Vol 5 | Issue 1 | Pages 133-137

Annals of Gynecology and Obstetrics
ISSN: 2642-5033

Original Article

DOI: 10.36959/468/480

Prevalence of Nausea and Vomiting of Pregnancy and its Associated Factors at Three Teaching Hospitals in Ethiopia

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Abstract

Background: Nausea and vomiting are common symptoms during early pregnancy affecting as many as 50-80% of pregnant women. Persistent low food intake and/or frequent vomiting can lead to dehydration, metabolic imbalance, nutritional deficiencies and weight loss.

Objective: To determine the prevalence of nausea and vomiting of pregnancy and its associated factors at 3 teaching Hospitals in Ethiopia.

Methods: A hospital based cross-sectional study was done. A structured questionnaire containing modified PUQE 24 score was administered by trained data collectors. SPSS for windows version 23 was used for data analysis and statistical significance was assessed using the odds ratios, 95% confidence intervals, and p values.

Results: The prevalence of nausea and vomiting in pregnancy (NVP) was 74.9%, out of which 19.7%, 43.4% and 11.7% were mild, moderate and severe types respectively. Three hundred and fifty pregnant women were included in the study. Previous history of nausea and vomiting [AOR = 2.28 (CI0.057-0.272) and], multiple gestation [AOR = 7.054 CI (1.892-26.309)] and family history of HEG [AOR = 5.134 (CI 1.864-14.140)] were strongly associated nausea and vomiting in pregnancy.

Conclusions: The prevalence of NVP in our study was 76.4%, which is similar to the reports from previous studies. Women with personal history of NVP, family history of NVP, and multiple gestation have an increased susceptibility to develop NVP. Identification of such risk factors is important in pre-pregnancy counselling.

Keywords

Nausea and vomiting in pregnancy, Hyperemesis gravidarum, PUQE 24 score

List of Abbreviations

ANC: Antenatal Care; EGOPD: Emergency Gynecologic OPD; HEG: Hyperemesis Gravidarum; NVP: Nausea and Vomiting of Pregnancy; OBGYN: Obstetrics and Gynecology; OPD: Out Patient Department; PUQE: Pregnancy Unique Quantification of Emesis; SPHMMC: Saint Paul Hospital Millennium Medical College.

Introduction

More than half of pregnant women suffer from nausea and vomiting, which typically begins by the fourth week and disappears by the 16th week of pregnancy [1]. While nausea and vomiting in early pregnancy are very common, affecting approximately 80% of the pregnancies, hyperemesis gravidarum is a severe form affecting 0.3-1.0% of the pregnancies [2,3]. Nausea and vomiting of pregnancy has a profound effect on women's health and quality of life during pregnancy as well as a financial impact on the health care system [4-6]. A number of risk factors associated with HEG have been reported, including null parity, young age, multiple gestation, trophoblastic disease, a previous pregnancy complicated by HEG, female sex, psychiatric

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Accepted: July 15, 2021

Published online: July 17, 2021

Citation: Fessehaye A, Abate DD (2021) Prevalence of Nausea and Vomiting of Pregnancy and its Associated Factors at Three Teaching Hospitals in Ethiopia. Annals Gynecol Obstet 5(1):133-137

conditions, and both high and low maternal pre-pregnancy weight [7].

A range of treatment of HEG includes dietary and lifestyle modifications, complementary therapies (i.e. acupuncture), and pharmaceutical therapies including a variety of classes of anti-emetics and corticosteroids, and enteral/parenteral nutrition [7-10]. No single measure can easily define, quantify or evaluate the severity of nausea and vomiting of pregnancy, but an English pregnancy specific questionnaire PUQE (Pregnancy-Unique Quantification of Emesis) has been developed in order to assess the severity of nausea and vomiting in pregnancy [10].

HEG can cause a potentially life-threatening complication of pregnancy and is potentially lethal if not treated. The etiology and pathogenesis of HEG is unknown. But it is said to be multifactorial and the result of complex interaction of endocrinologic, psychoneurotic, genetic and environmental factors [11]. The aim of this study was to assess the prevalence of NVP and it's associated factors among Ethiopian pregnant women.

