Scientific Research Publishing

Open Journal of Nursing, 2026, 16(3), 247-254
https://www.scirp.org/journal/ojn
ISSN Online: 2162-5344
ISSN Print: 2162-5336

Contribution Study of Nurse's Role in Management of Anemia during Pregnancy

Jackson Ntakirutimana[1,2], Scophyle M'Munga Mkambwa[1,2], Jeanine Ndayisenga[1,2], Prosper Niyonkuru[1,2], Joselyne Ndayishimiye[1,2], François Nzeyimana[1,2], Aimable Mugisha[1,2], Edouard Niyongabo[1,2]

[1]Department of Health Sciences, Hope Africa University, Bujumbura, Burundi
[2]Public Health Ministry and Fight against AIDS, Bujumbura, Burundi
Email: ntakirutimanajackson91@gmail.com

How to cite this paper: Ntakirutimana, J., Mkambwa, S.M., Ndayisenga, J., Niyonkuru, P., Ndayishimiye, J., Nzeyimana, F., Mugisha, A. and Niyongabo, E. (2026) Contribution Study of Nurse's Role in Management of Anemia during Pregnancy. *Open Journal of Nursing*, **16**, 247-254.
https://doi.org/10.4236/ojn.2026.163016

Received: January 6, 2026
Accepted: March 23, 2026
Published: March 26, 2026

Abstract

Background: Anemia during pregnancy is a common and worrying condition, particularly in Sub-Saharan Africa and Burundi, where it affects nearly half of pregnant women. It is mainly caused by nutritional deficiencies, infections, and unfavorable socioeconomic conditions. This condition increases the risk of serious maternal and neonatal complications. The role of nurses is crucial in prevention, screening, education, and prenatal monitoring. The aim of our study was to evaluate nursing management of anemia in pregnant women. **Method:** This was a cross-sectional study with descriptive aim and analytical type; it was conducted at CHUK (Centre Hospitalo-Universitaire de Kamenge) and the Van Norman Clinic (CVN) among nurses working in gynecology and obstetrics department. Data collection was carried out using questionnaires, interviews, and observations, supported by the KoboCollect application. **Results:** The results showed that while specific training improves the follow-up of women at risk (66.67% and 56.25% at CHUK and at CVN), it does not significantly impact other essential interventions such as health education (10.42%) or the monitoring of clinical signs (6.25%). The majority of nurses do not use specific protocols (98%), and access to diagnostic tests is considered easy by only 50%, which limits the consistency of care. The main challenges remain the lack of resources (70.83%) and insufficient ongoing training (83.33%), hindering comprehensive and effective management. **Conclusion:** The study showed that nurses play a key role in the management of anemia during pregnancy, especially when they have received specific training. Their involvement also depends on the perceived ease of the tasks. Strengthening training and interprofessional coordination is essential to improve care.

Keywords

Anemia, Pregnancy, Care, Nurse, Health

1. Introduction

Anemia during pregnancy is a common and worrying medical reality that affects a large number of women worldwide. Indeed, according to the World Health Organization, approximately 40% of pregnant women suffer from anemia, making it a universal condition, unavoidable in certain contexts, but above all, proof that maternal health remains a crucial issue. Prevalence varies by region: in Sub-Saharan Africa, it reaches approximately 57%, while in developed countries such as France, Germany, or the United Kingdom, it affects up to 25%, 20%, and 11% to 18% of pregnant women, respectively. These figures illustrate the obvious: anemia is not inevitable, but a condition whose frequency depends mainly on socioeconomic, nutritional, and health factors [1] [2]. Far from being a simple local problem, this condition constitutes a major public health issue on a global scale. The high prevalence in Sub-Saharan Africa and the notable frequency in developed countries show that anemia is a direct consequence of social inequalities and access to care. It is mainly caused by iron deficiency, but other factors such as parasitic infections, chronic diseases or even nutritional insufficiency play an important role [3] [4]. These elements, inseparable from the truth, underline that the fight against anemia must be comprehensive and adapted to each context [3] [4]. However, in the face of this problem, management strategies include iron and folic acid supplementation, the promotion of a balanced diet and the prevention of infections [5] [6]. The role of the nurse in the management of this pathology is essential, particularly in patient education, prenatal monitoring and the administration of treatments.

