Implications for health care providers: psychological aspects of hyperemesis gravidarum

Alicia Rae Weston
The University of Toledo

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Alicia Rae Weston

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Introduction

Up to 80% of all pregnant women are affected by nausea and vomiting of pregnancy (Gadsby, Barnie-Adshead, & Jagger, 1993). Although the symptoms of nausea and vomiting of pregnancy (NVP) are not limited to morning hours and often occur throughout the day, NVP is commonly referred to as “morning sickness”. The condition tends to peak around week nine of gestation, and usually resolves by week 20. In general, NVP is mild and self-limited, but clinical manifestations of the condition vary and many women experience symptoms throughout their pregnancy (Gadsby et al., 1993; Ismail & Kenny, 2007; Jueckstock, Kaestner, & Mylonas, 2010; Verberg, Gillott, Al-Fardan, & Grudzinskas, 2005). The most severe form of NVP is hyperemesis gravidarum, a disabling condition that affects approximately 0.3 – 2.0% of all pregnancies (Bailit, 2005; Dodds, Fell, Joseph, Allen, & Butler, 2006).

Hyperemesis gravidarum (HG) is defined differently throughout literature. Widely accepted characteristics of HG include intractable nausea and vomiting during pregnancy, dehydration, nutritional and electrolyte disturbances, and weight loss of greater than 5% (Fairweather, 1968; Matthews, Dowswell, Haas, Doyle, & O'Mathuna, 2010). Operational definitions of HG often distinguish it from NVP by the need for hospitalization and IV fluid resuscitation (Christodoulou-Smith et al., 2011; D'Orazio, Meyerowitz, Korst, Romero, & Goodwin, 2011; McCormack, Scott-Heyes, & McCusker, 2011; Poursharif et al., 2008). The ICD-10 indicates that symptoms of HG must start before the 22nd week of gestation and divides the diagnosis into two categories, mild HG and HG with metabolic disturbances (ICD-10). Severity of symptoms can be assessed using a validated pregnancy-unique quantification of emesis and nausea (PUQE) score that considers the number of hours and number of episodes for nausea, emesis and retching per day (Koren et al., 2005).
Although the general incidence of HG is 0.3 – 2%, ethnic variation is reported (Bailit, 2005; Zhang et al., 2011). A Norwegian study that included over 900,000 births reported an overall HG prevalence of 0.89%, but indicated significantly higher prevalence among women born in Pakistan (2.1%), Africa excluding North Africa (3.1%), and India and Sri Lanka (3.2%) (Vikanes, Grjibovski, Vangen, & Magnus, 2008). Similarly, a retrospective study in California reported that non-white, non-Hispanic women were more likely to suffer from HG (Bailit, 2005). Other populations with increased risk include younger women and those with a personal history of hyperemesis or whose mother or sisters experienced hyperemesis (Bailit, 2005; Vikanes et al., 2010; Zhang et al., 2011). Women carrying female fetuses, multiple gestations, and molar pregnancies, as well as women with pre-existing diabetes mellitus, hyperthyroid disorders, gastrointestinal disorders, asthma, and psychological illness are at increased risk (Fell, Dodds, Joseph, Allen, & Butler, 2006). Smoking and maternal age over 30 are associated with reduced risk for HG- (Fell et al., 2006; Kallen, Lundberg, & Aberg, 2003).

Hyperemesis is second only to preterm labor in the leading causes for hospitalization during pregnancy (Gazmararian et al., 2002). In addition to metabolic and nutritional disturbances caused by HG, complications can include Mallory-Weiss tears, pneumothorax, splenic avulsion, and acute renal failure (American College of Obstetrics and Gynecology [ACOG], 2004; Bottomley & Bourne, 2009). Wernicke’s encephalopathy due to thiamine deficiency and osmotic demyelination are rare complications of HG (Ismail & Kenny, 2007). Regarding birth outcomes, a 2011 systematic review reported increased rates of low birth weight (LBW), small for gestational age (SGA) infants, and pre-term labor among patients with HG, but found no association with fetal anomalies, perinatal death, or low Apgar scores (Veenendaal, van Abeelen, Painter, van der Post, & Roseboom, 2011). Weight gain less than 7 kg has been
determined as an independent risk factor for LBW, cesarean section, and pre-term labor (Dodds et al., 2006). Long-term effects specific to HG remain largely unknown. One study reported an increased risk of testicular cancer in male fetuses of HG affected pregnancies (Veenendaal et al., 2011).

