Health Needs and Health Problems of Pregnant women with Hyperemesis Gravidarium

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Abstract

Background: Persistent nausea and vomiting (hyperemesis gravidarum) in early pregnancy remains a significant health problem that result in negative side effects on women and their pregnancy. **Design:** A descriptive research design was utilized**. Sample:** A purposive sample composed of 150 of pregnant women from first trimester to13 weeks and confirmed diagnosis with hyperemesis gravidarium. **Tools:** Three tools were utilized to collect data; (1) A structured Interviewing Sheet, (2) Assessment the pregnant women health needs developed often occurring of the hyperemesis gravidarium, (3) Assessment the pregnant women health problems developed often occurring of the hyperemesis gravidarium. **Results:** It was found that, 71.3% of the studied women have unsatisfactory level of knowledge. Also, 60.7% of them have incorrect practices. Moreover, 55.3%of the studied women their health needs unsatisfied achieved. Furthermore, 62% of them have health problems related to hyperemesis gravidarium. **Conclusion:** Based on the study finding it concluded that, there was a relation between socio-demographic data of pregnant women and their knowledge and reported practices about hyperemesis gravidarium. Also, there was statistically significant positive correlation between total practices of the studied women and their total knowledge. **Recommendations**: The study recommended that, Increase awareness of pregnant women about hyperemesis gravidarum hazards and the importance of prompt medical care-seeking to avoid complications, organizing of training programs for pregnant women about self-care to improve their behavioral and life style.

Keywords: Hyperemesis Gravidarum, Health Needs, Health Problems

Introduction

Pregnant women, undergoing one of the most sensitive periods of their life, experience symptoms such as nausea and vomiting. Pregnancy nausea and vomiting, technically known as Hyperemesis Gravidarum (HG), can start a short while after the beginning of pregnancy, such that nausea has come to be known as one of its indicative signs. HG is a condition of intractable vomiting during pregnancy, leading to fluid, electrolyte and acid–base imbalance, nutrition deficiency and weight loss often severe enough to require hospital admission **(Shakiba et al., 2019)**.

In most cases, factors such as mobility, a burning sensation in the stomach, consumption of certain types of food, or certain aromas trigger the symptoms. HG is not always caused by pregnancy as such since other possible factors are also involved. The prevalence of HG varies between 70% and 80% of all pregnancies in the 1st trimester. Symptoms usually emerge between the 4th and the 6th week of gestation, reach their peak between the 8th and the 12th week, and recede between the 16th and the 20th week **(Mohamed et al., 2020)**.

Hyperemesis gravidarum is most prevalent during, but certainly not limited to, the first trimester of pregnancy when both the placenta and the corpus luteum are producing hormones and the body is adapting to the pregnant state. The exact etiology of HG isn't well known and is probably multifactorial in which psychological factors, disturbance of gastro-intestinal motility, hormonal changes, infections, immunological, metabolic and anatomical factors appear to intervene **(Trovik et al., 2021)**.

Health problem in pregnant women with hyperemesis include malnutrition and vitamin deficiencies, wernicke's encephalopathy, hyponatraemia and central pontine myelinolysis, thrombosis, mallory weiss tears kidney failure,

central pontine anemia, myelinolysis, coagulopathy, atrophy, hypoglycemia, jaundice, malnutrition, deconditioning, pulmonary embolism. Depression and post-traumatic stress disorder and pregnancy outcome, fetal complications are common secondary complications of hyperemesis gravidarium **(Gabra, 2018)**.

Pregnant women seek information during pregnancy to prepare themselves for their maternal responsibilities. As a result, they are exposed to a wide range of information sources and opportunities for antenatal education, including informal education carried out by family and friends, formal education within the context of antenatal care, discussion with health care professionals and midwives, and review of printed materials **(Kamali et al., 2021)**.

Treatment is empirical, standardized, and involves antiemetic therapy and intravenous fluids to relieve nausea and vomiting, correct electrolyte imbalance, and maintain hydration **(ACOG, 2018)**. However, the treatment aimed at the symptoms of HG. Hence, while recovery after rehydration is relatively swift once the woman returns home, dehydration may recur, necessitating another hospital admission for further rehydration. Thus, HG is a common reason for multiple admissions to a hospital **(Ali & Ahmed, 2020)**.

