenler ruhsal belirtilere katkıda bulunabilir.

Anahtar kelimeler: Stresle başa çıkma tarzları, çift uyumu, hiperemezis gravidarum, algılanan sosyal destek, ruhsal belirtiler

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INTRODUCTION

Nausea and vomiting are common problems during pregnancy; 70-85% of pregnant women experience nausea and vomiting in the first half of pregnancy (1). Hyperemesis gravidarum (HG) is a condition with severe nausea and vomiting, which is seen in 0.3-2% of pregnancies. It results in weight loss, electrolyte imbalance, ketonuria and dehydration, which requires frequent hospitalization (2).

Frequently, HG occurs in four to ten weeks of pregnancy, and often disappears by the 20th week (3). Risk factors for HG include early age, multiple pregnancies, HG history in previous pregnancies, molar pregnancy, diabetes, hyperthyroidism, peptic ulcer, and other gastrointestinal diseases, asthma, depression, and other psychiatric disorders (4,5). Among these factors, it is reported that HG in previous pregnancies increases the risk by 29-folds (5).

Although HG etiology has not yet been defined exactly, there is an increased knowledge that placental development and functions, maternal endocrine functions, and gastrointestinal diseases may be responsible for it (6,7). However, in addition to biological factors, psychosocial factors are also reported to play a role in the development of HG (8).

The impact of psychosocial factors in HG has yet to be elucidated. Historically, HG was thought to be related to the resentment or ambivalence towards pregnancy, immature personality, mother dependence, anxiety and tension related to pregnancy, sexual dysfunction, conversion or hysteria; but psychological symptoms may be the result of HG rather than the cause (9). Studies have shown that, psychiatric symptoms are seen more frequently in HG than healthy controls (9-11). Some authors suggested that psychiatric problems increased the risk of HG (10,11). However, the others reported that psychiatric symptoms emerged as a response to HG (9,12,13). According to the data from these studies, it is not possible to establish a conclusion on whether psychiatric symptoms are the cause or the result of HG.

Social support is defined as objective and easily recognized interpersonal close relationships (14). It was reported that high social support was related to high quality of life and positive affect (15). It was reported that inadequate social support during pregnancy was related to increased depression and anxiety rates (16,17). Elsenbruch et al. (18) showed that social support from partners, family, and friends during pregnancy relieved women emotionally and cognitively; helped them to benefit from social resources, cope with stress factors and anxiety, and enabled them to engage in the role of a mother.

Coping is defined as cognitive and behavioral efforts to manage the situations appraised as taxing or exceeded resources of the person (19). It is a regulatory process that can reduce negative feelings resulting from stressful events (15). Coping strategies can be positive such as seeking help or negative such as avoidance (20). Positive styles affect positively well-being whereas negative styles were associated with negative well-being (15,21).

In the literature, it was reported that depressive symptoms were related to poor marital adjustment (22). Depressive symptoms might trigger negative behaviors of partners, and depressive individuals had more negative perceptions about their marriages compared to non-depressed partners (22). It was also reported that women with good marital adjustment experience had fewer complications during pregnancy (23).

Although psychiatric symptoms were shown to be associated with HG in many studies, it has not yet been determined which factors play a role in the development of psychiatric symptoms in patients with HG. To the best of our knowledge, there are no studies investigating the relationship of psychiatric symptoms with perceived social support, coping with stress, and marital adjustment yet. Therefore, the current study aimed to investigate the relationship between HG and psychiatric symptoms, perceived social support, coping styles, and dyadic adjustment.

METHOD

The study was conducted in the Obstetrics and Gynecology Clinic. The study protocol was approved by the institutional Ethics Committee (Date 25.07.2014, No. 99950669/272). The study group was selected from

women who were in their first trimester of pregnancy and hospitalized with a diagnosis of HG between dates September 2014 and May 2015. The control group consisted of healthy pregnant women who were admitted to the Obstetrics and Gynecology Outpatient Clinic of the hospital for their routine antenatal care and matched with the study group for age, parity, educational level, occupational status, and duration of marriage. Inclusion criteria for all groups was as follows: ≥18 years of age; single pregnancy; no pregnancy complications such as abortus imminence; no history of a major medical problem or psychiatric disorder with psychotic symptoms; no use of any psychotropic drug for the last month; and consent for participation in the study. As a result, 48 women for HG group, and 48 women for the control group were recruited for the study. All subjects were informed about the study and their written informed consents were obtained. They were evaluated by filling up a self-reported survey which took approximately 30 minutes.

