Original Article

Nutritional Deficiency as a Major Risk Factor for Anemia in Young Primigravida Women

Ifat Baloch[1], Maryam Pholpoto[2], Sabreena Talpur[3], Hina Akmal[4], Naseem Bajari[5], Khushboo Chandio[6]

[1,2]Assistant Professor of Obs & Gynae, BMC for boys Jamshoro, [3]Assistant Professor of Obs & Gynae, LUMHS Jamshoro, [4]Medical officer at DHQ Hospital Kotri, [5]Community Medicine LUMHS/ Jamshoro, [6]Lecturer at Peoples Nursing school, LUMHS, Jamshoro

Correspondence *Ifat Baloch, Assistant Professor of gynae and OBS, BMC/Jamshoro.*
Raziashoukat@gmail.com

Abstract

Objective: To determine the nutritional deficiency as a major risk factor for anemia in young primigravids presented at gynae and obstetrics out patient's department at BMC/ Jamshoro.

Methodology: This descriptive cross-sectional study was done at gynae and obstetrics out patients department at BMC/ Jamshoro, DHQ Hospital Kotri, during a period of six months from March 2019 to September 2019. All the pregnant anemic primigravid young women aged 18 to 35 years were included. Women were interviewed regarding their demographic information including socioeconomic status and quality of diet. A 5ml blood sample was taken to assess the fresh hemoglobin level. All the information was documented using self-structured questioner based proforma. SPSS version 26 used to the data analysis.

Results: A total of 401 pregnant women were studied; their mean age of the study subjects was 22.51±2.93 years, mean gestational age was 32.80±4.85 weeks, mean marriage duration was 1.92±0.91 years, while average hemoglobin was 8.68±1.28 mg/dl. Out of all 20.8% women had dyspnea and 25.8% had other morbidities. Most women 86.0% visited 2nd time in OPD and majority of the 75.0% had poor socioeconomic status. 53.0% women were living in joint family and unfortunately 22.5% women addictive habits like betel nuts and Multani mitti etc. Most of the women 56.0% had history inadequate diet, 32.0% had history of satisfactory diet, while only 11.5% women had history of adequate diet. Severity of anemia was significantly linked to the poor SES and addictive habits (p =>0.05).

Conclusion: Inadequate nutritional status has been observed to the major risk factor for anemia during pregnancy in young primigravids. Poor SES and the addictive habits seem to be the causative factors of insufficient dietary intake.

Keywords: Anemia, Primigravida, SES, Diet

Cite this article as: Baloch I, Pholpoto M, Talpur S, Akmal H, Bajari N, Chandio K. Nutritional Deficiency as a Major Risk Factor For Anemia in Young Primigravida Women. J Soc Obstet Gynaecol Pak. 2022; 12(3):295-297.

Introduction

Anemia, a condition characterized by a shortage of red blood cells or hemoglobin, is a common health concern that affects millions of women worldwide, particularly during pregnancy. Pregnancy places a significant physiological burden on women, which increases the demand for essential vitamins and minerals, including iron.[1] This increased demand for nutrients is often a major reason why many women develop anemia during pregnancy.[1] During gestation, maternal anemia is recognized as a risk factor for both the mother and the developing fetus. The presence of maternal anemia during pregnancy has been shown in a number of studies to be associated with a wide range of adverse birth outcomes, including, neonatal mortality, low birth weight, prenatal deaths and premature births.[2,3] In the developing nations, there are a number of different factors that can lead to anemia during the gestation.[4] Some of these factors include acute and chronic infections such as malaria, infectious diseases, inadequacies in iron, folate, vitamins A and B12; and caused by malnutrition.[4,5] On the other hand, the severity of anemia during pregnancy can vary depending on factors such as geographic location, dietary habits, and the time of year.[4] In Pakistan estimated maternal anemia around 70%,[6] it is suggests that a significant portion of pregnant women in Pakistan are not getting enough iron and other essential nutrients to support a healthy pregnancy.