2. Purpose

To analyze nursing management of anemia in pregnant women. To determine the effectiveness of nursing care on the health outcomes of anemic pregnant women.

3. Conceptual Framework

Figure 1 establishes some variables that can contribute in the knowledge of factors, which can favorite nurses during the provision of care to pregnant women. The following variables are revealed to be contributors: the dependent variable, as well as the management of anemia in pregnant women by nurses, and the independent variables are among others: preventive measures such as health education, nutritional advice, preventive management; nursing clinical diagnosis such as monitoring of clinical signs, diagnostic tests and early identification of risk factors; management of medical treatments such as administration of prescribed treatments, monitoring of the effectiveness of treatments, coordination with other health professionals; psychological and motivational support such as emotional support, strengthening of adherence to treatment and individualized monitoring [7] [8] (**Figure 1**) monitoring and continuous monitoring composed of daily taking of vital parameters, monitoring of biological indicators, an evaluation of the evolution of the state of health; identification of organizational and contextual

challenges such as human and material resources, the workload of the nurse and access to care in different establishments; as well as interprofessional communication and collaboration constituted by interprofessional exchanges and caregiver-patient communication [9] [10]. The independent variables reacted together in order to respond to one issue of management of anemia in Healthcare Facilities (HCFs) during nursing education and practices. However, every nurse in each service must contribute in that area in order to reduce and eliminate this problem of anemia during pregnancy as a competent worker, based on the current permutations that are realized suddenly [11]-[14] (**Figure 1**).

