

Study of Psychological Morbidity in Hyperemesis Gravidarum

Sushila Bhuriya¹, S Jayashree², Shivanand Manohar³

¹Junior Resident, Department of Obstetrics and Gynecology, JSS Medical College, JSS Academy of Higher Education and Research (Deemed to be University), Mysore, Karnataka, India, ²Associate Professor, Department of Obstetrics and Gynecology, JSS Medical College, JSS Academy of Higher Education and Research (Deemed to be University), Mysore, Karnataka, India, ³Assistant Professor, Department of Psychiatry, JSS Medical College, JSS Academy of Higher Education and Research (Deemed to be University), Mysore, Karnataka, India

Abstract

Background: Hyperemesis gravidarum (HG) is one of the most common causes of repeated antenatal admissions in the first trimester giving rise to both physical symptoms and psychological problems. Unfortunately, psychological problems are not identified and addressed appropriately. The objective of this study is to determine the severity of anxiety and depression in women with HG.

Materials and Methods: This was a cross-sectional study. A total of 51 cases admitted in antenatal ward, JSS Hospital, Mysore, with HG for the 1st time were screened for depression using Beck's depression inventory (BDI) scale and anxiety using Hamilton Anxiety Scale. The data obtained were analyzed statistically using Microsoft Excel and SPSS Microsoft version 21.

Results: Of the total number of cases, majority (60.8%) of the study subjects were primigravida, 9 (17.7%) were suffering from mild to moderate anxiety disorder, 3 (3.9%) were suffering from moderate to severe anxiety disorder, 6 (11.8%) were suffering from borderline depression, 18 (35.3%) were having mild depression, 9 (17.6%) had moderate depression, and 2 (3.9%) had severe depression. Moderate-to-severe anxiety was found only in women aged <24 years. The severity of anxiety was found to be more between 13 and 16 weeks of gestation. The prevalence of depression was more in women with a history of HG in the previous pregnancy.

Conclusion: Anxiety was found in 21.5% of pregnant women with HG and 3.9% had severe anxiety. Depression was found in 68.6% of women with HG, of whom 3.9% had severe depression.

Key words: Anxiety, Beck's depression inventory score, Depression, Hamilton Anxiety Scale score, Hyperemesis gravidarum

INTRODUCTION

Pregnancy, although a physiological process, is often associated with minimal to severe risk factors. These risks are usually seen in all groups of people irrespective of the socioeconomic class and the setting and might affect the physical as well as mental health of the pregnant woman. Special care toward mental health and well-being during pregnancy is available in developed countries but women

in the developing and underdeveloped countries are often deprived of this. Hence, a vast majority of women in these countries even though physically healthy are found to suffer from one or the other type of mental disorders such as anxiety, depression, mood disorders, and many more.^[1]

About 90% of women experience nausea and vomiting during pregnancy.^[2] Hyperemesis gravidarum (HG), reported to affect 0.5–2% of pregnant women, is a severe form of nausea and vomiting where women cannot tolerate anything orally. It is the most common reason for hospitalization in early pregnancy. "It generally begins around 4–7 weeks of gestation, peaks at 11–13 weeks, and resolves in most cases by 12–14 weeks. About 10% of women continue to suffer throughout the pregnancy."^[3-6] The most common cause of nausea and vomiting during pregnancy is increased blood levels of human chorionic

Access this article online



www.ijss-sn.com

Month of Submission : 03-2022
Month of Peer Review : 04-2022
Month of Acceptance : 04-2022
Month of Publishing : 05-2022

Corresponding Author: Dr. Sushila Bhuriya, Department of Obstetrics and Gynecology, JSS Medical College, JSS Academy of Higher Education and Research (Deemed to be University), Mysore, Karnataka, India.

gonadotropin hormone which is secreted from the placenta. Persistent vomiting may result in weight loss, nutritional deficiencies, dehydration, ketosis and electrolyte, and acid-base imbalance.^[7]

Psychological problems are more common with this disorder of pregnancy. Hence, these problems should be identified and addressed appropriately.^[8] Along with major depression and generalized anxiety disorder, other psychiatry problems such as avoidant personality disorder and obsessive-compulsive personality disorders are also higher in women with HG. “Even though psychosomatic symptoms are more common in HG, the psychological components of the disease are not fully understood yet.”