Iron deficiency, which can be caused by a diet low in certain foods, is the most common cause of anemia in all regions of the world .[7] It can occur at any phase of life, it is especially common in infants and young children, as well as in women during pregnancy. This is due to the physiological demands of pregnancy cause a rise in the amount of iron and other vitamins that the body needs.[7,8]

There is indeed a significant issue in Pakistan with dietary habits, and this is a cause for concern, particularly for pregnant women who require a well-balanced and nutritious diet to support a healthy pregnancy. However, the situation is further complicated by the additional problem of addictive habits such as gutka and chaalia during pregnancy.[6] Furthermore, there exist disparities in socio-demographic, cultural, economic, and dietary aspects between urban and rural regions, as rural communities experience restricted availability of financial resources and face challenges in accessing healthcare services, as well as other essential utilities like electricity, modes of communication, and healthcare infrastructure.[9,10] The recent studies suggested that there should be a special focus on addressing the dietary and social factors related to anemia during pregnancy, in order to reduce the

Authorship Contribution: [1,2]Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work, Final approval of the version to be published, [3,4]Drafting the work or revising it critically for important intellectual content, participated in the acquisition

Funding Source: none
Conflict of Interest: none

Received: Mar 24, 2022
Accepted: Aug 29, 2022

incidence of anemia during pregnancy.[9-12] In accordance to above recent suggestions and lack of data regarding nutritional deficiency specially in primigravid women, this study has been done to address the nutritional deficiency as a major risk factor for anemia in young primigravids presented at gynae and obstetrics out patients department at BMC/ Jamshoro.

Methodology

This descriptive cross-sectional study was done at gynae and obstetrics outpatient department at BMC/ Jamshoro DHQ Hospital Kotri. Study was done during a period of six months from March 2019 to September 2019. All the pregnant anemic primigravida young women aged 18 to 35 years were included. All the women who have pre-existing anemia or other chronic illnesses, as well as those taking iron supplements or other medications that may affect iron levels, were excluded from the study. Women were interviewed regarding their demographic information including socioeconomic status and quality of diet. A 5ml blood sample was taken to assess the fresh hemoglobin level and

Anemia was categorized as mild (Hb = <7g/dl), moderate (Hb= 7-8.9 g/dl) and sever (Hb = 9-10.9 g/dl). Nutrition assessment was evaluated in the context of low iron-rich diets including protein, iron, calcium, vitamin D, and other vitamins and minerals that are necessary during pregnancy and any addictive habit that may contribute to poor nutritional status, such as smoking or the use of gutka or chaalia, as well as addressed any other addictive habit that was assumed as a contributor to poor nutritional status. Nutritional status was further categorized adequate, satisfactory and inadequate in accordance to nutrition status and addictive habits. All the information was documented using self-structured questioner based proforma. SPSS version 26 used to the data analysis.

Results

Mean age of the study subjects was 22.51±2.93 years, mean gestational age was 32.80±4.85 weeks, mean marriage duration was 1.92±0.91 years, while average hemoglobin was 8.68±1.28 mg/dl. The study also looked at clinical presentation, family status, and addictive habits, which are summarized in Table I.

According to the occupational status of their husbands, factory worker, rikshaw driver and farmers were most common 40.0%, 10.6% and 10.5% respectively. When it came to diet, the majority of women (56.50%) had a history of inadequate diet, while 32.05% had a history of satisfactory diet, and only 11.50% had an adequate diet status, Women with a history of inadequate diet had a higher frequency of moderate and severe anemia, but the difference was not statistically significant (p = 0.781). However, the frequency of moderate and severe anemia was significantly higher among women with poor socioeconomic status (p = 0.001), as shown in Table II

Discussion

Maternal anemia can have a number of negative consequences for both the mother and the fetus. For the mother, anemia can lead to fatigue, weakness, and a weakened immune system, making her more susceptible to infections. It can also increase the risk of hemorrhage during childbirth, which can be life-threatening. For the fetus, anemia can lead to low birth weight, preterm birth, and an increased risk of perinatal mortality. This study has been done to evaluate the nutritional deficiency as a major risk factor for anemia in young primigravida. A total of 400 women were enrolled, their mean age was 22.51±2.93 years and mean gestational age was 32.80±4.85 weeks. In the comparison of this study Anjum A et al[13] reported that the average age of the women during pregnancy was 26.07±5.04 years. Our findings were also supported by Nyamu GW et al[14] as in their study mean age of the pregnant women was 26.6 ± 5.8 years and their average gestational age was 21.8 ± 6.0 weeks.

In this study most of the women 75.0% were poor socioeconomically and as per the severity of anemia 48.0% had mild anemia, 25.3% had moderate anemia, and 26.8% had severe anemia. Consistently, the Sinha A et al[15] reported that, in their study majority of the women during pregnancy 57.5% had poor socioeconomic status and 60.5% of the women had moderate

Table I: Descriptive statistics of demographic and clinical variables (n=400)