Methodology

With objectives of determining prevalence of nausea and vomiting of pregnancy among pregnant women at three teaching hospitals in Addis Ababa and it's associated factors and stratification of the severity of nausea or vomiting of pregnancy using modified PUQE score, a hospital-based cross-sectional study was conducted at St. Paul's Hospital Millennium Medical College (SPHMMC) and it's two affiliate Hospitals in Addis Ababa city.

A single population proportion formula was used with an assumption that was adopted from a previous study that reported a 74.5% prevalence of nausea and vomiting of pregnancy and 6.1% prevalence of severe nausea and vomiting of pregnancy [10]. With a 95% confidence interval, 5% margin of error (d = 0.05), 80% power of study and a 10% expected non-response rate, a total of 355 cases were included in the study, according to inclusion and exclusion criteria.

Inclusion criteria

- Pregnant women who come for prenatal care and who visited emergency gynecologic OPD (EGOPD) at SPHMMC and 2 of its affiliated teaching hospitals in Addis Ababa during the study period and who volunteered to participate in the study.

Exclusion criteria

- Pregnant women who had medical or surgical disorders as a cause of nausea and vomiting.

Ethical approval for the research was obtained from SPHMMC Ethics and Research Committee and a written informed consent was taken from each correspondent before participation in the study and only volunteers who agreed to participate in the study were included. Questionnaires were coded and patients' names was kept anonymous. Privacy and confidentiality was safeguarded throughout the course of the study.

Every third pregnant women coming for antenatal care or visited the emergency Ob-Gyn departments at St. Paul's Hospital Millennium Medical College and it's two affiliate Hospitals in Addis Ababa, from Monday through Friday, was recruited till the desired sample size was achieved. Data was collected by doing face-to-face interviews and using a structured questionnaire containing modified PUQE 24 score. Data was collected by nurses and midwives.

Pregnancy unique quantification of emesis and nausea scoring index (PUQE) was used to assess severity of emesis which had three questions regarding the time span of nausea, vomiting and retching respectively.

Modified PUQE-24 scoring system

A) On average in a day, how many times have you felt nauseated or sick to your stomach?

Not at all (1), 1 hour or less (2), 2-3 hours (3), 4-6 hours (4), More than 6 hours (5)

B) On average in a day, how many times have you vomited or thrown up?

7 or more times (5), 5-6 times (4), 3-4 times (3), 1-2 times (2), I did not throw up (1)

C) On average in a day, how many times have you had retching or dry heaves without bringing anything up?

No time (1), 1-2 times (2), 3-4 times (3), 5-6 times (4) 7 or more times (5)

PUQE-24 Score: Mild = 6; Moderate = 7-12; Severe = 13-15

Data editing was done by principal investigator to ensure consistence and completeness of data. Data was entered into a computer using Epi info 7. Final analysis was done using SPSS for windows version 23. Frequencies and measures of variation was used to describe study outcomes, including socio-demographic characteristics and other relevant variables. Multivariate regression analysis was done for predictor variables. Odds rations, 95% confidence intervals, and p value less than 0.05 was used to describe findings significance.

Results

From 350 pregnant women included in this study, the prevalence of nausea and vomiting of pregnancy was 74.9%. As shown in Table 2, mild nausea and vomiting of pregnancy which is PUQE score ≤ 6 was found to be 26.3%, while moderate nausea and vomiting of pregnancy (PUQE score between 7 and 12) represented 58% of the nausea and vomiting cases. Severe nausea and vomiting of pregnancy (PUQE score between 13-15) was observed in 15.6% cases of nausea and vomiting. The age of study participants ranged from 15-45 years with mean of 28 years, with 46.13% of them being in the age group between 25 - 30 years (Table 2).