Treatment of hyperemesis begins with non-pharmacological interventions such as diet and lifestyle modifications, ginger, and acupressure (Jueckstock et al., 2010). First-line pharmacologic treatment includes vitamin B6 and doxylamine (ACOG, 2004). Other antiemetics such as metoclopramide, dimenhydrinate, promethazine, prochlorperazine, chlorpromazine, and odansentron are also used (ACOG, 2004; Sonkusare, 2011). Studies are conflicting on the efficacy of these drugs (Goodwin et al., 2008). Severe vomiting is treated with intravenous hydration, and thiamine is administered intravenously to prevent Wernicke’s encephalopathy (Lee & Saha, 2011). Corticosteroids are considered only in severe and refractory cases of HG (ACOG, 2004). If IV fluids are insufficient, nasogastric tubes, percutaneous endoscopic gastronomy tubes, or jejunostomy tubes may be used for enteral feeding. Parenteral nutrition is a last resort in the treatment of refractory HG, and is administered via a peripheral venous or central venous catheter. Total parenteral nutrition is associated with increased maternal morbidity including venous thromboembolism, endocarditis, and infection (Jueckstock et al., 2010; Lee & Saha, 2011).

The etiology of HG remains a mystery. There are numerous proposed mechanisms including hCG, estrogen and progesterone, the bacteria H. pylori, pregnancy-associated thyrotoxicosis, as well as ACTH, serotonin, growth hormone, leptin, and prolactin (Bailit, 2005; Golberg, Szilagyi, & Graves, 2007; Verberg et al., 2005; Zhang et al., 2011). Although endocrine
hypotheses behind HG are generally favored in the literature, multifactorial etiology of the condition cannot be excluded (Verberg et al., 2005).

Another proposed etiology for HG considers hyperemesis as a psychosomatic illness. The initial suggestion that hyperemesis gravidarum is a manifestation of neurosis came from Kaltenbach in 1891 (Fairweather, 1968). The lack of a discrete biological cause for HG combined with the increasing popularity of psychodynamic theory in the early 20th century likely contributed to the persistence of psychogenesis as a prominent theory for HG. Though a psychosomatic etiology for HG is not objectively determined in literature, the theory remains a controversial topic, and dealing with the psychological aspects of HG continues to be a key issue in patient care (Munch, 2000b, 2002; Munch & Schmitz, 2006; Power, Thomson, & Waterman, 2010).

Psychoanalytic theorists describe pregnancy as a time of crisis for the expectant mother, whose self-perception and social role are changed by the impending birth of her baby. Pregnancy is described as a time when a woman’s relationship with her own mother is analyzed; psychogenic theories of HG emphasize that the health of a woman’s relationship with her mother is revealed in the woman’s reaction to pregnancy. Vomiting is considered a psychosomatic symptom and vomiting during pregnancy may represent psychological turmoil within the expectant mother. In this way, the psychoanalytic theorists postulate that HG is a type of conversion disorder. (Buckwalter & Simpson, 2002; el-Mallakh, Liebowitz, & Hale, 1990).

Historical research regarding the psychology of HG has consisted primarily of qualitative patient interviews. Even within these qualitative studies, the results were mixed. Harvey and Sherfey (1954) identified through patient interviews that women with HG suffered from a pervasive immaturity, and also linked the disorder with sexual aversion and high maternal
attachment. Guze and Majerus (1960) reported no significant difference in patients with HG versus control patients.