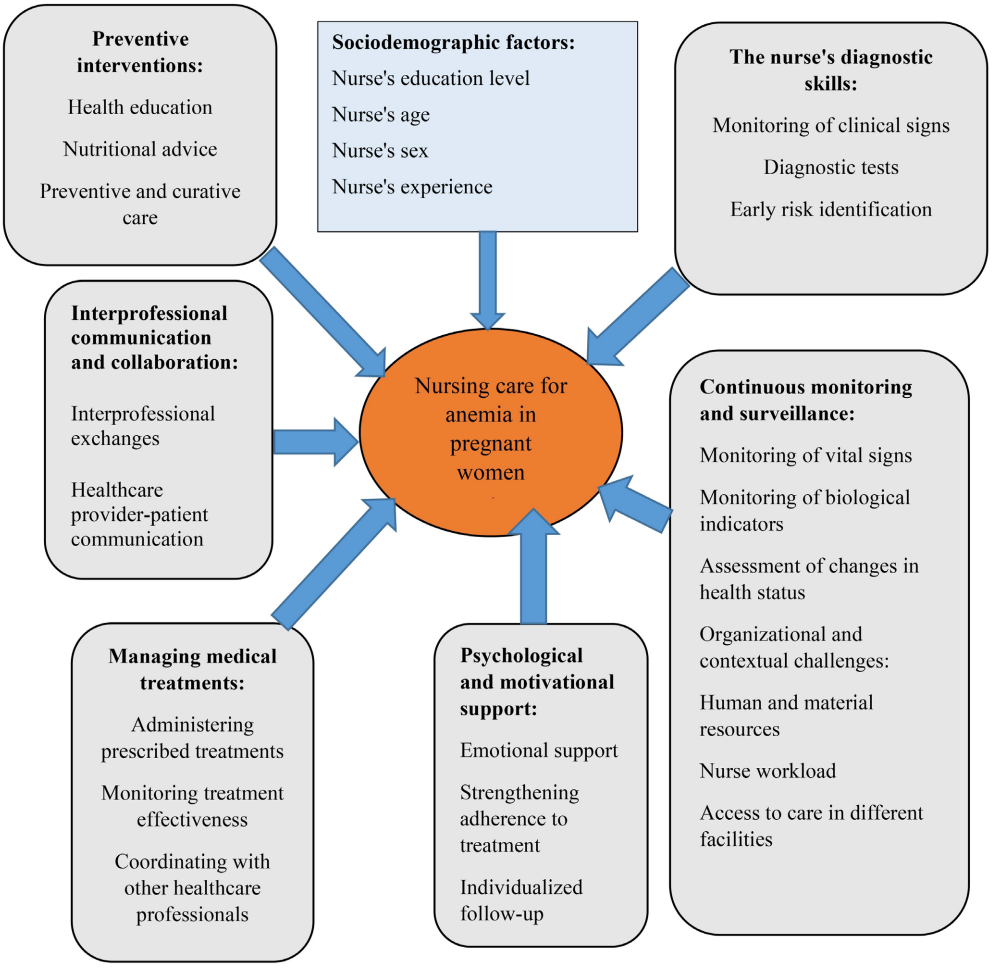


Figure 1. Explanatory diagram of the conceptual framework.

4. Methodology

This is a cross-sectional study with descriptive and analytical aims that took place in the Gynecology-Obstetrics departments of CHUK and CVN. It concerns nurses working in the GO departments in the two institutions mentioned above. The study took place over a period of 2 months, from February 11 to April 11, 2025. Data collection was carried out using questionnaires, interviews, and observations, supported by the KoboCollect application. The analysis combined quantitative ap-

proaches (Excel, STATA) and qualitative methods (thematic analysis). The study adhered to ethical and administrative standards, with formal authorizations and informed consent from all participants.

5. Results

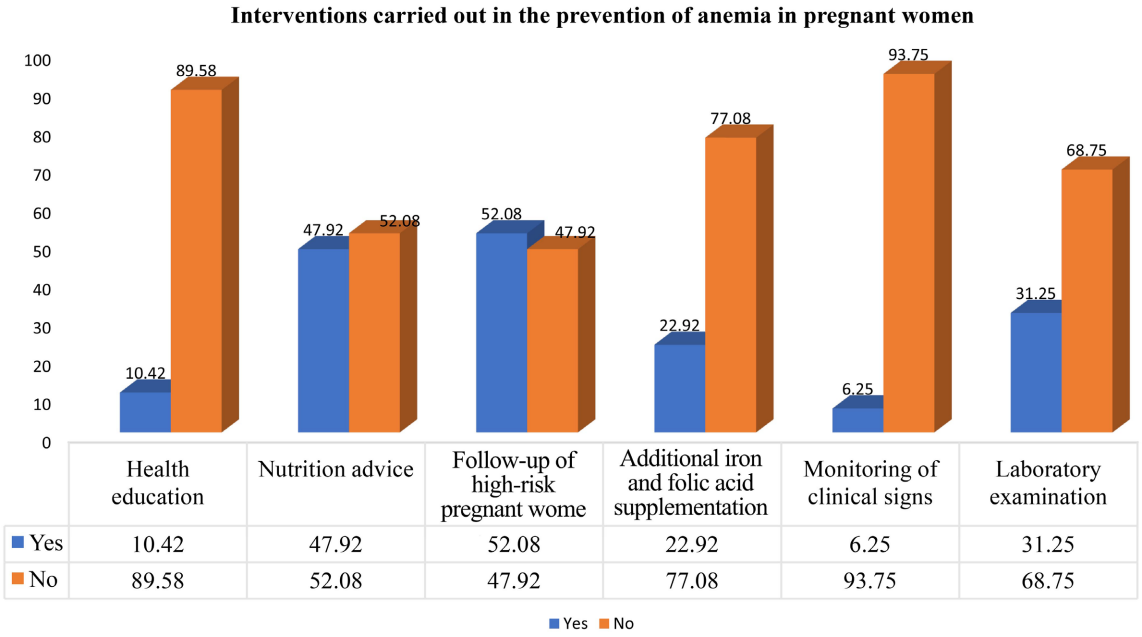
Findings show that Sociodemographic Characteristics of interviewed data were: within 234 nurses consulted, 172 were of female gender (or 63.5%, SD = 3.36) and 62 male gender (or 26.5%, SD = 2.23); about age group, a big number of 113 nurses on 234 interviewed had 33 to 44 years (or 48.29%, SD = 4.84); according to the education level, more of nurses had A2 diploma, 104 (or 44.44%, SD = 5.26), 69 nurses had Bachelor or license (or 29.29, SD = 7.98), 55 nurses had A3 diploma (or 23.5%, SD = 9.95) and 6 of 234 nurses interviewed had masters and doctorate degree (or 2.14%, SD = 10.93); about department, those nurses were affected in Operating Theaters, Surgery, Internal Medicine, Pediatric, Resuscitation, Emergency and Gyneco-Obstetric Services (Table 1).