Women suffering from hyperemesis may spontaneously change their diet and eating patterns. Small and frequent dry meals are usually more tolerable than fatty, fried and spicy food. Drinking small amounts of fluid regularly is important to maintain hydration. Eating before getting out of bed and at times when nausea is less severe may reduce the severity of nausea and vomiting. Women with hyperemesis may notice that they are sensitive to certain scents and learn to avoid them. All these modifications may help reduce symptoms, but in more severe cases are unlikely to provide sufficient protection from dehydration. When symptoms are severe, admission to hospital may be needed for observation and to treat dehydration with intravenous fluids **(Jasline, 2019)**.

The community health nurses play a very important role in assisting pregnant women in obtaining the knowledge and skills required for hyperemesis gravidarum management. However, participation in hyperemesis gravidarum management creates a new challenge for community health nurses and other health care providers in delivering appropriate instructions and effective health education programs that adequately address pregnant women status **(Herdman, & Kamitsuru, 2017)**.

Significance of the Study

The nausea and vomiting that happens during pregnancy can have harmful effects on both the pregnant women and fetus. Nausea and vomiting can impose substantial lifestyle limitations on pregnant women. Even when the condition is mild, symptoms can cause considerable distress and temporary disability **(Richardson, et al., 2019)**. Hyperemesis gravidarium is the most common cause of hospitalization during the first half of pregnancy and is second only to preterm labor for hospitalizations in pregnancy overall. In approximately 0.3-3% of pregnancies, hyperemesis gravidarium is prevalent and this percentage varies on account of different diagnostic criteria and ethnic variation in study populations. However, 10% to 20% of affected pregnant women experience symptoms throughout pregnancy and symptoms may even persist postpartum **(Viljoen et al., 2014)**. In Egypt the Hyperemesis gravidarum (HG) is a severe form of vomiting that occurs in 0.3-2% of all pregnant women **(Mohammad et al., 2020)**.

Aim of The Study

This study aimed to assess health needs and problem of pregnant women with hyperemesis gravidarium through:-

- Assessing knowledge of women with hyperemesis gravidarium during pregnancy about hyperemesis gravidarium
- Assessing health needs and problems of pregnant women with hyperemesis gravidarium
- Assessing reported practices of women with hyperemesis gravidarium during pregnancy about how to deal the hyperemesis gravidarium.

Research Questions:

- What are the health needs and problems of pregnant women's with hyperemesis gravidarium?
- Is there a relation between socio-demographic data of pregnant women with hyperemesis gravidarium and their knowledge about hyperemesis gravidarium?
- Is there a relation between socio-demographic data of pregnant women with hyperemesis gravidarium and their reported practice about hyperemesis gravidarium?
- Is there a relation between knowledge of the pregnant women with hyperemesis gravidarium about hyperemesis gravidarium and their reported practice?

Research Design

A descriptive design, correlation design was utilized to achieve the aim of this study.

Study Settings

The study was conducted at outpatient pregnancy clinics in gynecological and obstetrics hospital affiliated to Ain Shams University hospitals, which considered the Basic hospital in East Cairo. Sever a large number of women so the researcher expect to meet a large number of study sample.

Subjects

Type of sample the subject of this study was purposive sample size composed of 150 of pregnant women from first trimester to13week at the previously mentioned setting, and confirmed diagnosis with hyperemesis gravidarium from the previously mentioned setting during the study time.

Technical designs:

Three tools were used for data collection of the study

Tools of Data collection

First tool: A structured Interviewing Sheet: it was designed by the researcher and written in simple Arabic language based on scientific literature review to gather data in relation to the following parts:

1. Socio demographic characteristics of the pregnant women as age, place of residence, educational level, occupation, income (5items).