Fairweather (1968) used objective measurements including Minnesota Multiphasic Personality Index (MMPI) and Cornell Medical Index (CMI) to investigate psychological associations in HG. He concluded that between 75 and 80 percent of hyperemesis could be contributed to psychiatric factors. However, while he reported an association between hysterical personalities and HG using the MMPI, there were no significant differences in the CMI scores between HG and control groups (Fairweather, 1968).

Objective demonstration of the relationship between HG and psychopathology has not been accomplished thus far. Methodological problems of the aforementioned studies include qualitative designs, small sample sizes, and a historically male gender bias in medicine. Recent literature emphasizes a biological cause for HG over a psychogenic cause, but it also emphasizes that the psychological aspects of HG cannot be ignored. The distinction between psychological source of illness and psychological effect of illness is often blurred in the context of hyperemesis, and can affect patient care. Patients with hyperemesis are in a fragile psychological state as well as physical state, and research shows that they are sensitive to providers who might dismiss their symptoms as psychosomatic (Munch, 2000a, 2000b). In light of historical debate surrounding HG and psychology, this paper intends to review the current literature regarding psychology and HG and develop recommendations for improving psychosocial morbidity amongst women who suffer from this debilitating disorder.
Review of Literature

Several studies have been published in the past 15 years investigating the relationship between psychology and hyperemesis gravidarum. Two prominent veins of research regarding HG and psychology have emerged. One involves investigating pre-existing psychopathology and psychopathology concurrent with the symptoms of HG; the other reveals psychopathological sequelae of the disorder. Both veins contribute to the current consensus regarding HG and psychology.

A case-controlled retrospective study published by Seng, Schrot, van De Ven, and Liberzon (2007) reported prior service use for psychological disorders amongst women who experienced HG during pregnancy and those who did not. Sample size was 11,224 women including 208 women with documented HG. Specific psychological conditions investigated included anxiety, depression, and substance abuse, as well as the prevalence of psychosomatic disorders such as chronic fatigue, irritable bowel syndrome, and pelvic pain/dysmenorrhea. All analyzed service use occurred prior to pregnancy. When analyzed individually, only depression and pelvic pain/dysmenorrhea demonstrated increased prior service use among women with HG. The authors reported, however, that service use for any of the three psychosomatic disorders increased risk of an HG-affected pregnancy; likewise, prior service use for any of the three psychological conditions also conferred an increased risk for HG. Service use in the same woman for both a somatic and psychological disorder increased the likelihood of HG by four times. Based on their analysis, the authors concluded that approximately 10-20% of HG might be attributable to psychological pathology (Seng, Schrot, van De Ven, & Liberzon, 2007).

In a retrospective study of nearly 1.2 million births in the Netherlands over six years, Roseboom, Ravelli, van der Post, and Painter (2011) demonstrated that women who experienced
HG during pregnancy were significantly more likely to have a pre-existing psychiatric illness. The study compared demographic information including prior medical diagnoses and pregnancy outcome data among women with and without HG. Other conditions associated with increased HG incidence included younger age, primiparity, non-Western origin, low socio-economic status, pre-existing or pregnancy-induced hypertension, pre-existing or gestational diabetes mellitus, substance abuse, female fetus, and assisted reproduction (Roseboom, Ravelli, van der Post, & Painter, 2011).

Vasconcelos et al. (2007) investigated differences in pregnancy risk factors among women with obsessive-compulsive disorder (OCD) versus the general population. Sample size for the study was 138; 68 patients with OCD were compared with 70 control patients. The authors reported that women with pre-existing OCD were more likely to experience HG during their pregnancy (Vasconcelos et al., 2007).