Table 1. Distribution of sociodemographic characteristics (N = 234).

Variables	Frequency (%)
Gender	
Male	62 (26.50)
Female	172 (63.50)
Age Group (Year)	
25 - 34	50 (21.37)
35 - 44	113 (48.29)
45 - 54	70 (29.91)
≥55	1 (0.43)
Education Level	
A3	55 (23.50)
A2 (Secondary School)	104 (44.44)
Bachelor or License	69 (29.49)
Maters	5 (2.14)
Ph.D. or Doctorate	1(0.43)
Department	
Operating Theaters	17 (7.26)
Surgery	28 (11.79)
Internal Medicine	36 (15.38)
Pediatric	30 (12.82)
Resuscitation	26 (11.11)
Emergency	40 (17.09)
Gyneco-Obstetric	57 (24.36)

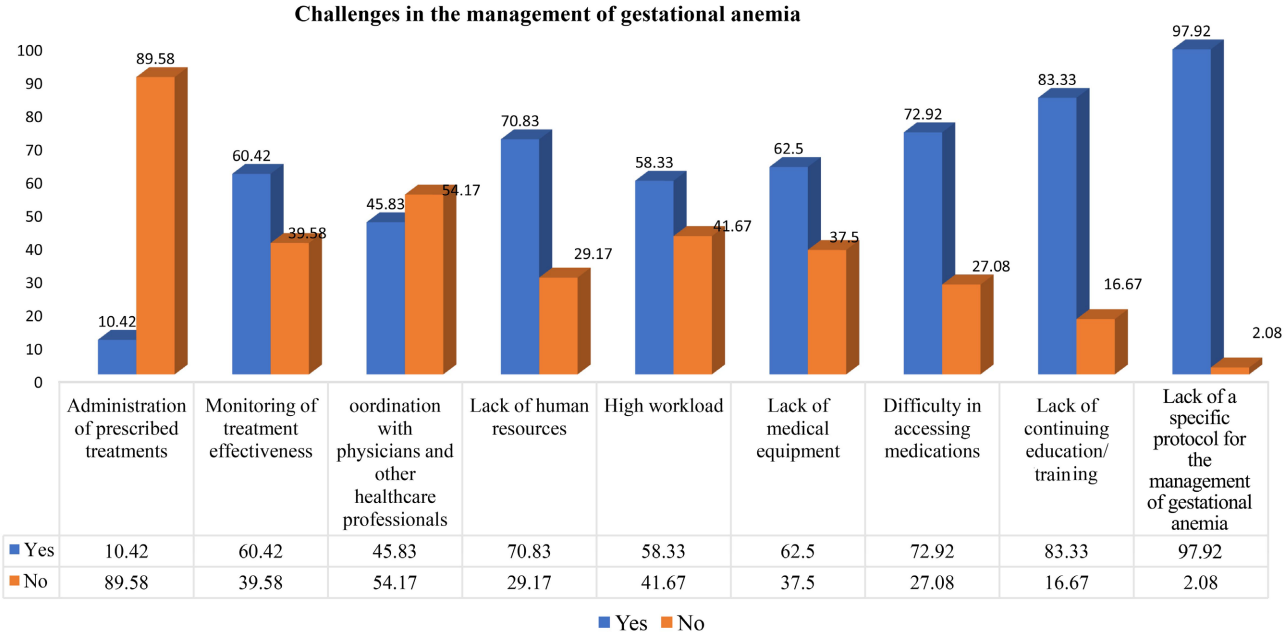
The findings show that few nurses provide health education (10.42%, SD = 2.28) and monitor clinical signs (6.25%, SD = 3.74) to prevent anemia during preg-