2. Medical and obstetric record: it was used to assess pregnant women with hyperemesis gravidarium it was included, present medical and obstetric history as duration of pregnancy, chronic diseases and severity of hyperemesis gravidarium. And past medical and obstetric history previous hospitalization frequency of previous hospitalization, previous hyperemesis gravidarium and previous pregnancy outcome (7items)

3. The questionnaire consisted of the pregnant women knowledge about hyperemesis gravidarium it was developed and modified by the researcher after reviewing the literature based on **Austin et al. (2019)** in form of open and closed questions as meaning, causes, risk factors, maternal complications, fetal complication and management and health education (12 questions).

Scoring system:

According to the response obtained from pregnant women, a scoring system was follow to assess women knowledge about hyperemesis gravidarium each question scored one (2) for complete correct answer, (1) for incomplete correct answer and each incorrect answer scored zero (0). These scores were converted dinto a percent as the following:

- Score <50% referred to poor level of knowledge.
- Score from 50% to 60% referred to average level of knowledge.
- Score from 60% to 100 % referred to satisfactory level of knowledge

4. Pregnant women reported practice: It was adopted from **(Matthews et al., 2015)** to assess pregnant women's practice related to dealing of hyperemesis gravidarium as diet (7 questions), positioning (6 questions), hygiene (4 questions), exercises (3 questions), daily activity (3 questions), sleep and rest (5 questions).

Scoring system: The correct step was scored one, and that incorrect step was scored zero. These scores were summed-up and converted into a percent score.

- Score from < 60 referred to incorrect practices.
- Score from 60 ≤ 100 referred to correct practices.

The second tool: Assessment the pregnant women health needs developed often occurring of the hyperemesis gravidarium, it was including (13 items) and measures four domains:

- Nutrition and rest needs (7 items) such as organizing meals, help from family members in daily business, filling the intestines a during meals, eat high-protein snacks and make time for luxury and concern with other things.
- Follow-up needs (6 items) such as continuous follow-up by specialists, measure the body's calcium and potassium, monitoring the weight of the fetus, maintain weight and making an ultrasound on the abdomen and following the pulse of the genus.

Scoring system: Response were score (1) if the needs were fulfilled and that not fulfilled was scored (Zero). The score of items were summed-up and the total divided by number of the items, giving a mean score of the health needs. These scores were converted into a percent score was classified as the following:

- Score from < 60 referred to unsatisfactory.
- Score from 60 ≤ 100 referred to satisfactory.

The third tool: Assessment the pregnant women health problems developed often occurring of the hyperemesis gravidarium, it was includes (17 items) and measures four domains:

- Physical problems (5 items) such as stomach disorders, lack of vitamins, especially vitamin (B), joint pain and burning sensation in the chest.
- Psychological problems (7 items) such as anxiety, fear and depression during pregnancy, insomnia during sleep, loneliness and isolation, a sense of guilt and lack of self-confidence and lack of self-respect
- Social problems (5 items) such as inability to carry out daily activities, increasing the burden towards childcare, inability to perform daily activities and a change in the husband's treatment

Scoring system: Response were score (1) if the health problem was present and that not present was scored (Zero). The score of items were summed-up and the total divided by number of the items, giving a mean score of the health problems. These scores were converted into a percent score was classified as the following:

- Score from < 60 referred to not present of problems.
- Score from 60 ≤ 100 referred to present of problems.

I. Operation Design

The operational design for this study consisted of three phases, namely preparatory phase, pilot study, and fieldwork.

Preparatory Phase

This phase included reviewing of literature related health needs and problem of pregnant women with hyperemesis gravidarium. This served to develop the study tools for data collection. During this phase, the researcher also visited the selected place to get acquainted with the personnel and the study settings. Development of the tools was under supervisors' guidance and experts' opinions were considered.

Face and content validity:

The tools were tested and evaluated for their face and content validity, by a jury group consists of 5 experts in the field of community health nursing (3) and obstetric health nursing (2) to test the content validity and modifications of the tools done according to the panel judgment on the clarity of sentences, appropriateness of content and sequence of items.

Reliability

The reliability of the study tools assessed by measuring their internal consistency trough by Cronbach's Alpha coefficient test (0.92).