Simpson et al. (2001) investigated the role of personality and psychological factors in HG by conducting two studies, one involving women currently experiencing HG and the other involving postpartum analysis. In the first study, the authors administered the Minnesota Multiphasic Personality Index - 2 (MMPI-2) and the Symptom Check List-90 Revised (SCL -90-R) to nine women with HG and ten pregnant women without HG. The authors reported that women affected by HG scored significantly higher in the hypochondriasis and conversion hysteria scales of the MMPI-2; significant differences were also seen in the depression, psychasthenia, and schizophrenia scales of the MMPI-2. For the SCL-90-R, women with HG scored significantly higher on the somatization, obsessive-compulsive, depression, anxiety, and psychoticism scales. In the second study, non-pregnant women who experienced HG in their most recent pregnancy were compared with non-pregnant women who had not experienced HG.
in their most recent pregnancy. The authors reported that between these groups there were no significant differences in any scales of the MMPI -2 and SCL-90-R. Simpson et al. concluded that the differences in MMPI-2 and SCL-90-R scores were likely the result and not the source of HG symptoms, given that no difference in scores was recorded after resolution of symptoms. They were careful to add, however, that the possibility of a psychological component to HG could not be ignored (Simpson et al., 2001).

D’orazio et al. (2011) also investigated personality traits and somatic factors among women with HG, choosing to compare women with HG to those with NVP. Tests used included the MMPI-2, the Beck Depression Inventory II (BDI II), and the Health-Related Quality of Life for Nausea and Vomiting of Pregnancy (NVPQoL). The study measured responses that corresponded with hypochondriasis, depression, hysteria, paranoia, schizophrenia, emotionalizing and internalizing dysfunction, antisocial behaviors, ideas of persecutions, and more. The authors reported no significant differences between the two groups. Sample size of the study was 39 women, matched for age, marital status, years of education, and race or ethnicity. The authors determined that it was no more likely for a woman with HG to have a personality disorder or psychological disorder than a women suffering from common NVP (D'Orazio et al., 2011).

McCarthy et al. (2011) reported differences between women with HG and those without HG in anxiety, depression, perceived stress, and pregnancy-related behavior changes. The authors used the Short Form State-Trait Anxiety Inventory (STAI), the Edinburgh Postnatal Depression Scale (EPDS), and the Perceived Stress Scale (PSS). Behavioral responses to pregnancy were measured using a scale that considered self-reported behavior patterns and activity restrictions. Only nulliparous women were included in the study. The sample size
included 164 patients with HG and 3,259 control participants. The patients were tested twice
during pregnancy, which allowed the authors to record scores during and after HG symptoms. The authors reported that women with HG scored significantly higher in perceived stress, anxiety, depression, and behavioral limitations due to pregnancy. Improvement in HG symptoms was associated in the study with improved scores on perceived stress and depression, as well as decreased behavioral limitations. However, the authors reported that high anxiety scores persisted among women with HG even five weeks after symptom improvement. McCarthy et al. concluded that perceived stress, depression, and activity restriction are likely consequences of HG symptoms, whereas anxiety may be an associated factor in the onset of HG (2011).

Uguz, Gezginc, Kayhan, Cicek, and Kantarci (2012) compared rates of mood, anxiety, and personality disorders between 52 women with HG to 90 control participants using structured clinical interviews and criteria of the Diagnostic Statistical Manual of Mental Disorders (DSM). The DSM-IV was used to determine mood and anxiety disorders, while the DSM-III was used to determine personality disorders due to the lack of a validated Turkish equivalent for the DSM-IV tool regarding personality disorders. The authors relied upon patient report to determine the onset of psychological symptoms. The authors reported that women with HG were more likely to suffer from any mood or anxiety disorder, and any personality disorder. Specifically, patients with HG were more likely to suffer from major depressive disorder, generalized anxiety disorder, obsessive-compulsive personality disorder, and avoidant personality disorder. Of the patients with HG who reported psychological symptoms, 70.5% reported symptom onset prior to pregnancy. The authors suggested that a potential connection exists between HG and certain mood, anxiety, and personality disorders, but did not report a conclusive directionality in the relationship between HG and these disorders (Uguz, Gezginc, Kayhan, Cicek, & Kantarci, 2012).
Pirimoglu et al. (2010) reported significantly higher global severity index (GSI) scores among 34 women currently experiencing HG versus 34 women experiencing normal pregnancy. Within the GSI subscales, significant differences existed between the groups in somatization, obsessive-compulsiveness, depression, and anxiety. The authors commented that the direction of effect between HG and increased GSI could not be determined from the study. All women were tested in the first trimester, during active symptoms of HG (Pirimoglu et al., 2010).