There are many factors that may put a woman at an increased risk for developing antenatal depression or anxiety, including but not limited to: The amount of emotional support she receives, history of depression and/or anxiety, and financial issues.^[9] Antenatal depression is the presence of a major depressive disorder during pregnancy.^[10] Incidence of depression usually increases during pregnancy as compared with other times in their lives, which could be because of their altered hormone level. Incidence is between 10% and 19%.

The prevalence of anxiety during pregnancy also varies. A study by Teixeira *et al.*^[11] found that the prevalence of anxiety fluctuates according to trimester. A total of 270 participants were recruited to complete the State Anxiety Inventory (STAI-S) by Spielberger *et al.*^[12] in the first, second, and third trimesters of pregnancy. STAI-S is used to measure the anxiety a person experiences in a particular state or situation (i.e., pregnancy). They found that 15.0% of the participants had anxiety in their first trimester, 12.3% in the second trimester, and 18.2% in the third trimester. The prevalence of anxiety peaked in the third trimester.

Research also shows that the prevalence of anxiety can be substantially higher during pregnancy compared to depression.

MATERIALS AND METHODS

All the patients with HG admitted in the antenatal ward of JSS Hospital, Mysore, during the study period from October 2017 to July 2019 were included in the study. Only women who were hospitalized for the 1st time in the current pregnancy for the treatment of HG were included in the study. Confirmation of pregnancy was done with ultrasound or a positive urine pregnancy test, if ultrasound was uninformative due to very early pregnancy.

Women with multiple pregnancy, thyroid disease, gestational trophoblastic disease, and established psychiatric illness or any other acute illness that could cause nausea and vomiting which may confound the diagnosis of HG were excluded from the study. Sample size was calculated using the formula $S = Z^2pq/d^2 = 1.96 \times 1.96 \times 0.02 \times 0.98/0.05 \times 0.05 = 30$. Hence, a minimum of 30 patients with HG were considered for the study. However, during the study period, a total of 51 cases of HG were admitted in the Department of OBG at JSS Medical College and Hospital, Mysuru, and all of them were included in the study. Ethical clearance was obtained from Ethical Committee of JSSAHER, Mysuru.

The study subjects were counseled regarding the nature of the study. The sociodemographic data, history of present pregnancy, obstetric history, and past and family history of HG were collected in a pretested, semi-structured questionnaire method by interview technique. Translation was done in local language by an interpreter for those who did not know English. The level of anxiety and depression was measured using Hamilton Anxiety Rating Scale (HAM-A) for anxiety and Beck's depression inventory (BDI) for depression. The completed questionnaires were collected and data were analyzed using Microsoft Excel and SPSS Microsoft version 21. Categorical data were represented in the form of frequencies and proportions. Chi-square test was used as the test of significance for qualitative data. Continuous data were represented as mean and standard deviation. $P < 0.05$ was considered as statistically significant.

RESULTS

The mean age of the study group was 23.65 ± 3.48 years in our study with nearly 60% of them aged <24 years and 31 (60.8 %) of the study participants were primigravida. Majority (45.1%) of the study subjects were between 9 and 12 weeks, 14 (27.5%) were between 6 and 8 weeks of gestation, and 12 (23.5%) were between 13 and 16 weeks. Only 2 (3.9%) women presented with HG after 16 weeks of gestation.

Out of the 20 multigravida in our study, 10 (50%) had a history of HG in the previous pregnancy. Only 3.9% of the study subjects reported family history of HG.