Pilot Study

Pilot study was carried out on 10% (15) of pregnant women from first trimester to13week at the previously mentioned setting, and confirmed diagnosis with hyperemesis gravidarium from the previously mentioned setting in order to test the applicability of the constructed tools and the clarity of the included questions related to health needs and problem of pregnant women with hyperemesis gravidarium. The pilot has also served to estimate the time needed for each subject to fill in the questions. According to the results of the pilot, some corrections and omissions of items were performed as needed. The pilot participants were not included in the main study sample.

Fieldwork

- An approval was obtained from the medical and nursing director of the outpatient pregnancy clinics in gynecological and obstetrics hospital affiliated to Ain Shams University hospitals
- A letter was issued to them from the Faculty of Nursing, Ain-Shams University, explaining the aim of the study in order to obtain their permission and cooperation
- Data were collected in three months periods the researcher was available three days / week. Each pregnant woman interviewed individually using the previously mentioned study tools.
- The researcher first met with the pregnant woman in the previously mentioned setting, explained the purpose of the study after introducing herself
- The pregnant women were assured that information collected would be treated confidentially, and it would be used only for the purpose of the research.
- Individual interviewing was done after obtaining pregnant woman verbal consent to participate.

II. Administrative Design

Approval was obtained through on issued letter from the form the Dean of Faculty of Nursing, Ain Shams University to directors of the previously mentioned setting. The researcher then met the hospital director and explained the purpose and the methods of the data collection.

Ethical Consideration

Written approval was obtained from the pregnant women before inclusion in the study; a clear and simple explanation was given according to their level of understanding, physical and mental readiness. They secured that all the gathered data was confidential and used for research purpose only.

III. Statistical Analysis

The data obtained were synthesized, analyzed, and presented in the form of tables and figures using the Statistical Package for Social Sciences version 20.0 (SPSS). Qualitative variables were presented in the form of frequencies and percentages; quantitative variables were presented in the form mean and SD. Test of significance was used to find out associations between study variables. Chi-square (x^2) test of significance was used in order to compare proportions between two qualitative parameters. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant as the following:

- P value <0.05 was considered significant.
- P value <0.001 was considered as highly significant.
- P value >0.05 was considered insignificant.

Results

Table (1) shows that, 40% of the studied women in the age group of 25-30years old; mean ±SD (27.2±1.5). In relation education level, 56.7% of the studied women read and write. Moreover 79.3% of them have not enough monthly income.

Figure (1) reveals that, 71.3% of the studied women have unsatisfactory level of knowledge regarding hyperemesis gravidarium, while 28.7% of them have satisfactory level regarding hyperemesis gravidarium.

Figure (2) reveals that, 60.7% of the studied women have incorrect practices regarding hyperemesis gravidarium, while 39.3% of them have correct practices regarding hyperemesis gravidarium.

Figure (3) shows that, 55.3% of the studied women their health needs unsatisfied achieved regarding hyperemesis gravidarium, while 44.7% of them health needs satisfied achieved.

Figure (4) shows that, 62% of the studied women have health problems related to hyperemesis gravidarium, while 38% of them did not have health problems.

Table (5) illustrates that, there are highly statistically significant differences between age, monthly income and occupation of the studied women and their knowledge regarding hyperemesis gravidarium (p<0.01). Meanwhile there is statistically insignificant difference between education level and residence of the studied women and their knowledge regarding hyperemesis gravidarium (p >0. 05)

Table (2) illustrates that, there are highly statistically significant differences between age, education level, monthly income and residence of the studied women and their practices regarding hyperemesis gravidarium (p <0.01). Meanwhile there is statistically insignificant difference between occupation of the studied women and their practices regarding hyperemesis gravidarium (p > 0.05).

Table (3) illustrates that, there are highly statistically significant differences between age, education level, monthly income and occupation of the studied women and their health needs regarding hyperemesis gravidarium (p<0.01). Meanwhile there is statistically insignificant difference between residence of the studied women and their health needs regarding hyperemesis gravidarium (p > 0.05).

