


# The Effects of Fresh Moringa Leaf Consumption During Pregnancy on Maternal Hemoglobin Level in Southern Ethiopia: Multilevel Analysis of a Comparative Cross-Sectional Study [LETTER]

Ami Febriza <sup>1,2</sup>, Hasta Handayani Idrus<sup>2</sup>

<sup>1</sup>Department of Physiology, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Makassar, Makassar, Indonesia; <sup>2</sup>Centre for Biomedical Research, Research Organization for Health, National Research and Innovation Agency (BRIN), Cibinong Science Centre, Cibinong – Bogor, West Java, Indonesia

Correspondence: Ami Febriza, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Makassar, Jl. Sultan Alauddin No. 259, Makassar, South Sulawesi, Indonesia, Email amifebriza@med.unismuh.ac.id

## Dear editor

We have read a paper by Derbo et al on The Effects of Fresh Moringa Leaf Consumption During Pregnancy on Maternal Hemoglobin Level in Southern Ethiopia: Multilevel Analysis of a Comparative Cross-Sectional Study.<sup>1</sup> The study investigated the relationship between various variables, such as consumption of fresh Moringa leaves, place of residence, household head, number of children, bleeding during pregnancy, and ANC visits with hemoglobin levels among pregnant women in the Arba Minch Zuria and Chenchu districts of the Gamo zone.<sup>1</sup> The prevalence of anemia during pregnancy represents a significant global health concern that poses a heightened risk of harmful outcomes for both the mother and infant.<sup>2</sup> Anemia affects 56% of pregnant women in developing countries, directly threatening the health of around 32 million pregnant women worldwide.<sup>3</sup> This study by Derbo et al selected pregnant women aged between 20 and 26 weeks.<sup>1</sup> Therefore, adjustments should be made regarding other factors that could contribute to hemoglobin levels in pregnant women. The previous report explored possible factors associated with anemia in pregnancy, such as maternal medical history, dietary habits, and external exposures.<sup>4</sup>

Studies have previously investigated the mineral content of Moringa leaves,<sup>5</sup> which can provide 28 mg of iron, making it a possible alternative to iron tablets.<sup>6</sup> Based on the information provided in the method, there is no explanation for the dose, frequency of consumption, and specific preparation for Moringa leaves. Future research should provide detailed information regarding these factors to gain a better understanding. Using Moringa leaves for treating anemia in pregnancy has been demonstrated in previous studies. In an earlier in vivo study, rats fed with 10% and 20% Moringa leaf diet showed the highest serum Fe compared to ferric citrate.<sup>7</sup> Furthermore, a clinical study found that biscuits containing 40% Moringa leaves improved anemia during pregnancy.<sup>8</sup> An area of improvement for future research might give more information on the dose, frequency of consumption, specific preparation for Moringa leaves, and the potential combination of Moringa with other nutritional or iron-rich foods.

Based on the results, antenatal care was one of the factors that affected the hemoglobin level in the regression model in this study.<sup>1</sup> Consistent and significant evidence proves that attending Antenatal Care (ANC) sufficiently reduces the risk of anemia during the third trimester of pregnancy.<sup>9</sup> Future research could explore the relationship of ANC visits on the hemoglobin level in more detail, by exploring methods during each visit, or pieces of advice given during ANC visits that particularly contribute to improved dietary changes in pregnant women.

We acknowledge and appreciate the findings obtained by this research. This study could serve as a model for better understanding factors that impact the design of effective treatment strategies for anemia in pregnant women, specifically using Moringa leaves.

## Disclosure

The authors have disclosed that there are no conflicts of interest in this communication.

## References

1. Derbo ZD, Debelew GT. The effect of fresh moringa leaf consumption during pregnancy on maternal hemoglobin level in Southern Ethiopia: multilevel analysis of a Comparative Cross-Sectional Study. *Int J Womens Health*. 2023;15(July):1125–1137. doi:10.2147/IJWH.S412241
2. Harrison RK, Lauhon SR, Colvin ZA, McIntosh JJ. Maternal anemia and severe maternal morbidity in a US cohort. *Am J Obstet Gynecol MF*. 2021;3(5):100395. doi:10.1016/j.ajogmf.2021.100395
3. Stevens GA, Finucane MM, De-regil LM, et al. Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995–2011: a systematic analysis of population-representative data. *Lancet Glob Health*. 2013;1(1):e16–e25. doi:10.1016/S2214-109X(13)70001-9
4. Zhang J, Li Q, Song Y, et al. Nutritional factors for anemia in pregnancy: a systematic review with meta-analysis. *Front Public Health*. 2022;10:1041136. doi:10.3389/fpubh.2022.1041136
5. Prathapasinghe GAA. Research article proximate and mineral compositions, bioactive compounds and total antioxidant capacity of different parts of moringa oleifera lam. *EC Nutr*. 2020;14:922.
6. Dhakar R, Maurya S, Pooniya B, Bairwa N, Gupta M. Moringa: the herbal gold to combat malnutrition. *Chron Young Sci*. 2011;2:119. doi:10.4103/2229-5186.90887
7. Saini RK, Manoj P, Shetty NP, Srinivasan K, Giridhar P. Dietary iron supplements and Moringa oleifera leaves influence the liver hepcidin messenger RNA expression and biochemical indices of iron status in rats. *Nutr Res*. 2014;34(7):630–638. doi:10.1016/j.nutres.2014.07.003
8. Manggul MS, Hidayanty H, Arifuddin S, Ahmad M, Hadju V, Usman AN. Biscuits containing Moringa oleifera leaves flour improve conditions of anemia in pregnant women. *Gac Sanit*. 2021;35:S191–S195. doi:10.1016/j.gaceta.2021.07.013
9. Saapiire F, Dogoli R, Mahama S. Adequacy of antenatal care services utilisation and its effect on anaemia in pregnancy. *J Nutr Sci*. 2022;11:e80. doi:10.1017/jns.2022.80

Dove Medical Press encourages responsible, free and frank academic debate. The content of the International Journal of Women's Health 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the International Journal of Women's Health editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

International Journal of Women's Health

Dovepress

Publish your work in this journal

The International Journal of Women's Health is an international, peer-reviewed open-access journal publishing original research, reports, editorials, reviews and commentaries on all aspects of women's healthcare including gynecology, obstetrics, and breast cancer. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/international-journal-of-womens-health-journal>

<https://doi.org/10.2147/IJWH.S437623>