When we analyzed the HAM-A questionnaire, it was found that 9 (17.6%) of the study subjects were suffering from mild to moderate anxiety disorder and 2 (3.9%) of them were suffering from moderate to severe anxiety disorder [Table 1].

BDI questionnaire analysis revealed that 6 (11.8%) of the subjects were suffering from borderline depression,

18 (35.3%) were having mild depression, 9 (17.6%) had moderate depression, and 2 (3.9%) had severe depression following HG [Table 2].

When the subjects were divided into different age groups and then analyzed for severity of anxiety, it was found that moderate-to-severe anxiety was found only in women aged <24 years. Mild-to-moderate anxiety was found in women of all age groups. The difference was statistically significant [Table 3]. There was no statistically significant difference in the occurrence of depression in different age groups. When the association between anxiety and period of gestation was analyzed, the severity of anxiety was found to be more between 13 and 16 weeks of gestation. Majority of the study subjects suffered from anxiety during the end of the first trimester and the start of the second trimester [Table 4]. The association between depression and the period of gestation is shown in Table 5. There was no statistically significant difference with respect to the same.

In spite of similar experience in the past, among the study subjects who had a history of HG during previous pregnancy, nearly half had an episode of anxiety ranging from mild to severe and 90% were suffering from depression even in the present pregnancy. Only two women

with HG had a positive family history of HG and both of them were suffering from anxiety as well as depression in the present pregnancy.

DISCUSSION

Mild-to-severe nausea and vomiting in pregnancy usually affects approximately 50–60% of the pregnant women and 0.2–2.5% of them may progress into HG. HG is more common in women of younger age group. In the studies done by Wilkins.^[13] and Aksoy *et al.*,^[14] the mean age was 25.6 years and 25.19 years, respectively, which is almost similar to the present study. However, in the studies done by Kjeldgaard *et al.*^[15] and Poursharif *et al.*,^[16] the mean age was 30.2 years and 30.9 years which is much higher.

The experience of a pregnant lady during her first pregnancy is different when compared to subsequent pregnancies. Hence, most of the signs and symptoms are more common among primigravida when compared with multiparous women. Similar to the findings of our study, parity predominance was seen in many other studies done by Depue *et al.*,^[17] Kjeldgaard *et al.*,^[15] and Kejela *et al.*^[18]

HG is more common in the first trimester, that is, before 12 weeks of pregnancy and the same was noted in our study (72% of women were in the first trimester). Similar results were seen in the studies done by Kejela *et al.*^[18] and Magtira *et al.*^[19]

It is reported in numerous studies that the severity of depression and anxiety could be more in pregnant cases with HG than it is in the healthy pregnant cases.^[20] In the study by Uguz *et al.*,^[21] “the prevalence of mood disorders such as major depression and anxiety disorders was detected to be higher in pregnant cases with HG than it is in healthy control group.” It has been suggested that “psychiatric diseases comorbid to HG could be the consequence of trauma and stress of a physical illness.”^[22]

Mitchell-Jones *et al.*^[23] demonstrated association between anxiety and HG in their meta-analysis. In studies done by Simsek *et al.*^[24] and Kender *et al.*^[25] using Beck’s anxiety

Table 1: Classification of anxiety disorder among the study subjects

Severity of anxiety	Frequency (n=51)	Percentage
Anxiety (HAM-A)		
Mild to moderate	9	17.7
Moderate to severe	2	3.9
No	40	78.4

HAM-A: Hamilton Anxiety Rating Scale

Table 2: Classification of depression disorder among the study subjects

Severity of depression	Frequency (n=51)	Percentage
Depression (BDI)		
Borderline	6	11.8
Mild	18	35.3
Moderate	9	17.6
Severe	2	3.9
No	16	31.4

BDI: Beck’s depression inventory

Table 3: Association between anxiety and the age group of study subjects

Anxiety grade	Age group							
	Between 18 and 21 years		Between 22 and 24 years		Between 25 and 27 years		Between 28 and 37 years	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Anxiety (HAM-A)								
Mild to moderate	2	13.3	0	0.0	4	36.4	3	60.0
Moderate to severe	1	6.7	1	5.0	0	0.0	0	0.0
No	12	80.0	19	95.0	7	63.6	2	40.0