nancy. However, activities such as monitoring at-risk pregnant women (52.08%, SD = 4.49) and providing nutritional advice (47.92%, SD = 4.88) are better implemented (Figure 2). The administration of iron and folic acid supplements remains insufficient, carried out by only 22.92% of nurses. In addition, 31.25% perform biological tests related to anemia.



	Health education	Nutrition advice	Follow-up of high-risk pregnant wome	Additional iron and folic acid supplementation	Monitoring of clinical signs	Laboratory examination
Yes	10.42	47.92	52.08	22.92	6.25	31.25
No	89.58	52.08	47.92	77.08	93.75	68.75

Figure 2. Distribution of nurses by interventions performed in the prevention of anemia during pregnancy.



	Administration of prescribed treatments	Monitoring of treatment effectiveness	oordination with physicians and other healthcare professionals	Lack of human resources	High workload	Lack of medical equipment	Difficulty in accessing medications	Lack of continuing education/ training	Lack of a specific protocol for the management of gestational anemia
Yes	10.42	60.42	45.83	70.83	58.33	62.5	72.92	83.33	97.92
No	89.58	39.58	54.17	29.17	41.67	37.5	27.08	16.67	2.08

Figure 3. Distribution of nurses according to the challenges encountered in the management of pregnancy anemia.

Our findings reveal that several challenges hinder the management of pregnancy-

induced anemia at CHUK and CVN. Among them, the lack of specific protocols (97.92%, SD = 2.38), the lack of continuing education (83.33%, SD = 2.80) and the deficit in human resources (70.83%, SD = 3.30) are the most cited (**Figure 3**).

6. Conclusion

The impact of specific training on nursing interventions is significant for monitoring at-risk women ($p = 0.041$), but not for other activities such as health education or supplement prescription. This suggests that training primarily influences actions related to monitoring and screening, reinforcing the need to promote targeted training programs to improve prevention and early detection [15] [16] However, the perception of task ease did not show a statistically significant effect on nurses' involvement, indicating that other factors, such as motivation or organizational context, play a more decisive role [17] [18]. The consequences of this condition are serious: prematurity, low birth weight, and maternal and infant mortality are significantly increasing, confirming the undeniable reality that anemia takes a heavy toll on the health of mothers and their babies. In Burundi, for example, 46% of pregnant women suffer from it, a proportion that exceeds the global average [19] [20]. Beyond the numbers, this truth indicates that inadequate care and difficult access to healthcare are exacerbating the situation. The causes are clear: poverty, inadequate health infrastructure, and a lack of health education [21] [22]. Faced with this evidence, strategies have been deployed, such as iron supplementation, the distribution of treated mosquito nets to prevent malaria, and raising awareness about a balanced diet. Nurses play a key role, ensuring prenatal monitoring, health education, and the distribution of treatments. The indisputable truth is that without adequate care and sufficient resources, the fight against anemia will remain limited. Numerous challenges remain: lack of resources, work overload, limited access to continuing education, but the reality is that maternal health must remain a priority [23] [24].