Table (4) illustrates that, there are highly statistically significant differences between age, monthly income and residence of the studied women and their health problems regarding hyperemesis gravidarium (p<0. 01). Meanwhile there are statistically insignificant differences between education level and occupation of the studied women and their health problems regarding hyperemesis gravidarium (p >0. 05)

Table (1): Distribution of the studied women according to their socio-demographic characteristic (no =150)

Variables	No	%
Age in years		
20-<25	27	18.0
25-<30	60	**40.0**
30 -<35	40	26.7
- ≥35	23	15.3
Mean ±SD	**27.2±1.5**	
Education level		
Can't read and write	56	37.3
Basic education	85	**56.7**
Secondary education	7	4.7
University education	2	1.3
Monthly income		
Enough	31	20.7
Not enough	119	**79.3**

Figure (1): Distribution of the studied women according to their total knowledge about hyperemesis gravidarium (no =150)

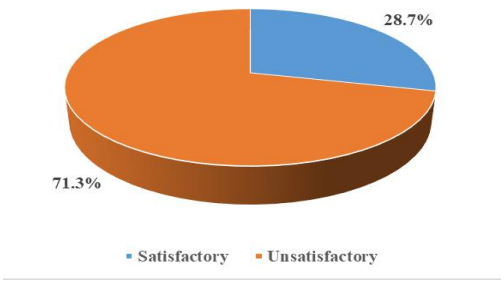

Figure (2): Distribution of the studied women according to their total practices (no =150)

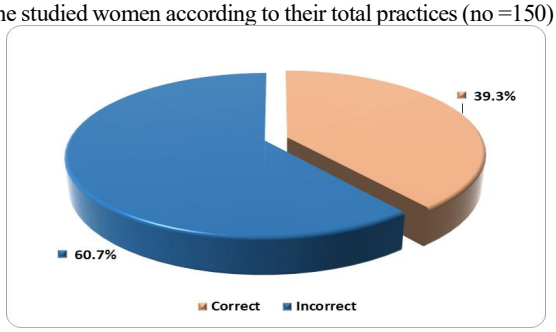

Figure (3): Distribution of the studied women according to their total health needs (no =150)

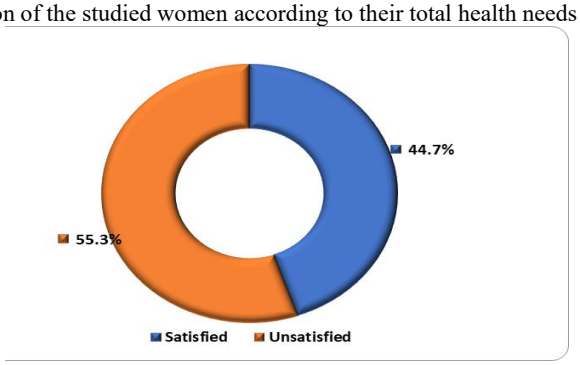

Figure (4): Distribution of the Studied women according to their total health problems (no =150)

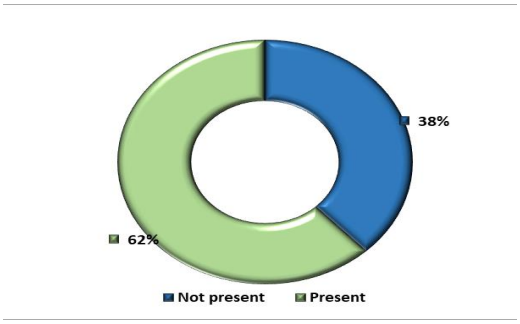

Table (2): Relation between socio-demographic characteristic of the studied women and their total knowledge

Variables	Total Practices				X2	P Value
	Satisfactory (no=43)		Unsatisfactory (no=107)			
	No	%	No	%		
Age in years						
20-<25	3	7.0	24	22.4	8.40	**0.04***
25-<30	18	41.9	42	39.3		
30 -<35	17	39.5	23	21.5		
- ≥35	5	11.6	18	16.8		
Education level						
Can't read and write	13	30.2	43	40.2	2.75	0.43
Basic education	25	58.1	60	56.1		
Secondary education	4	9.3	3	2.8		
University education	1	2.3	1	0.9		
Monthly income						
Enough	19	44.2	12	11.2	20.33	**0.0001****
Not enough	24	55.8	95	88.7		
Occupation						
Working	15	34.9	16	15.0	7.43	**0.006****
House wife	28	65.1	91	85.0		
Residence						
Urban	17	39.5	36	33.6	0.46	0.49
Rural	26	60.5	71	66.4		