The Hospital Anxiety and Depression Scale (HADS) was used by Tan, Vani, Lim, and Omar (2010) to identify anxiety and depression among 209 women experiencing HG. Of the 209 women, 46.9% fulfilled the HADS criteria for anxiety and 47.8% fulfilled criteria for depression. If a patient fulfilled criteria for either anxiety or depression, they were 15.8 times more likely to fulfill criteria for both conditions. The authors reported a significant relationship between paid employment and increased risk for anxiety, and an inverse relationship between depression and history of miscarriage. Taking into consideration several markers for clinical severity of HG such as ketonuria, hematocrit, leukocytosis, hyponatremia, urea, hypokalemia, and creatinine, only high hematocrit was associated with increased depression caseness; no other relationship emerged between severity of HG and anxiety or depression caseness. Directionality of the relationship between HG, anxiety and depression could not be established (Tan, Vani, Lim, & Omar, 2010).

Şimşek et al. (2012) administered the Beck Depression Scale (BDI) and Beck Anxiety Inventory (BAI) to pregnant women with and without HG, and reported significantly higher scores in the HG group for both depression and anxiety. The study included 41 patients with HG and 45 control patients. Data was collected from the patients with HG at the time of admission to the hospital; data from control patients was collected in an out-patient setting. The authors
reported that it was unclear whether the difference between groups reflected a cause or consequence of HG (Şimşek et al., 2012).

Investigations specifically designed to report psychological sequelae of HG include several objective as well as qualitative studies. Christodoulou-Smith et al. (2011) reported a relationship between HG and post-traumatic stress. The study involved 377 women with HG and 233 controls. Women who previously experienced HG during pregnancy were identified as having increased stress symptoms of post-traumatic stress disorder (PTSD), and patients who met criteria for post-traumatic stress syndrome (PTSS) demonstrated increased negative psychosocial outcomes including occupational, marital, and psychological difficulties (Christodoulou-Smith et al., 2011). Seng et al. (2001) reported an association between PTSD and HG in an earlier study investigating 455 women with diagnosed PTSD and 638 controls. Seng et al. noted that women with PTSD were 3.9 times more likely to suffer from HG during pregnancy, but did not actually establish in the study whether the diagnosis of PTSD occurred before or after experiencing HG (2001).

A prospective, case-controlled study by McComack et al. (2011) investigated the impact of HG on maternal-fetal attachment during pregnancy. Several objective scales were used including the Maternal Antenatal Attachment Scale (MAAS), Brief Symptom Inventory 18 (BSI-18), Prenatal Distress Questionnaire (PDQ), Social Functioning Questionnaire (SFQ) and Short Form Social Support Questionnaire (SSQ6). During symptoms of HG, maternal-fetal attachment was adversely affected; after symptom resolution, no significant difference in maternal-fetal attachment was reported between the HG and control groups. Secondarily, the authors reported increased depression, anxiety, and somatization among women currently experiencing HG symptoms despite no significant differences between the HG group and controls regarding social
support, social functioning, and satisfaction with social support. McCormack et al. (2011) concluded that the effect of HG on maternal-fetal attachment was minimal and limited to severe symptoms.

A prior qualitative study by Meighan and Wood (2005) reported stronger adverse effects of HG on maternal role assumption. In-depth interviews of eight women with HG revealed themes of social isolation and a delay in maternal role assumption. The women reported decreased excitement about motherhood due to illness, and described hostile and disbelieving reactions of co-workers and friends with regard to their symptoms. Meighan and Wood (2005) reported that the women seemed distracted from usual maternal role assumption because of their illness, and were less able to prepare for labor and delivery.