In multimodal regression analysis (Table 3), having previous history of nausea and vomiting, multiple order pregnancy and family history of HEG were strongly associated with the occurrence of nausea and vomiting. Twenty-three percent of pregnant women with family history of nausea

Table 1: PUQE score of pregnant women with NVP attending ANC at 3 teaching hospitals in Addis Ababa 2019.

PUQE score		Frequency	Percent
	≤ 6 = mild NVP	69	26.3
	7-12 = moderate NVP	152	58
	13-15 = severe	41	15.6
	Total	262	100.0

Table 2: Sociodemographic characteristics.

Variables	Category	Nausea and vomiting	
		Yes (%)	No (%)
Age group	15-25 yrs	71 (20.3)	37 (10.6)
	26-35 yrs	184 (52.6)	41 (11.7)
	36-45 yrs	7 (2)	10 (2.8)
Occupation	Governmental employee	72 (20.6)	12 (3.4)
	House wife	131 (37.4)	58 (16.6)
	Private employee	59 (16.9)	18 (5.14)
Educational status	Not educated	6 (1.7)	18 (5.14)
	primary school	31 (8.8)	70 (20)
	secondary school	35 (10)	74 (21.14)
	college or university	16 (4.5)	100 (28,6)
Marital status	Unmarried	18 (7%)	0
	Married	244 (93%)	88 (100%)
Place residence	Rural	44 (16.8%)	23 (8.8%)
	Urban	218 (83.2%)	65 (24.8%)
Primigravida		112 (42.7%)	33 (37.5%)

Table 3: Association of obstetric characteristics with nausea and vomiting in pregnancy.

Obstetric Characteristics	Have Nausea and Vomiting	No Nausea and Vomiting	AOR and 95th CI	P-value
Previous history of nausea or vomiting	109 (41%)	16 (18%)	2.28 (0.057- 0.272)	0.0001
Multiple gestation	31 (12%)	3 (3.4%)	7.054 (1.892-26.309)	0.004
No Family support	42 (9.2%)	13 (14.8%)	1.350 (0.599-3.043)	0.469
History of psychiatric illness	27 (10.9%)	3 (3.4%)	3.798 (0.926 - 15.581)	0.064
Family history of HEG	61 (23.3%)	6 (6.8%)	5.134 (1.864-14.140)	0.002
Primigravida	112 (42.7%)	33 (37.5%)	2.066 (0.957 - 4.460)	0.143

and vomiting developed NVP, while only 6.8% didn't develop nausea and vomiting. This finding was significant with odds ratio value of 5.134 (CI 1.864-14.140) and at p-value of 0.002.

From pregnant women having previous history of nausea and vomiting, 41% of them developed nausea and vomiting in the index pregnancy, which was a significant finding with AOR = 2.28 (CI0.057-0.272) and at p-value of 0.0001. Similarly, pregnant women with multiple gestation had a significant risk of developing nausea and vomiting - 12% of them developed nausea and vomiting in comparison to only 3.4% who had no nausea and vomiting (AOR = 7.054 CI (1.892-26.309) and p-value of 0.004).

Discussion

Nausea and vomiting in pregnancy (NVP) is an extremely common disorder in pregnancy that ranges in spectrum from mild to moderate nausea and vomiting to pathologic HG [12]. It is estimated that 70-80% of pregnant women experience NVP [13]. In this study, the prevalence of NVP was found to be 74.9% (out of which 15.6 percent were severe NVP). Findings of this study is similar to a previous report of 74.5% from a similar study done in Addis Ababa (Ethiopia) in 2013 [11]. It is however lower than an 88% prevalence reported in a recent study done in Finland [14].

According to a systematic review done in 2013, 70% pregnant women have NVP in pregnancy [1]. Another systemic review and meta-analysis done in the same year, in which 79 studies on NVP from around the world were analyzed, showed that the prevalence of NVP is similarly 70%, (severe NVP representing 14% of the cases) [15]. Our NVP prevalence report is consistent with these two reports and another meta-analysis report that showed 70% of American pregnant women suffer from NVP with 1.2% of them having the severe form of NVP [16].