(*)Statistically significant at p<0.05 (**) High statistically significant at p<0.01

Table (3): Relation between socio-demographic characteristic of the studied women and their total practices

Variables	Total Practices				X2	P Value
	Correct (no=59)		Incorrect (no=91)			
	No	%	No	%		
Age in years						
20-<25	5	8.5	22	24.2	12.03	**0.007****
25-<30	20	33.9	40	44.0		
30 -<35	23	39.0	17	18.7		
- ≥35	11	18.6	12	13.2		
Education level						
Can't read and write	11	18.6	45	49.5	15.83	**0.001****
Basic education	42	71.2	43	47.3		
Secondary education	5	8.5	2	2.2		
University education	1	1.7	1	1.1		
Monthly income						
Enough	19	32.2	12	13.2	7.89	**0.004****
Not enough	40	67.8	79	86.8		
Occupation						
Working	20	33.9	20	22.0	2.60	0.10
House wife	39	66.1	71	78.0		
Residence						
Urban	28	47.5	24	26.4	7.02	**0.008****
Rural	31	52.5	67	73.6		

(**) High statistically significant at p<0.01

Table (4): Relation between socio-demographic characteristic of the studied women and their health needs

Variables	Health Needs				X2	P Value
	Satisfied (no=67)		Unsatisfied (no=83)			
	No	%	No	%		
Age in years						
20-<25	3	4.5	24	28.9	46.01	**0.0001****
25-<30	38	56.7	22	26.5		
30 -<35	26	38.8	14	16.9		
- ≥35	0	0.0	23	27.7		
Education level						
Can't read and write	19	28.4	37	44.6	10.05	**0.01***
Basic education	40	59.7	45	54.2		
Secondary education	6	9.0	1	1.2		
University education	2	3.0	0	0.0		
Monthly income						
Enough	20	29.9	11	13.3	6.2	**0.01***
Not enough	47	70.1	72	86.7		
Occupation						
Working	15	22.4	25	30.1	1.13	0.28
House wife	52	77.6	58	69.9		
Residence						
Urban	31	47.8	21	25.3	7.19	**0.007****
Rural	35	52.2	62	74.7		

(*)Statistically significant at p<0.05 (**) High statistically significant at p<0.01

Table (5): Relation between socio-demographic characteristic of the studied women and their health problems

Variables	Health Problems				X2	P Value
	Not present (no= 57)		Present (no=93)			
	No	%	No	%		
Age in years						
20-<25	12	21.1	15	16.1	13.99	**0.003****
25-<30	21	36.8	39	41.9		
30 -<35	22	38.6	18	19.4		
- ≥35	2	3.5	21	22.6		
Education level						
Can't read and write	16	28.1	40	43.0	4.00	0.26
Basic education	36	63.2	49	52.7		
Secondary education	4	7.0	3	3.2		
University education	1	1.8	1	1.1		
Monthly income						
Enough	17	29.8	14	15.1	4.70	**0.03***
Not enough	40	70.2	79	84.9		
Occupation						
Working	18	31.6	22	23.7	1.13	0.28
House wife	39	68.4	71	76.3		
Residence						
Urban	29	50.9	23	24.7	10.66	**0.001****
Rural	28	49.1	70	75.3		

(*)Statistically significant at p<0.05 (**) High statistically significant at p<0.01

Discussion

Hyperemesis gravidarum (HG) is a condition described by extreme, persistent nausea and vomiting in early pregnancy and lead to decrease body fluids, ketonuria, fluid and electrolyte imbalances, malnutrition and low body weight. Hyperemesis gravidarum is considered as one of high-risk pregnancy, and is a main source of maternal hospitalization **(Saadoon, & Elshouky, 2017)**.

Regarding the socio-demographic characteristics of the studied pregnant women, the finding of the current study revealed that, two fifth of the studied women in the age group of 25-30 years old; mean ±SD (27.2±1.5). These results approved with the study performed in Egypt by **El-Garhy et al., (2019)** about "Helicobacter pylori seropositivity in hyperemesis gravidarum during pregnancy", who stated that, the mean age of the studied sample was 27.9±5.89 year. Could be this result might be due to this age group considered high risk for exposure to hyperemesis gravidarium.