Variables		Statistics	
Age (mean ± Sd)		22.51 ± 2.93 years	
Gestational age (mean ± Sd)		32.83 ± 4.76 weeks	
Marriage duration (mean ± Sd)		1.92 ± 0.19 years	
Hemoglobin (Hb) (mean ± Sd)		8.67 ± 1.24 g/dl	
Clinical presentation	Dyspnea	83	20.8%
	Breathing difficulty	88	22.0%
	Others	103	25.8%
Booking status	Booked	344	86.0%
	Un-booked	56	14.0%
Family status	Joint	212	53.0%
	Separate	188	47.0%
Socioeconomic status	Middle	84	21.0%
	Poor	300	75.0%
	Upper	16	04.0%
Anemia	Mild	192	48.0%
	Moderate	101	25.3%
	Sever	107	26.8%
Addiction	Betel nuts	21	05.3%
	Gutka	52	13.0%
	Mainpuri	01	0.3%
	Multani mitti	10	02.5%
	Paan	05	01.3%
	Smoking	01	00.3
	No addiction	310	77.5%

Table II: Severity of anemia according to nutritional status (n=400)

Variables		Severity of anemia			Total	p-value
		Severe	Moderate	Mild		
Diet	**Inadequate**	58	61	107	226	0.781
		14.5%	15.3%	26.8%	56.5%	
	Satisfactory	38	30	60	128	
		9.5%	7.5%	15.0%	32.0%	
	Adequate	11	10	25	46	
		2.8%	2.5%	6.3%	11.5%	
Total		107	101	192	400	
		26.8%	25.3%	48.0%	100.0%	
Socioeconomic status	**Poor**	95	91	114	300	0.001
		23.8%	22.8%	28.5%	75.0%	
	Middle	8	8	68	84	
		2.0%	2.0%	17.0%	21.0%	
	Upper	4	2	10	16	
		1.0%	0.5%	2.5%	4.0%	
Total		107	101	192	400	
		26.8%	25.3%	48.0%	100.0%	

anemia, while in their study, the frequency of severe anemia was lower compared to our findings. In the favour of this study Nyamu GW et al[14] also reported that the, mild anemia was 46.6%, moderate anemia was 49.7% and only 3.6% women had severe anemia. In this study the poor socioeconomic status and severity of anemia were high and this may because of participants of this study were mostly from rural areas and labour colonies. Although the severity of anemia and poor socioeconomic status (SES) may be related in several ways. Anemia is often caused by a lack of adequate nutrition, particularly a deficiency of iron, vitamin B12, and folate, which are essential nutrients for the production of red blood cells. Poor SES can limit access to a healthy and balanced diet, which may contribute to an increased risk of anemia

In this study the majority of women (56.50%) had a history of inadequate diet, while 32.05% had a history of satisfactory diet, and only 11.50% had an adequate diet status, however, the frequency of moderate and severe anemia was significantly higher among women with poor socioeconomic status (p=0.001). thee finding were supported by the Dewi SS et al[16] as in their study, 52.9% women had poor diet history and 31.4% women had good diet history. On the other hand, it is reported that, in Mali, women of childbearing age who reside in communities with low literacy and low socioeconomic status have a high prevalence of anemia, with 72.0% and 69.5% of women affected, respectively.[17] Moreover, there is a significant correlation between community literacy level, community socioeconomic status, and the prevalence of anemia.[17] Khursheed F et al[18] also observed that the consumption of betel nut very and also responsible for maternal anemia, while their study was on both multi and primiparous women. Although this study is novel in that it focuses specifically on primigravida women, and also investigates addictive habits as a potential contributing factor to maternal anemia. The study found that addictive habits were indeed significant contributors to maternal anemia. However, it is possibility that younger primi women may be more susceptible to anemia during pregnancy because they are still growing and developing themselves, and may not have built up sufficient iron stores prior to pregnancy. Additionally, younger women may be more likely to have diets that are inadequate in the nutrients needed to support a healthy pregnancy, including iron. It's important to note that the combination of primiparity (first-time pregnancy) and addictive habits such as chaalia, paan, and betel nut consumption have been found to be highly responsible for anemia in this study. The addictive habits may contribute to anemia through several mechanisms, such as reducing the absorption of iron and other essential nutrients or causing gastrointestinal disturbances that can lead to nutrient malabsorption. Therefore, it is crucial to address these addictive habits as a part of interventions to prevent and manage anemia in primiparous women.

Conclusion

Insufficient dietary intake caused by poor socio-economic status and addictive habits observed to be highly frequent. The evidence suggests that it is a major risk factor for anemia during pregnancy in young primigravids. This highlights the need for targeted interventions to improve the dietary intake and nutritional status of this population, especially in low-income settings. Improving the availability and accessibility of nutrient-rich foods, providing education and counseling on healthy eating practices, and addressing harmful behaviors such as betel nut consumption can all help to reduce the prevalence of anemia and improve maternal and fetal outcomes. It is imperative that healthcare providers, policymakers, and community leaders work together to address these issues and promote better health for pregnant women and their infants.