7. Delimitations

This study was geographically limited to the Kamenge University Hospital Center and the Van Norman Clinic, where nurses were involved in the management of gestational anemia. Temporally, it covered the period from February to April 2025. Thematically, it was focused exclusively on the role of nurses, analyzing their interventions, the challenges they face, and strategies for improvement.

Ethical Consideration

Our study was conducted with the approval and in compliance with the law and code of ethics. All participants signed an informed consent form, and their data were kept anonymized to protect their privacy.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Abbassi-Ghanavati, M., Greer, L.G. and Cunningham, F.G. (2009) Pregnancy and Laboratory Studies: A Reference Table for Clinicians. *Obstetrics & Gynecology*, **114**, 1326-1331. https://doi.org/10.1097/aog.0b013e3181c2bde8

[2] Pavord, S., Daru, J., Prasannan, N., Robinson, S., Stanworth, S. and Girling, J. (2019) UK Guidelines on the Management of Iron Deficiency in Pregnancy. *British Journal of Haematology*, **188**, 819-830. https://doi.org/10.1111/bjh.16221

[3] Burwick, R. and Govindappagari, S. (2018) Treatment of Iron Deficiency Anemia in Pregnancy with Intravenous versus Oral Iron: Systematic Review and Meta-Analysis. *American Journal of Perinatology*, **36**, 366-376. https://doi.org/10.1055/s-0038-1668555

[4] Roy, N.B.A. and Pavord, S. (2018) The Management of Anaemia and Haematinic Deficiencies in Pregnancy and Post-Partum. *Transfusion Medicine*, **28**, 107-116. https://doi.org/10.1111/tme.12532

[5] Smith, G.A., Fisher, S.A., Doree, C., Di Angelantonio, E. and Roberts, D.J. (2014) Oral or Parenteral Iron Supplementation to Reduce Deferral, Iron Deficiency and/or Anaemia in Blood Donors. *Cochrane Database of Systematic Reviews*, **2014**, CD009532. https://doi.org/10.1002/14651858.cd009532.pub2

[6] Igbinosa, I.I., Leonard, S.A., Noelette, F., Davies-Balch, S., Carmichael, S.L., Main, E., *et al.* (2023) Racial and Ethnic Disparities in Anemia and Severe Maternal Morbidity. *Obstetrics & Gynecology*, **142**, 845-854. https://doi.org/10.1097/aog.0000000000005325

[7] Beckert, R.H., Baer, R.J., Anderson, J.G., Jelliffe-Pawlowski, L.L. and Rogers, E.E. (2019) Maternal Anemia and Pregnancy Outcomes: A Population-Based Study. *Journal of Perinatology*, **39**, 911-919. https://doi.org/10.1038/s41372-019-0375-0

[8] Shi, H., Chen, L., Wang, Y., Sun, M., Guo, Y., Ma, S., *et al.* (2022) Severity of Anemia during Pregnancy and Adverse Maternal and Fetal Outcomes. *JAMA Network Open*, **5**, e2147046. https://doi.org/10.1001/jamanetworkopen.2021.47046

[9] Wiegersma, A.M., Dalman, C., Lee, B.K., Karlsson, H. and Gardner, R.M. (2019) Association of Prenatal Maternal Anemia with Neurodevelopmental Disorders. *JAMA Psychiatry*, **76**, 1294-1304. https://doi.org/10.1001/jamapsychiatry.2019.2309

[10] (2021) Anemia in Pregnancy: ACOG Practice Bulletin, Number 233. *Obstetrics & Gynecology*, **138**, e55-e64.