A qualitative study by Poursharif et al. (2008) reported that more than 80% of women who experienced HG during pregnancy report negative psychosocial sequelae. The study included 808 women with a history of HG. Examples of negative psychosocial sequelae included socioeconomic problems, marital problems, and changed attitudes toward family and pregnancy. Specifically, 6.7% of women in the study reported a relationship between HG and psychological conditions such as anxiety and depression. Elective termination of pregnancy was reported by 15.2% of women (Poursharif et al., 2008).

Munch, Korst, Hernandez, Romero, and Goodwin (2011) reported health-related quality of life (HRQoL) among 61 pregnant women, comparing 19 women with HG to 48 women with NVP and 8 asymptomatic women. HRQoL was measured using the Nausea and Vomiting of Pregnancy Quality of Life Questionnaire (NVPQoL), and the Short Form-36 (SF36). Patients with HG had significantly lower health-related quality of life compared with the NVP and control groups. Patient-perceived severity of symptoms was more influential than an actual
diagnosis of HG on HRQoL. Other psychosocial factors such as depression measured by the SCL90, married or partnered status, and age greater than 30 also correlated with low HRQoL (Munch, Korst, Hernandez, Romero, & Goodwin, 2011).

Power et al. (2010) investigated the psychological impact of HG using qualitative methodology with patients and health care providers. Interviews with 18 women affected by HG elicited themes such as the overwhelming burden of HG, as well as the adverse psychological effect of unbelieving and skeptical attitudes toward HG. Transcriptions from seven focus groups of healthcare workers in various levels of care-giving were also analyzed, revealing themes of frustration with HG and HG patients. The study reported assumption of HG as a purely psychological problem, feelings of mistrust over patient symptoms, invalidation of HG severity, and frustration with lack of community care for HG as essential contributors to the stigmatization of HG. Negative psychological implications, as well as adverse effects on general healthcare for HG patients, were addressed by the study (Power et al., 2010).

Although the past 15 years of research regarding HG and psychology have yielded studies with a wide variety of designs and emphases, the themes of psychogenesis and psychosocial impact prevail throughout the reports. The relationship between psychopathology and hyperemesis continues to be explored through these two themes.
Methods

A review of the literature was conducted using PubMed, CINAHL, PsycINFO and Psychology and Behavioral Sciences Collection. Search terms included hyperemesis gravidarum, psychological, psychology, patient attitudes, providers, patient, nausea and vomiting of pregnancy, and pernicious vomiting of pregnancy. A manual review of the literature was also conducted from articles obtained in the initial searches. Articles not available in English were excluded. Historical articles were reviewed to provide background on hyperemesis, however only articles published within the last 15 years were included in the review of current literature. Qualitative and quantitative research studies were included. Studies that did not specify hyperemesis gravidarum as a separate condition in their investigation were excluded. Articles published more than 15 years ago were not considered when forming clinical recommendations.
Discussion

The recent literature regarding HG reflects conflicting conclusions about the psychological factors surrounding the condition. The idea of psychopathology as a cause for HG continues to be controversial. D’Orazio et al. (2011) refuted the association of HG with disordered personality and psychological conditions, and Simpson et al. (2001) concluded that differences in personality and psychological symptoms among patients with HG were more likely the result of HG symptoms and not the source. On the other side of the issue Seng, Schrot, van De Ven, and Liberezon (2007) reasoned that 10-20% of HG cases could be psychogenic, and Seng et al. (2001) and Vasconcelos et al. (2007) report increased HG among patients with PTSD and OCD. Uguz, Gezginc, Kayhan, Cicek, and Kantarci (2012) also reported possible associations between HG and several mood, anxiety, and personality disorders.

Results from Pirimoglu et al. (2010), Şimşek et al. (2012), and Tan, Vani, Lim, and Omar (2010) were inconclusive regarding the directionality between psychopathology and HG. McCarthy et al. (2011) suggested that while anxiety may be associated with onset of HG, depression, stress and behavior limitations are more likely effects of HG symptoms. Taking the above literature into consideration, it appears there is still no clear consensus on the psychogenesis of HG. However, it also seems apparent that Fairweather’s original claim attributing 80% of HG cases as psychogenic is not well-supported by current literature (Fairweather, 1968).