The finding of 15.6% severe NVP in our study is close to the report of 14% and higher than a report of 8.2% in the Finish study and in a recent study from Southern Ethiopia respectively [17].

Previous history of NVP and family history of HEG are described as a risk factors for development of NVP in pregnancy [18,19]. In a 2008 study done in California (USA), in which 1225 pregnant were studied, approximately 28% of women reporting a history of HG in their mothers [20]. Our study showed that 23.3% of the women studied had a family history of nausea and vomiting, which is statistically significant ([AOR=5.134 (CI 1.864-14.140)], p-value of 0.002). In another similar study, women without a history of nausea during prior pregnancies were found to have a low risk of developing nausea and vomiting in an index pregnancy [21]. A different study done in 1993 found that approximately two thirds of women who described their vomiting as severe in one pregnancy had similar symptoms in the next pregnancy [22]. In our study, 41% of those who have NVP in index pregnancy had previous history of NVP, which is statistically significant finding (AOR = 2.28 (CI0.057-0.272, p-value of 0.0001).

Multiple pregnancy is listed among the risk factors for NVP [23]. Furthermore hyperemesis gravidarum (HG), the severe form of NVP, occurs more frequently in multiple pregnancies [24]. Multiple gestation was strongly associated with presence of NVP in our study, which is consistent with a report from a study done in Japan in 2018 that showed mothers with twin pregnancies were shown to have higher odds for the presence of NVP and severe NVP. In the study 91,666 pregnant women were analyzed and out of which 75,828 (82.7%) experienced at least some symptoms of NVP (which is higher than our study finding) and 10,159 (11.1%) experienced severe NVP (lower than found in our study) [25]. In our study 12% from those who had NVP were found to be multiple pregnancies, which is again statistically significant (AOR=7.054 CI (1.892-26.309), p-value of 0.004).

Contrary to most reports from different studies, lack of family support, history of previous psychiatric illness and primigravidity were not statistically associated with either presence or severity of NVP in this study. These differences may have arisen from the difference in methodology - some of the studies that found such associations focused on the severest end of spectrum of NVP, which is Hyperemesis Gravidarum, and difference in patient profile included in the study.

Conclusion

The prevalence of NVP in our study was 76.4%, which is similar to the reports from previous studies. Women with personal history of NVP, family history of NVP, and multiple gestation have an increased susceptibility to develop NVP. Identification of such risk factors is important in pre-pregnancy counselling.

Declarations

Ethics approval and consent to participate

Ethics approval was obtained from IRB at SPHMMC and written informed consent was obtained from study participants.

Availability of supporting data

All supporting documents are submitted along with the research article and a duplication can be obtained from the Library at SPHMMC.

Competing interests

No competing interests.

Authors' contributions

DD contributed data collection and data analysis. AF contributed data analysis interpretation and manuscript write-up.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgements

The authors would like to thank Saint Paul's Hospital millennium Medical College, Addis Ababa, Ethiopia.

References

1. Festin M (2014) Nausea and vomiting in early pregnancy. BMJ Clin Evid 2014: 1405.
2. Austin K, Wilson K, Saha S (2019) Hyperemesis gravidarum. Nutr Clin Pract 34: 226-241.
3. Boelig RC, Barton SJ, Saccone G, et al. (2018) Interventions for treating hyperemesis gravidarum: A Cochrane systematic review and meta-analysis. J Matern Fetal Neonatal Med 31: 2492-2505.
4. Campbell K, Rowe H, Azzam H, et al. (2016) The management of nausea and vomiting of pregnancy. J Obstet Gynaecol Can 38: 1127-1137.
5. Wood H, McKellar LV, Lightbody M (2013) Nausea and vomiting in pregnancy: Blooming or bloomin' awful? A review of the literature. Women Birth 26: 100-4.
6. Tan A, Lowe S, Henry A (2018) Nausea and vomiting of pregnancy: Effects on quality of life and day-to-day function. Aust N Z J Obstet Gynaecol 58: 278-290.
7. Fazari A, Ahmed H, Eltayeb R, et al. (2016) Management and outcome of hyperemesis gravidarum at tertiary obstetric facility, Khartoum-Sudan. Open Journal of Obstetrics and Gynecology 6: 630-636.
8. Hailemariam S, Dereje A, Habtamu J, et al. (2016) Prevalence of hyperemesis gravidarum and associated factors among pregnant women at Jimma University Medical Center, South West Ethiopia: A cross-sectional study. EC Gynaecology 3: 376-387.
9. Birkeland E, Stokke G, Tangvik RJ, et al. (2015) Norwegian PUQE (pregnancy-unique quantification of emesis and nausea) identifies patients with hyperemesis gravidarum and poor nutritional intake: A prospective cohort validation study. Plos One 10: e0119962.
10. Ghadah AM (2012) Prevalence and risk factors of hyperemesis graviderum among Egyptian pregnant woman at the woman's health center. Med J Cairo Univ 80: 161-168.