[11] Sabina Azhar, B., Islam, M.S. and Karim, M.R. (2021) Prevalence of Anemia and Associated Risk Factors among Pregnant Women Attending Antenatal Care in Bangladesh: A Cross-Sectional Study. *Primary Health Care Research & Development*, **22**, e61. https://doi.org/10.1017/s146342362100061x

[12] Jayasinghe, C., Polson, R., van Woerden, H.C. and Wilson, P. (2018) The Effect of Universal Maternal Antenatal Iron Supplementation on Neurodevelopment in Offspring: A Systematic Review and Meta-Analysis. *BMC Pediatrics*, **18**, Article No. 150. https://doi.org/10.1186/s12887-018-1118-7

[13] Demétrio, F., Teles-Santos, C.A.d.S. and Santos, D.B.d. (2017) Food Insecurity, Prenatal Care and Other Anemia Determinants in Pregnant Women from the NISAMI Cohort, Brazil: Hierarchical Model Concept. *Revista Brasileira de Ginecologia e Obstetrícia/RBGO Gynecology and Obstetrics*, **39**, 384-396. https://doi.org/10.1055/s-0037-1604093

[14] Tunkyi, K. and Moodley, J. (2017) Anemia and Pregnancy Outcomes: A Longitudinal Study. *The Journal of Maternal-Fetal & Neonatal Medicine*, **31**, 2594-2598. https://doi.org/10.1080/14767058.2017.1349746

[15] Han, T., Lin, H. and Chen, C. (2022) *Healthcare*, **10**, Article No. 609. https://doi.org/10.3390/healthcare10040609

[16] Forsetlund, L., Bjørndal, A., Rashidian, A., Jamtvedt, G., O'Brien, M.A., Wolf, F.M., *et al.* (2009) Continuing Education Meetings and Workshops: Effects on Professional Practice and Health Care Outcomes. *Cochrane Database of Systematic Reviews*, **2009**, CD003030. https://doi.org/10.1002/14651858.cd003030.pub2

[17] Moore, P.M., Rivera Mercado, S., Grez Artigues, M. and Lawrie, T.A. (2013) Communication Skills Training for Healthcare Professionals Working with People Who Have Cancer. *Cochrane Database of Systematic Reviews*, **2013**, CD003751. https://doi.org/10.1002/14651858.cd003751.pub3

[18] Getahun, W., Belachew, T. and Wolide, A.D. (2017) Burden and Associated Factors of Anemia among Pregnant Women Attending Antenatal Care in Southern Ethiopia: Cross Sectional Study. *BMC Research Notes*, **10**, Article No. 276. https://doi.org/10.1186/s13104-017-2605-x

[19] Karaoglu, L., Pehlivan, E., Egri, M., Deprem, C., Gunes, G., Genc, M.F., *et al.* (2010) The Prevalence of Nutritional Anemia in Pregnancy in an East Anatolian Province, Turkey. *BMC Public Health*, **10**, Article No. 329. https://doi.org/10.1186/1471-2458-10-329

[20] Kassebaum, N.J., Jasrasaria, R., Naghavi, M., Wulf, S.K., Johns, N., Lozano, R., *et al.* (2014) A Systematic Analysis of Global Anemia Burden from 1990 to 2010. *Blood*, **123**, 615-624. https://doi.org/10.1182/blood-2013-06-508325

[21] Tibambuya, B.A., Ganle, J.K. and Ibrahim, M. (2019) Anaemia at Antenatal Care Initiation and Associated Factors among Pregnant Women in West Gonja District, Ghana: A Cross-Sectional Study. *Pan African Medical Journal*, **33**, Article No. 325. https://doi.org/10.11604/pamj.2019.33.325.17924

[22] World Health Organization (2014) Global Nutrition Targets 2025: Anaemia Policy Brief. WHO. https://www.who.int/publications/i/item/WHO-NMH-NHD-14.4

[23] (2012) Resolution WHA65.6. Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition. 65*th World Health Assembly*, Geneva, 21-26 May 2012, 55-68. http://apps.who.int/gb/DGNP/pdf_files/A65_REC1-en.pdf

[24] Lobel, M., Cannella, D.L., Graham, J.E., DeVincent, C., Schneider, J. and Meyer, B.A. (2008) Pregnancy-Specific Stress, Prenatal Health Behaviors, and Birth Outcomes. *Health Psychology*, **27**, 604-615. https://doi.org/10.1037/a0013242