References

1. AL-Shawi AJ, Obaid JA, Mohammad MR, Mohammed NH. Study the Incidence and Types of Anemia in Pregnant Women in Baghdad Province. J of university of Anbar for pure science. 2012;6(1):25-38.
2. Rahmati S, Azami M, Badfar G, Parizad N, Sayehmiri K. The relationship between maternal anemia during pregnancy with preterm birth: a systematic review and meta-analysis. J. Matern.-Fetal Neonatal Med. 2020;2;33(15):2679-89.
3. Badfar G, Shohani M, Soleymani A, et al. Maternal anemia during pregnancy and small for gestational age: a systematic review and meta-analysis. J Maternfetal Neonat Med. 2018:1–7
4. Baig JA, Jamal MM, Jamal J, Musarrat M. To determine the association of maternal anemia with perinatal outcome in tertiary care hospital. Pakistan Armed Forces Medical Journal. 2020 Apr 30;70(2):302-07.
5. Okube OT, Mirie W, Odhiambo E, Sabina W, Habtu M. Prevalence and factors associated with anemia among pregnant women attending antenatal clinic in the second and third trimesters at Pumwani Maternity Hospital, Kenya 2016;6(1):16–27
6. Saeed S, Lakho N, Shaukat A, Parveen T, Memon R, Khatoon F. Prevalence of Anaemia among Gutka Addicted Pregnant Women. J Soc Obstet Gynaecol Pak. 2020;10(3):180-4.
7. Gibore NS, Ngowi AF, Munyogwa MJ, Ali MM. Dietary habits associated with anemia in pregnant women attending antenatal care services. Current developments in nutrition. 2021 Jan;5(1):nzaa178.
8. Oguizu AD, Chigbundu SJ. Assessment of anaemia and dietary intake of pregnant women in Ikwuano local government area Abia State, Nigeria. *J Hum Nutr Food Sci*. 2016:4(2):1085
9. Ali SA, Abbasi Z, Shahid B, Moin G, Hambidge KM, Krebs NF, Westcott JE, McClure EM, Goldenberg RL, Saleem S. Prevalence and determinants of anemia among women of reproductive age in Thatta Pakistan: Findings from a cross-sectional study. PloS one. 2020 Sep 24;15(9):e0239320.
10. Ali SA, Saleem S, Sami N, Shabbar M, Ahmed M, Rozi S, et al. Geographic access to working family planning centers and unintended pregnancies among married women: a community based nested case control study. Open Journal of Epidemiology. 2016;6(1):95
11. Mahmood T, Rehman AU, Tserenpil G, Siddiqui F, Ahmed M, Siraj F, Kumar B. The association between iron-deficiency anemia and adverse pregnancy outcomes: a retrospective report from Pakistan. Cureus. 2019 Oct 7;11(10).
12. Zhang J, Li Q, Song Y, Fang L, Huang L, Sun Y. Nutritional factors for anemia in pregnancy: A systematic review with meta-analysis. Frontiers in Public Health. 2022;10.
13. Anjum A, Manzoor M, Manzoor N, Shakir HA. Prevalence of anemia during pregnancy in district Faisalabad, Pakistan. Punjab Univ J Zool. 2015;30(1):15-20.
14. Nyamu GW, Kihara JH, Oyugi EO, Omballa V, El-Busaidy H, Jeza VT. Prevalence and risk factors associated with asymptomatic Plasmodium falciparum infection and anemia among pregnant women at the first antenatal care visit: a hospital based cross-sectional study in Kwale County, Kenya. PloS one. 2020 Oct 8;15(10):e0239578.
15. Sinha A, Adhikary M, Phukan JP, Kedia S, Sinha T. A study on anemia and its risk factors among pregnant women attending antenatal clinic of a rural medical college of West Bengal. Journal of Family Medicine and Primary Care. 2021 Mar;10(3):1327.
16. Dewi SS, Hasibuan DA, Aswan Y, Harahap M, Anggraini W. Relationship Between Diet and Physical Activity with the Event of Anemia in Pregnant Women. International Journal of Public Health Excellence (IJPHE). 2022 May 31;1(2):87-92.
17. Armah-Ansah EK. Determinants of anemia among women of childbearing age: analysis of the 2018 Mali demographic and health survey. Archives of Public Health. 2023 Dec;81(1):1-3.
18. Khursheed F, Madhudas C. Frequency of Betel nut Addiction in Pregnant Anaemic Women and its impact on fetal outcome. J Liaquat Uni Med Health Sci. 2017;16 (03):145-8.