Chi-square=13.882, P=0.031*, HAM-A: Hamilton Anxiety Rating Scale

Table 4: Association between anxiety and the period of gestation of study subjects

Anxiety grade	Period of gestation							
	Between 6 and 8 weeks		Between 9 and 12 weeks		Between 13 and 16 weeks		Between 16 and 27 weeks	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Anxiety (HAM-A)								
Mild to moderate	2	14.3	1	4.3	5	41.7	1	50.0
Moderate to severe	0	0.0	0	0.0	2	16.7	0	0.0
No	12	85.7	22	95.7	5	41.7	1	50.0

Chi-square=17.24, P=0.008*, HAM-A: Hamilton Anxiety Rating Scale

Table 5: Association between depression and the period of gestation

Depression grade	Period of gestation							
	Between 6 and 8 weeks		Between 9 and 12 weeks		Between 13 and 16 weeks		Between 16 and 27 weeks	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Depression (BDI)								
Borderline	2	14.3	2	8.7	1	8.3	1	50.0
Mild	6	42.9	9	39.1	3	25.0	0	0.0
Moderate	3	21.4	2	8.7	4	33.3	0	0.0
Severe	0	0.0	0	0.0	2	16.7	0	0.0
No	3	21.4	10	43.5	2	16.7	1	50.0

Chi-square=16.50, P=0.169, BDI: Beck's depression inventory

inventory scale, patients with HG had significantly higher anxiety score and the association was also found to be statistically significant. In our study, HAM-A was used and the study subjects were further classified into mild, moderate, severe, and no anxiety depending on the score obtained by the individual subject. This scale was used based on previous research studies and operational feasibility in the ward with respect to time spent in data collection and quicker responses. Lee *et al.*^[26] in their study found that anxiety was seen in 26.6% of women with HG which is almost similar to the findings of the present study (21.57%). In the study done by Jennifer Kramer *et al.*,^[27] nearly 14.2 % of pregnant women suffered from anxiety which is lesser than our study.

Depression component of the pregnant mothers with HG was assessed and evaluated using BDI scale and study subjects were classified from borderline to severe depression. Simsek *et al.*^[24] and Kender *et al.*^[25] concluded that patients with HG had significantly higher depression score as per the BDI score and found the difference to be statistically significant. In the study done by Tan *et al.*^[28] also, depression was found to be significantly associated with HG.

In the study done by Kramer *et al.*,^[27] 12% had mild and 10% had major depression while in a study by Lee *et al.*,^[26] 11% had mild and 29% had major depression based on EPDS scores among the pregnant women with HG. Mitchell-Jones *et al.*^[23] also demonstrated association between depression and HG in their study.

In a study done by Bazarganipour *et al.*,^[29] 27.5% of the pregnant women were suffering from mild, 11% from moderate, and 2.5% from severe type of depression which is almost similar to our study finding. In the study done by Tan *et al.*^[28] also, depression was found to be significantly associated with HG. In the study done by Aksoy *et al.*,^[14] 33.3% had mild, 38.5% had moderate, and 15.4% had severe depression which were statistically significant. Scores of mild depression were similar to our study findings whereas moderate and severe depression was found to be much more when compared to other studies.

When our study result was compared with other epidemiological data, patients with HG were found to have higher levels of depression disorders compared to women without HG.^[30,31] In contrast to our findings, Bozzo *et al.*^[32] and Jahangiri *et al.*^[33] found no association between depressive disorders and HG.

One of the reasons for the variation in the prevalence of various degrees of severity of depression in different studies could be the use of different scores for quantifying depression. According to some studies, BDI depression scale shows more depression when compared to Edinburgh depression scale, because it has more questions related to the somatic symptoms of depression which might lead to misdiagnosis of depression. This discrepancy in result might also be due to differences in sample size and period of gestation “because the incidence and severity of nausea and vomiting in HG varies according to the gestational week.”