11. Tilahun K, Lukman Y, Shiferaw N, et al. (2013) Assessment of nausea and vomiting of pregnancy on antenatal clients of addis ababa. Ethiopian Journal of Health Development 27.

12. Lee NM, Saha S (2011) Nausea and vomiting of pregnancy. Gastroenterol Clin North Am 40: 309-304.

13. O'Brien B, Zhou Q (1995) Variables related to nausea and vomiting during pregnancy. Birth 22: 93-100.

14. Laitinen L, Miina N, Pauliina E, et al. (2020) Nausea and vomiting of pregnancy: Associations with personal history of nausea and affected relatives. Archives of Gynecology and Obstetrics 302: 947-955.

15. Einarson TR, Charles P, Gideon K (2013) Quantifying the global rates of nausea and vomiting of pregnancy: A meta-analysis. J Popul Ther Clin Pharmacol 20: e171-e183.

16. Thomas RE, Charles P, Gideon K (2013) Prevalence of nausea and vomiting of pregnancy in the USA: A meta-analysis. J Popul Ther Clin Pharmacol 20: e163-e170.

17. Kejela G, Getu S, Gebretsdik T, et al. (2018) Prevalence of hyperemesis gravidarum and associated factors in Arba Minch General Hospital, Gamo Gofa Zone, Southern Ethiopia. Clinics Mother Child Health 15: 1.

18. Whitehead SA, Andrews PL, Chamberlain GV (1992) Characterisation of nausea and vomiting in early pregnancy: A survey of 1000 women. J Obstet Gynaecol 12: 364-369.

19. Chowdhury S, MA Hussain (2011) Maternal complications in twin pregnancies. Mymensingh Med J 20: 83-87.

20. Fejzo MS, Ingles SA, Wilson M, et al. (2008) High prevalence of severe nausea and vomiting of pregnancy and hyperemesis gravidarum among relatives of affected individuals. Eur J Obstet Gynecol Reprod Biol 141: 13-17.

21. Weigel MM, Weigel RM (1988) The association of reproductive history, demographic factors, and alcohol and tobacco consumption with the risk of developing nausea and vomiting in early pregnancy. Am J Epidemiol 127: 562-570.

22. Gadsby R, Barnie-Adshead AM, Jagger C (1993) A prospective study of nausea and vomiting during pregnancy. Br J Gen Pract 43: 245-248.

23. Erick M, Cox JT, Mogensen KM (2018) ACOG practice bulletin 189: Nausea and vomiting of pregnancy. Obstet Gynecol 131: e15-e30.

24. McCarthy FP, Lutomski JE, Greene RA (2014) Hyperemesis gravidarum: Current perspectives. Int J Womens Health 6: 719-725.

25. Mitsuda N, Eitoku M, Maeda N, et al. (2019) Severity of nausea and vomiting in singleton and twin pregnancies in relation to fetal sex: The Japan Environment and Children's Study (JECS). J Epidemiol 29: 340-346.

DOI: 10.36959/468/480