Measures

Sociodemographic Form: The form was prepared by the researchers and included questions about age, educational level, occupation, parity, pregnancy plan, history of HG in previous pregnancies, and history of medical and psychiatric disorders.

Symptom Check List (SCL-90-R): SCL-90-R is a screening questionnaire developed by Derogatis (24) and used to evaluate psychiatric symptoms as well as individual's present stress and distress level. It is a self-administered scale including 90 items answered using a Likert-type scale. SCL-90-R consists of ten subscales which are: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and additional items. The validity and reliability study of the Turkish version was performed by Dag (25). The mean score of all items produces the global symptom index. The mean scores of subscales can also be calculated. Each score of the subscales and global symptom index can range from 0 to 4. The Cronbach's alpha coefficient of the Turkish version of SCL-90-R was reported to be 0.97 (25).

Multidimensional Scale of Perceived Social Support (MSPSS): MSPSS is a self-administered scale developed by Zimet et al. (26), and used to evaluate an individual's perceived social support. The reliability and validity study of its Turkish version was performed by Eker et al. (27). MSPSS consists of 12 items answered on a Likert-type scale and three subscales. Subscales are; family (items 3, 4, 8, and 11), friends (items 6, 7, 9, and 12), and special person (items 1, 2, 5, and 10). The sum of all items' scores provides the total score. Each score of subscales and total MSPSS can range between 4 and 28 and 12 and 84, respectively. As the score increases, perceived social support also increases. The Cronbach's alpha coefficients for the Turkish version of MSPSS were reported to be 0.89 for total MSPSS, 0.85 for the family subscale, 0.88 for the friend subscale, and 0.92 for special person subscale (27).

Ways of Coping Scale (WCS): Folkman and Lazarus (28) developed the Ways of Coping Inventory in 1980. Its adjustment to Turkish was made by Sahin and Durak (29). It is a Likert-type scale including 30 items. The scale consists of five subscales that are: self-confident approach (items 8, 10, 14, 16, 20, 23, and 26), optimistic approach (items 2, 4, 6, 12, and 18), helpless approach (items 3, 7, 11, 19, 22, 25, 27, and 28), submissive approach (items 5, 13, 15, 17, 21, and 24), and seeking social support (items 1, 9, 29, and 30). The scores of subscales are calculated separately. All items are scored between zero and three, except items 1 and 9, which are calculated reversely (three to zero). Self-confident approach, optimistic approach, and seeking social support are positive styles, whereas helpless and submissive approaches are negative. High scores of a subscale means that this coping style is used more frequently to cope with stress. The Cronbach's alpha coefficients for the subscales of the Turkish version of WCS were reported to be 0.69 for self-confident, 0.63 for optimistic, 0.72 for social support, 0.67 for helpless and 0.68 for submissive subscales (29).

Dyadic Adjustment Scale (DAS): DAS was developed by Spanier (30) and used to measure dyadic adjustment and marital satisfaction. Turkish validity and reliability study of the scale was performed by Fisiloglu and Demir (31). DAS consists of 32 items answered on a Likert-type scale and four subscales. Subscales are satisfaction including ten items (items 10-23, 31, and 32) about positive and negative communication; cohesion including five items (items 24-28) about time spent together; consensus including 13 items (items 1-3, 5, and 7-15) about agreement levels for basic marriage issues; and affective expression including four items (items 4, 6, 29, and 30) about agreement on endearment styles of the partners. The total score ranges between 0 and 151. High scores indicate good marital adjustment. The Cronbach's alpha coefficients for the Turkish version of DAS were reported to be 0.92 for the entire scale, 0.83 for satisfaction, 0.82 for cohesion, 0.84 for consensus, and 0.61 for affective expression subscales (31).