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The result of the current study revealed the total pregnant women's practices towards hyperemesis gravidarium, the results of the current study showed that, less than two-thirds of the studied women have incorrect practices regarding hyperemesis gravidarium, while more than one third of them have correct practices regarding hyperemesis gravidarium. These results mean that the pregnant women's knowledge had an effect on their practices, as when the pregnant women have unsatisfactory knowledge level regarding hyperemesis gravidarium conditions; this will affect their practices.

These current results were supported with the study done by **Emami-Sahebi et al. (2020)** who conducted their study in Iran to assess the effects of individual cognitive behavior therapy on nausea and vomiting of pregnancy and stated that, more than half of the studied women have unsatisfactory practices towards hyperemesis gravidarium. In the same field, **Nana et al. (2021)** conducted a study in Ethiopia to assess the hyperemesis gravidarum in the primary care setting and reported that, less than two-thirds of pregnant women poor practices regarding hyperemesis gravidarium.

The result of the current study revealed the total health needs of pregnant women, the results of the current study showed that, more than half of the studied women their health needs unsatisfied achieved regarding hyperemesis gravidarium, while less than half of them their health needs satisfied achieved. These results may be due to a matter of service quality and they did not receive adequate amount of information and health education about the disease and its management at the health care facility. These current results were supported with **Hajmohamadi et al. (2018)** who conducted a study in Iran to assess the maternal health status among pregnant women and stated that, less than two-thirds of the studied pregnant women reported that their needs during pregnancy were not met. In the same field, **Yan et al. (2020)** conducted a study in China to assess the efficacy and safety of traditional Chinese medicine external treatment for the hyperemesis gravidarum and reported that, more than half of the studied women reported that, their needs are not met during pregnancy.

The result of the current study revealed the total health problems among the studied women, the present study results presented that, less than two-thirds of the studied women had health problems related to hyperemesis gravidarium, while more than one-third of them did not have health problems. These results may be due to the biological, psychological, and social factors to explain the occurrence of health problems. Pregnant females have increased biological vulnerability due to the hormonal maladjustment, psychological vulnerability due to apprehension for new life of motherhood, and social vulnerability due to the added demands of family support and care during this critical phase of her life.

These results were in agreement with **Gabra (2018)** who conducted a study to assess the health problems of hyperemesis gravidarum and revealed that, more than half of the studied sample had health problems related to hyperemesis gravidarium.

The finding of the current study showed that, there were highly statistically significant differences between age, monthly income and occupation of the studied women and their knowledge regarding hyperemesis gravidarium. This could be explained as, the satisfactory level of knowledge was higher among women aged (25-<30 years), who had enough income. Also, the satisfactory level of knowledge was higher among house wife.

These results were in agreement with the study achieved by **Luqmanasari (2018)** who found that longitudinal relations between women's knowledge about hyperemesis gravidarium and their age and monthly income. On other hand, this result was incongruity with **Havnen (2019)** who conducted a study to assess women's perspectives on the management and consequences of hyperemesis gravidarum and revealed that there were no statistically significant differences between age and occupation of the studied women and their knowledge regarding hyperemesis gravidarium.

Moreover, the finding of the current study revealed that, there was statistically insignificant difference between education level and residence of the studied women and their knowledge regarding hyperemesis gravidarium. This could be explained as, pregnant women's education level and residence don't have a significant effect on their knowledge about hyperemesis gravidarium. These results were in agreement with the study achieved by **Jasline (2018)** who mentioned that, there was no statistically significant difference between women's characteristic as education level and residence and their knowledge regarding hyperemesis gravidarium.

The result of the current study revealed the relationship between socio-demographic characteristic of the studied women and their total practices regarding hyperemesis gravidarium, the present study results revealed that, there were highly statistically significant differences between age, education level, monthly income and residence of the studied women and their practices regarding hyperemesis gravidarium. This could be explained as, satisfactory level of practices was higher among women aged (30 -<35 years) and who had enough income. Also, the satisfactory level of practices was higher among women with high education and residing in urban areas.