CONCLUSION

Our study suggests that anxiety was found in 21.5% of pregnant women with HG of whom 3.9% had severe anxiety (HAM-A score >25). Depression was found in 68.6% of women with HG, of whom 3.9% had severe depression (BDI score >29). Hence, spending time with patients and understanding their emotional needs as well as creating awareness among medical fraternity about psychological basis of HG are important aspects in caring for patients with HG. Understanding mind-body relationship is a complex task; research regarding the same is the need of the hour.

REFERENCES

- Lu MC, Halfon N. Racial and ethnic disparities in birth outcomes. A life-course perspective. *Matern Child Health J* 2003;7:13-30.
- Gupta N. Maternal mortality: Magnitude causes and concerns. *J Obstet Gynaec Today* 2004;9:555-8.
- Eliakin R, Abulafia O, Sherer DM. Hyperemesis gravidarum: Current review. *Am J Perinatol* 2000;17:207-18.
- Koyuncu F. Hyperemesis gravidarum: Current concepts and management. *Postgrad Med J* 2002;78:7679-80.
- Dodds L, Fell DB, Joseph KS, Allen VM, Butler B. Outcomes of pregnancies complicated by hyperemesis gravidarum. *Obstet Gynecol* 2006;107:285-92.
- Godsey RK, Newman RB. Hyperemesis gravidarum. A comparison of single and multiple admissions. *J Reprod Med* 1991;36:287-90.
- Susan Renee Wilcox, Pregnancy, Hyperemesis Gravidarum. Available from: <http://www.emedicine.medscape.com/article/796564-overview> [Last accessed on 2010 Jan 13].
- Maltepe C, Einarson A. Optimal management of nausea and vomiting of pregnancy. *Int J Womens Health* 2010;4:241-8.
- Senturk V, Abas M, Berksun O, Stewart R. Social support and antenatal depression in extended and nuclear family environments in Turkey: A cross-sectional survey. *BMC Psychiatry* 2011;11:48-51.
- Bowen A, Muhajarine N. Antenatal depression. *Can Nurse* 2006;102:27-30.
- Teixeira C, Figueiredo B, Conde A, Pacheco A, Costa A. Anxiety and depression during pregnancy in women and men. *J Affect Disord* 2009;119:142-8.
- Spielberger CD, Gorsuch RL, Lushene RE. *STAI Manual for the State-trait Anxiety Inventory*. United Kingdom: Consulting Psychologists Press, Inc.; 1970.
- Wilkins RW. Vomiting of pregnancy, emphasis upon hyperemesis gravidarum. *J Michigan Med Soc* 1931;30:669-72.
- Aksoy H, Aksoy U, Karadağ OI, Hacimusalar Y, Açmaz G, Aykut G. Depression levels in patients with hyperemesis gravidarum: A prospective case-control study. *SpringerPlus* 2015;43:1-6.
- Kjeldgaard HK, Eberhard-Gran M, Benth JS, Nordeng H, Vikanes AV. History of depression and risk of hyperemesis gravidarum: A population-based cohort study. *Arch Womens Ment Health* 2017;20:397-404.
- Poursharif B, Korst LM, Fejzo MS, Macgibbon KW, Romero R, Goodwin TM. The psychosocial burden of hyperemesis gravidarum. *J Perinatol* 2008;28:176-81.
- Depue RH, Bernstein L, Ross RK, Judd HL, Henderson BE. Hyperemesis gravidarum in relation to estradiol levels, pregnancy outcome, and other maternal factors: A sero epidemiologic study. *Am J ObstetGynecol* 1987;156:1137-41.
- Kejela G, Getu S, Gebretsik T, Wendimagegn T. Prevalence of hyperemesis gravidarum and associated factors in Arba Minch General Hospital, Gamo Gofa Zone, Southern Ethiopia. *Clin Mother Child Health* 2008;15:1-5.