Statistical Analysis

All statistical analyses were performed by using the Statistical Package for Social Sciences 21.0 (IBM Corp., Armonk, NY, USA). Continuous numerical variables were expressed in mean±standard deviation and categorical variables in the number of observations and percentage. The significance level of differences among groups was evaluated by the Student's t test for means and the Chi-square test for categorical variables. The correlations between continuous numerical variables were investigated by the Pearson's Correlation test. The level of statistical significance was accepted at $p<0.05$.

RESULTS

Table 1 shows sociodemographic characteristics of the subjects. Among the sociodemographic variables, only history of excessive nausea and vomiting were higher in the HG group ($p<0.001$).

Table 1: Sociodemographic features of the subjects and the controls

	Hyperemesis gravidarum (n=48)		Controls (n=48)			
	mean±SD		mean±SD		t	p
Age	27.81±4.34		28.77±4.26		1.09	0.29
Duration of marriage (year)	4.27±4.53		5.25±3.74		1.14	0.26
Parity	2.04±1.16		1.85±0.92		-0.89	0.38
	n	%	n	%	χ^2	
Education level					2.92	0.09
Up to high school	13	27.08	21	43.75		
University and above	35	72.92	27	56.25		
Occupation					2.16	0.14
Not working	15	31.25	22	45.83		
Working	33	68.75	26	54.17		
Pregnancy plan					0.18	0.67
Planned	38	79.17	38	79.17		
Not planned	8	16.67	10	20.83		
Not mentioned	2	4.17	0	0		
Psychiatry consult					2.11	0.15
No	37	77.08	43	89.58		
Yes	10	20.83	5	10.42		
Not mentioned	1	2.08	0	0		
Nausea and vomiting in previous pregnancies					16.00	<0.001
Primiparous	19	39.58	22	45.83		
No	9	18.75	22	45.83		
Yes	20	41.67	4	8.33		

t: Student's t test, (χ^2): Chi-square test, SD: Standard deviation

Table 2: Comparisons of the scores of SCL-90-R, MSPSS, WCS, and DAS of the subjects and the controls

	Hyperemesis gravidarum (n=48)		Controls (n=48)			
	mean	SD	mean	SD	t	p
SCL-90-R						
Somatization	1.29	0.91	0.66	0.70	-3.76	<0.001
Obsessive-compulsive	1.18	0.78	0.46	0.56	-5.15	<0.001
Interpersonal sensitivity	1.01	0.83	0.38	0.53	-4.42	<0.001
Depression	1.14	0.88	0.59	0.63	-3.48	0.001*
Anxiety	0.87	0.92	0.28	0.44	-3.96	<0.001
Hostility	0.84	0.86	0.42	0.64	-2.68	0.009*
Phobic anxiety	0.73	0.79	0.15	0.35	-4.65	<0.001
Paranoid ideation	0.85	0.87	0.28	0.48	-3.91	<0.001
Psychoticism	0.63	0.71	0.14	0.33	-4.34	<0.001
Additional items	1.03	0.76	0.54	0.54	-3.66	<0.001
Global symptom index	0.98	0.75	0.41	0.47	-4.40	<0.001
MSPSS						
Family	24.96	5.50	25.13	3.07	0.19	0.85
Friend	21.25	8.13	19.96	6.06	-0.88	0.38
Special person	16.58	9.41	17.98	7.00	0.82	0.42
Total	62.79	18.58	63.06	14.64	0.08	0.94
WCS						
Self-confident	13.02	3.53	14.27	3.14	1.82	0.07
Optimistic	7.98	2.64	10.54	2.28	5.07	<0.001
Social support	8.17	2.11	7.44	2.31	-1.62	0.11
Helpless	8.72	4.05	8.71	4.30	-0.02	0.99
Submissive	6.51	3.50	8.88	2.21	3.95	<0.001
DAS						
Satisfaction	41.33	5.40	37.31	6.35	-3.34	0.001*
Consensus	55.33	8.93	49.81	7.19	-3.34	0.001*
Cohesion	15.42	4.16	14.81	3.53	-0.77	0.45
Affective expression	10.33	2.40	9.58	1.83	-1.72	0.09
Total	122.42	16.49	111.52	16.76	-3.21	0.002*