These results were in agreement with the study of **Nana et al. (2021)** who found that age, education level and monthly income had a significant effect on women's practices regarding hyperemesis gravidarium. In the same field these results were supported with the study of **Dean (2018)** who revealed that there was statistically significant relation between women's practices regarding hyperemesis gravidarium and their monthly income and residence.

Moreover, the finding of the current study revealed that, there was statistically insignificant difference between occupation of the studied women and their practices regarding hyperemesis gravidarium. This could be explained as, there was no difference between women's occupation regarding their practices. These results were in agreement with the study achieved by **Maslin, & Dean (2021)** who mentioned that, women's job don't have a significant effect on their practices about hyperemesis gravidarium. On other hand, this result was incongruity with **Havnen (2019)** who revealed that there were no statistically significant differences between age and occupation of the studied women and their practices regarding hyperemesis gravidarium.

the finding of the current study showed that, there were highly statistically significant differences between age, education level, monthly income and occupation of the studied women and their health needs regarding hyperemesis gravidarium. This could be explained as, the satisfied achieved of health needs was higher among women aged (25-<30 years), who had high education and enough income. Also, the satisfied achieved of health needs was higher among women residing in urban areas.

These results were in agreement with the study achieved by **Hajmohamadi et al. (2018)** who found that, there were a significant relation between women's health needs and their age and education level. In the same field

these results were supported with the study of **Austin et al. (2019)** who revealed that, monthly income of the studied women had a significant effect on their need achieved.

Moreover, the finding of the current study revealed that, there was statistically insignificant difference between residence of the studied women and their health needs regarding hyperemesis gravidarium. These results were in agreement with the study achieved by **Chimatiro et al. (2018)** who mentioned that, there was no statistically significant difference between women's characteristic as residence and their needs regarding hyperemesis gravidarium.

the present study results revealed that, there were highly statistically significant differences between age, monthly income and residence of the studied women and their health problems regarding hyperemesis gravidarium. This could be explained as, health problems were higher among women aged (≥35 years) and who had not enough income. Also, health problems were higher among women with high education and residing in rural areas.

These results were in agreement with the study of **Lagadec et al. (2018)** who found that age and monthly income had a significant effect on women's health problems. In the same field these results were supported with the study of **Priya et al. (2018)** who revealed that there was statistically significant relation between women's health problems and their monthly income and residence.

Moreover, the finding of the current study revealed that, there were no statistically insignificant differences between education level and occupation of the studied women and their health problems regarding hyperemesis gravidarium. This could be explained as, education level and occupation of the studied women don't have a significant effect on their health problems regarding hyperemesis gravidarium. These results were in agreement with **Boelig et al. (2018)** who conducted a study to assess the interventions for treating hyperemesis gravidarum and mentioned that, there was no statistically significant difference between women's characteristic as education level and occupation and their health problems regarding hyperemesis gravidarium.

Conclusion

Less than three-quarters of the studied women have unsatisfactory level of knowledge. Also, less than two-thirds of them have incorrect practices. Moreover, more than half of the studied women their health needs unsatisfied achieved. Furthermore, less than two-thirds of them have health problems related to hyperemesis gravidarium. Also, there was a relation between socio-demographic data of pregnant women and their knowledge and reported practices about hyperemesis gravidarium. Moreover, there was statistically significant positive correlation between total practices of the studied women and their total knowledge. Furthermore, there was statistically significant difference between total health needs of the studied women and their health problems regarding hyperemesis gravidarium.

Recommendations

Based upon the results of the current study the following recommendations suggested:

- Increase awareness of pregnant women about hyperemesis gravidarum hazards and the importance of prompt medical care-seeking to avoid complications.
- Direct the attention to early recognize cases in primary care settings with proper management and referral to avoid adverse effects for the mother and fetus.
- Organizing of training programs for pregnant women about self-care to improve their behavioral and life style.
- Simple Arabic brochures or pamphlets should be available in maternity care units for the high-risk group and should contain updated evidence-based guidelines for nursing management and preventive measures of hyperemesis gravidarum.
- Further research is needed on a larger probability sample at different settings to generalize the results.

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