Independent of psychology’s role in the etiology of HG, recent literature does appear to be in agreement regarding the negative psychological effects of HG. Meighan and Wood (2005), Christodoulou-Smith et al. (2011), Poursharif et al. (2008), Power et al. (2010) and Munch,
Korst, Hernandez, Romero, and Goodwin (2011) all report significant psychological sequelae of the condition.

Recent HG literature also reveals several more basic issues to consider when approaching the topic of hyperemesis. First, the operational definitions of HG vary from study to study. In two of the studies included in this review, HG was defined simply by the record of a diagnosis, with no other criteria listed (Roseboom et al., 2011; Tan et al., 2010). Several studies required hospital treatment of symptoms in their operational definition of HG (D’Orazio et al., 2011; McCormack et al., 2011; Munch et al., 2011; Simpson et al., 2001; Uguz et al., 2012). Christodoulou-Smith et al. (2011), Munch, Korst, Hernandez, Romero, and Goodwin (2011), and D’Orazio et al. (2010) specified treatment with intravenous fluids or parenteral nutrition as part of their definition for HG.

The ICD-9 criteria for HG was cited by Seng, Schrot, van De Ven, and Liberzon (2007), and McCormack et al. (2011) used the ICD-10 criteria for HG. Dehydration was included in the criteria for HG by Pirimoglu et al. (2010), Power et al. (2010), and Simsek et al. (2012). Two of the studies required 5% or more weight loss in their definition of HG (Pirimoglu et al., 2010; Şimşek et al., 2012). Ketonuria was cited in the definition of HG by Power et al. (2010) and Pirimoglu et al. (2010). Overall, the current literature demonstrates a lack of standardization for the operational definition of HG.

Another issue presented by the current HG literature is the wide variety of tools used to collect and measure data. Poursharif et al. (2008) and Power et al. (2010) used qualitative study designs to interpret the psychological impact of HG on patients. The remaining studies used various objective means of analysis as listed in the literature review. Within the objective tools used, only the MMPI-2 (D’Orazio et al., 2011; Simpson et al., 2001) the BDI (D’Orazio et al.,
2011; Şimşek et al., 2012), the NVPQoL (D’Orazio et al., 2011; Munch et al., 2011) and the SCL-90 (Munch et al., 2011; Simpson et al., 2001) were used in more than one study of HG.

Sample issues persist in recent studies on HG. Sample sizes continue to be small with a few exceptions (Christodoulou-Smith et al., 2011; McCarthy et al., 2011; Poursharif et al., 2008; Roseboom et al., 2011; Tan et al., 2010). Samples often also present difficulties in terms of generalizability, as many are from a local hospital or region. In the literature reviewed, only Poursharif et al. (2008) and McCarthy et al. (2012) report data from multiple countries. Two studies were reported from the United Kingdom (McCormack et al., 2011; Power et al., 2010). Three reported data from Turkey (Pirimoglu et al., 2010; Şimşek et al., 2012; Uguz et al., 2012). Seven studies report data from the United States (Christodoulou-Smith et al., 2011; D’Orazio et al., 2011; Meighan & Wood, 2005; Munch et al., 2011; Seng et al., 2001; Seng et al., 2007; Simpson et al., 2001). Vasconcelos et al. (2007) reported data from Brazil, and Tan et al. (2010) reported data from Malaysia.
Clinical Recommendations

The literature is clear about the negative psychosocial impact HG can have on women affected by the condition, demonstrating the need for increased psychosocial support of women with HG (Christodoulou-Smith et al., 2011; Meighan & Wood, 2005; Munch et al., 2011; Poursharif et al., 2008; Power et al., 2010). Identifying women at increased risk for psychosocial morbidity – those with lower socioeconomic status, those who have less social support, who are the sole wage-earner for their family, or who have a history of infertility, abuse, or miscarriage – is an important first clinical step (Poursharif et al., 2008). Additionally, although the literature suggests that HG may have psychological origins in only a small percentage of cases, identifying those cases early is also important in providing optimal care for HG. It would be wise to take a thorough psychological history in all obstetric patients, including history of abuse, substance abuse, and any mental health disorders. Consider those conditions which have been associated with HG, such as PTSD and OCD, in the differential diagnosis for patients with symptoms of HG (Seng et al., 2001).