*p<0.01, t=Student's t test, SD: Standard deviation, SCL-90-R: Symptom Check List, MSPSS: Multidimensional Scale of Perceived Social Support, WCS: Ways of Coping Scale, DAS: Dyadic Adjustment Scale

Table 2 shows group comparisons of SCL-90-R, MSPSS, WCS, and DAS scores between the groups. Scores of the global symptom index and all subscales of SCL-90-R were higher; scores of optimistic and submissive subscales of WCS were lower, and scores of satisfaction and consensus subscales and total DAS score were higher in the HG group ($p<0.05$). There were no statistically significant differences for MSPSS total and subscale scores, WCS self-confident, social support, and helpless subscale scores and DAS cohesion and affective expression subscale scores between the groups ($p>0.05$).

Table 3 shows the correlation coefficients and significance levels between SCL-90-R, MSPSS, WCS, and DAS scores of women. There were statistically significant negative correlations between the scores of SCL-90-R and MSPSS ($p<0.05$ and $p<0.01$). There were statistically significant negative correlations between the scores of SCL-90-R and WCS self-confident, optimistic and social support ($p<0.05$ and $p<0.01$); and positive correlations between the scores of SCL-90-R and helpless approach ($p<0.01$). There were statistically significant negative correlations between the scores of SCL-90-R and DAS ($p<0.05$ and $p<0.01$).

DISCUSSION

Among the sociodemographic variables, there was a statistically significant difference only in excessive nausea and vomiting in previous pregnancies in women with HG. This finding is consistent with the literature, and may indicate interpersonal variability in the predisposition to HG (5).

Table 3: Correlation coefficients and significant levels between SCL-90-R and MSPSS, WCS, and DAS scores of women with HG

	GSI	SOM	OC	INT	DEP	ANX	HOST	PHOB	PAR	PSY	AD
MSPSS											
Family	-0.12	-0.13	-0.15	-0.26*	-0.16	-0.14	-0.24*	-0.21*	-0.26*	-0.21*	-0.16
Friend	-0.25*	-0.18	-0.21*	-0.31**	-0.27**	-0.19	-0.25*	-0.18	-0.31**	-0.21*	-0.20
Special person	-0.17	-0.10	-0.14	-0.22*	-0.23*	-0.10	-0.17	-0.09	-0.16	-0.13	-0.18
Total	-0.24*	-1.16	-0.20	-0.31**	-0.27*	-0.17	-0.25*	-0.17	-0.28**	-0.21*	-0.21*
WCS											
Self-confident	-0.22*	-0.18	-0.18	-0.23*	-0.26*	-0.14	-0.21*	-0.21*	-0.24*	-0.17	-0.22*
Optimistic	-0.38**	-0.35**	-0.33**	-0.35**	-0.39**	-0.33**	-0.37**	-0.39**	-0.38**	-0.23**	-0.33**
Social support	-0.28**	-0.26*	-0.21*	-0.28**	-0.33**	-0.21*	-0.25*	-0.21*	-0.20	-0.25*	-0.36**
Helpless	0.57**	0.51**	0.51**	0.49**	0.54**	0.57**	0.57**	0.50**	0.55**	0.52**	0.46**
Submissive	0.10	-0.01	0.09	0.10	0.06	0.13	0.10	0.17	0.12	0.18	0.03
DAS											
Satisfaction	-0.15	-0.15	-0.06	-0.12	-0.27**	-0.08	-0.25*	-0.03	-0.14	-0.07	-0.16
Consensus	-0.14	-0.15	-0.06	-0.04	-0.19	-0.12	-0.22*	-0.05	-0.13	-0.10	-0.15
Cohesion	-0.26*	-0.29**	-0.21*	-0.22*	-0.32**	-0.20	-0.28**	-0.16	-0.21*	-0.17	-0.24*
Affective expression	-0.22*	-0.28**	-0.20	-0.14	-0.27**	-0.13	-0.22*	-0.13	-0.17	-0.13	-0.26*
Total	-0.20*	-0.22*	-0.12	-0.13	-0.29**	-0.15	-0.28**	-0.09	-0.18	-0.13	-0.21*