- Magtira A, Schoenberg FP, MacGibbon K, Tabsh K, Fejzo MS. Psychiatric factors do not affect recurrence risk of hyperemesis gravidarum. *J Obstet Gynaecol Res* 2015;41:512-6.
- McCarthy FP, Khashan AS, North RA, Moss-Morris R, Baker PN, Dekker G, *et al.* A prospective cohort study investigating associations between hyperemesis gravidarum and cognitive, behavioural and emotional well-being in pregnancy. *PLoS One* 2011;6:e27678.
- Uguz F, Gezginc K, Kayhan F, Cicek E, Kantarci AH. Is hyperemesis gravidarum associated with mood, anxiety and personality disorders: A case-control study. *Gen Hosp Psychiatry* 2012;34:398-402.
- Simpson SW, Goodwin TM, Robins SB, Rizzo AA, Howes RA, Buckwalter DK, *et al.* Psychological factors and hyperemesis gravidarum. *J Womens Health Gen Based Med* 2001;10:471-7.
- Mitchell-Jones N, Gallos I, Farren J, Tobias A, Bottomley C, Bourne T. Psychological morbidity associated with hyperemesis gravidarum; a systematic review and meta-analysis. *BJOG* 2016;124:20-30.
- Simsek Y, Çelik O, Yılmaz E, Karaer A, Yıldırım E, Yoloğlu S. Assessment of anxiety and depression levels of pregnant women with hyperemesis gravidarum in a case-control study. *J Turkish German Gynecol Assoc* 2012;13:32-6.
- Kender EE, Yuksel G, Ger C, Ozer U. Eating attitudes, depression and anxiety levels of patients with hyperemesis gravidarum hospitalized in an obstetrics and gynecology clinic, Düşünen Adam. *J Psychiatry Neurol Sci* 2015;28:119-26.
- Lee AM, Lam SK, Lau SM. Prevalence, course, and risk factors for antenatal anxiety and depression. *Obstet Gynecol* 2007;110:1102-12.
- Kramer J, Bowen A, Stewart N, Muhajarine N. Nausea and vomiting of pregnancy: Prevalence, severity and relation to psychosocial health. *MCN Am J Matern Child Nurs* 2013;38:21-7.
- Tan PC, Zaidi SN, Azmi N, Omar SZ, Khong SY. Depression, anxiety, stress and hyperemesis gravidarum: Temporal and case controlled correlates. *PLoS One* 2014;9:e92036.
- Bazarganipour F, Mahmoodi H, Shamsae B, Taghavi SA. The frequency and severity of nausea and vomiting during pregnancy and its association with psychosocial health. *J Midwifery Reprod Health* 2015;3:401-7.
- Bennett HA, Einarson A, Taddio A, Koren G. Prevalence of depression during pregnancy: Systematic review. *Obstet Gynecol* 2004;103:698-703.
- Gavin AR, Melville JL, Rue T, Guo Y, Dina KT, Katon WJ. Racial differences in the prevalence of antenatal depression. *Gen Hosp Psychiatry* 2011;33:87-93.
- Bozzo P, Einarson TR, Koren G, Einarson A. Nausea and vomiting of pregnancy (NVP) and depression: Cause or effect? *Clin Invest Med* 2011;34:245-8.
- Jahangiri F, Hirshfeld-Cytron J, Goldman K, Pavone ME, Gerber S, Klock SC. Correlation between depression, anxiety, and nausea and vomiting during pregnancy in an *in vitro* fertilization population: A pilot study. *J Psychosom Obstet Gynaecol* 2011;32:113-8.

How to cite this article: Bhuriya S, Jayashree S, Manohar S. Study of Psychological Morbidity in Hyperemesis Gravidarum. *Int J Sci Stud* 2022;10(2):59-63.

Source of Support: Nil, **Conflicts of Interest:** None declared.