During the course of HG, the literature suggests that patients would benefit from comprehensive and multi-disciplinary care plans with a special emphasis on increasing the patient’s social support (Kim, Connolly, Cristancho, Zappone, & Weinrieb, 2009; Poursharif et al., 2008; Soltani & Taylor, 2003). Social work, home health nursing, and psychological counseling can all be incorporated alongside primary obstetric care to form a multidisciplinary team (Kim et al., 2009). For patients who do have pre-existing mental health disorders, psychological interventions and certain pharmacotherapies can be incorporated into this comprehensive care plan. If the patient has an established therapist, encourage them to seek the care of that therapist again during pregnancy for increased support (Seng et al., 2007).
For all patients regardless of previous psychiatric history, one of the simplest ways to support your patient is to listen to them and allow the patient to unload some of their burden (Kim et al., 2009). Screening all HG patients for mood, anxiety and personality disorders is also reasonable and can help guide care plans (Uguz et al., 2012). Special emphasis should be placed on identifying symptoms of depression or anxiety throughout the pregnancy, and all HG patients would benefit from a strategy for anxiety management (McCarthy, et al., 2011).

Due to the possibility that women might feel too sick to organize delivery logistics or contemplate the transition to motherhood, Meighan and Wood (2005) also suggest offering additional labor coaching and postpartum follow-up for patients with HG. Multi-disciplinary efforts should continue for patients with HG well into the postpartum period, when they may need reassurance regarding the delay that some women with HG experience in maternal-fetal attachment (Meighan & Wood).

To decrease negative psychosocial effects related to hospital admission and stigmatization of HG, it is important develop competency in managing HG through an out-patient setting. Staying abreast of the best out-patient management strategies for HG will help maintain a sense of normalcy for the patient by avoiding the stress of hospitalization. It will also decrease the risk of patients being ill-received by hospital staff or stigmatized as psychological patients. Specifically, Power et al (2010) suggested increasing the use of intravenous fluid administration in the out-patient setting to decrease hospitalization. As always, however, one must recognize the limitations of out-patient management and chose admission when justified by the patient’s condition.

Lastly, the literature suggests that providers should prepare themselves for negative patient reactions to psychiatry referrals (Kim et al., 2009; Power et al., 2010). Patients may take
offense at the suggestion of psychiatric counseling, especially if done insensitively; effort should be taken to resist labeling patients as borderline or hostile simply based on their reaction. It is also important to note that while psychological health and counseling options should always be discussed with patients who have HG, clinical judgment ought to guide the degree of discussion and the degree of psychiatric intervention suggested.

Although the relationship between psychology and hyperemesis continues to be somewhat controversial, recent literature clearly supports the fact that hyperemesis carries with it a heavy psychosocial burden. Clinically, this current understanding of HG can help shape efforts to increase social and psychological support of patients with HG and improve patient care for this population.
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Abstract

**Objective:** Hyperemesis gravidarum (HG) is a condition of severe nausea and vomiting that affects up to 2% of pregnant women. Though the etiology of HG remains unclear, historic theories of HG as a psychogenic disorder continue to inform the literature and care of HG. This review assesses the current literature regarding psychology and HG, and addresses the clinical implications of that literature for improving patient care. **Method:** A literature review was conducted using PubMed, CINAHL, PsycINFO and Psychology and Behavioral Sciences Collection. **Results:** Forty-eight articles were referenced in this review. Sixteen studies published in the past 15 years were included in the Review of Literature. **Conclusion:** Current literature continues to reveal conflicting conclusions regarding psychology’s role in HG etiology. The negative psychological sequelae of HG, however, are well established by current HG literature and should inform a sensitive, wholistic approach to caring for patients with HG.