Pearson's Correlation test, *p<0.05, **p<0.01, GSI: global symptom index, SOM: somatization, OC: obsessive-compulsive, INT: interpersonal sensitivity, DEP: depression, ANX: anxiety, HOST: hostility, PHOB: phobic anxiety, PAR: paranoid ideation, PSY: psychoticism, AD: additional items, SCL-90-R: Symptom Check List, MSPSS: Multidimensional Scale of Perceived Social Support, WCS: Ways of Coping Scale, DAS: Dyadic Adjustment Scale

An important finding of this study was that women with HG in the first trimester had higher scores in all symptom groups of SCL-90-R compared to the controls. The previous studies on psychiatric symptoms in HG were mostly engaged in depression or anxiety disorders during pregnancy. These studies showed that anxiety and depression were common in women with HG. Tan et al. (9) reported that the Hospital Anxiety Depression Scale (HADS) anxiety and depression rates were higher in HG patients. Annagur et al. (32) evaluated 47 women diagnosed with HG with the Structured Clinical Interview for Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition (SCID-I). They found that the rates of anxiety and mood disorders were higher in HG patients compared to the general population. Gulec et al. (33) investigated 40 women with HG and 57 healthy pregnant with Brief Symptom Inventory and found significantly higher scores for depression, anxiety, somatization, and hostility subscales in the HG group compared to the controls. Uguz et al. (10) investigated 52 women with HG and 90 healthy pregnant women with SCID-I and the Structured Clinical Interview for DSM, Revised Third Edition, Personality Disorders (SCID-II). They found that the prevalence of major depression, generalized anxiety disorder, avoidant personality disorder, and obsessive-compulsive personality disorder were higher in HG patients. In another study, Simsek et al. (34) investigated 41 women with HG and 45 control subjects using the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) and found higher depression and anxiety scores in women with HG. In addition, Hizli et al. (35) investigated 200 women with HG and 200 healthy pregnant women with BDI and found higher depression rates in HG. Our findings were consistent with the literature findings, in which psychiatric symptoms were common in women with HG.

Poor social support was reported to be related to depression and anxiety in pregnant women (18,36). Leigh et al. (37) reported a higher risk of depression in pregnant women who had low self-esteem, anxiety, and poor social support. It was mentioned that social support relieved women emotionally and cognitively during pregnancy; helped them to benefit from social resources; to cope with stress factors and anxiety, and enable them to engage in the motherhood (18). It was reported that poor support from the partner or

insufficient relationships with the social environment played a role in depression development in pregnant women (38). Xie et al. (39) reported that low social support increased the risk of depression during and after pregnancy. The current study did not reveal any difference for perceived social support among the groups; but correlation analyses indicated weak/mild negative correlations between social support and psychiatric symptoms. Therefore, psychiatric symptoms in women with HG might be related to social support.

Marital adjustment may be considered to be related to social support, as partner support is an important domain of the social support system. Several studies showed that women who had poor marital adjustment experienced depression and anxiety more frequently during pregnancy (23). Interestingly, in our study, according to DAS scores, marital adjustment was better in women with HG than the control group. We interpreted this result so that illness conditions might trigger attention and support of the partner to the ill person, and thus might lead to a good marital adjustment. On the other hand, correlation analyses indicated that psychiatric symptoms might be related to poor marital adjustment.

In this study, women with HG used optimistic and submissive approach lesser to cope with stress. The former was considered as positive, whereas the latter was as negative. We found no difference among groups for the other coping styles. Correlation analyses indicated that psychiatric symptoms were negatively correlated with positive styles which were self-confident, optimistic and social support; and they were positively correlated with helpless approach which was negative. These findings were consistent with the literature reporting that positive styles affected well-being positively whereas negative styles were related to negative well-being (15,21).

Historically, HG was thought to be related to resentment or ambivalence towards pregnancy, immature personality, mother dependence, anxiety and tension related to pregnancy, sexual dysfunction, conversion, or hysteria (9). However, recent studies have strongly supported that psychiatric symptoms might be the result rather than the cause of HG (40). To date, the studies on the causal relationship between HG and psychiatric symptoms yielded contradictory results. Some authors reported that, most of the psychiatric disorders in women with HG were present before pregnancy, so the history of psychiatric disorders increased the risk of HG (10,11,32). Conversely, the other studies reported that a history of antidepressant treatment before pregnancy did not affect the incidence of nausea and vomiting during pregnancy (41) and higher rates of psychiatric disorders did not continue after delivery (15). Tan et al. (9) reported that high rates of anxiety and depression in HG were the result of HG, as there was no significant association between anxiety and depression and severity of HG. In their other study, Tan et al. (42) followed 121 women with HG and 113 healthy pregnant women throughout their pregnancies and detected that anxiety, depression, and stress levels measured with Stress Scale (DASS-21) were decreased with the relief of nausea and vomiting in the third trimester. The authors concluded that psychological stress in HG was self-limiting and possibly due to HG, so that the care of HG should focus on nausea and vomiting. In a recent study, Aksoy et al. (43) investigated 78 pregnant women with HG and 82 controls using SCID-I and BDI and found higher rates of depression in women with HG. The authors reported that none of the women had histories of any psychiatric disorder, including depression, before pregnancy and high depression levels in HG might be due to psychological stress caused by HG. The current study revealed no difference for psychiatric disorder history before pregnancy among HG and control groups and this finding supported the knowledge that elevated psychiatric symptom levels observed in women with HG might be secondary to a physical stress related to HG. On the other hand, we investigated some psychosocial characteristics such as perceived social support, coping styles, and dyadic adjustment, and determined some correlations between these parameters and psychiatric symptoms. Therefore, we interpreted our results as both psychosocial factors and HG itself might be responsible

for psychiatric symptoms in women with HG.

This study has several limitations which may prevent generalization of results. Firstly, it was conducted in a single center, so the sample may not represent all pregnant women in the community. Secondly, the sample size was small which might lead to less significant results. Thirdly, we designed a cross-sectional study and obtained the history of psychiatric disorders retrospectively. Fourthly, we measured psychometric features with self-administered scales and did not use structured psychiatric interviews, which could have led the results not being objective. Absence of the data for pregnancy durations of the women was another limitation of the study.

In conclusion, our study results suggest the followings: 1) psychiatric symptom levels are higher in women with HG compared to the controls; 2) no difference for previous psychiatric history among groups shows that previous psychiatric history is not a predictor for HG; 3) the psychiatric symptoms in HG is self-limiting and possibly due to HG symptoms; and 4) psychosocial factors such as perceived social support, coping styles, and dyadic adjustment may contribute to the psychiatric symptoms. Therefore, our study supports the finding that high levels of psychiatric symptoms in women with HG may be the result of both HG and some psychosocial factors. As a result, the identification of psychiatric problems in women with HG is important but perhaps the most relieving-approach for HG may be the appropriate management of HG. Further studies investigating the course of psychiatric symptoms during and after pregnancy are required.

Contribution Categories	Name of Author
Development of study idea	N.K., M.N.K., H.B., Z.K., E.Y., Z.C.I.D.
Methodological design of the study	N.K., M.N.K., H.B., Z.K., E.Y., Z.C.I.D.
Data acquisition and process	N.K., M.N.K., H.B., Z.K., E.Y.
Data analysis and interpretation	N.K., M.N.K.
Literature review	N.K., M.N.K.
Manuscript writing	N.K., M.N.K.
Manuscript review and revisation	N.K., M.N.K., H.B., Z.K., E.Y., Z.C.I.D.

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