Proceedings Series on Proceedings of Multidisciplinary Sciences, Volume 2, No. 1
International Conference of Business, Education, Health, and Scien-Tech (ICBENS)
ISSN: -

Family Approach Model Towards Anemia Prevention In Pregnant Women: Literature Review

Hikma[1], Endri Nisa[2], Lilis[3], Daswati[4]
[1234]Midwifery Study Program, Muhammadiyah University of Makassar, Indonesia

Corresponding Author Email: hikmasita@med.unismuh.ac.id

Abstract
Anemia in pregnancy Still be one of problem health impacted communities Serious to mother and fetus, such as increasing risk labor premature, bleeding, and disturbance grow flower fetus. Various studies show that prevention of anemia is not only depends on behavior individual Mother pregnant, but also influenced by support family as system social nearest. This article aim review literature about effectiveness of the approach model family in prevention of anemia in mothers pregnant. Search method literature done through the PubMed, Scopus, and Google Scholar databases with range 2015–2024 using keywords "family approach", "maternal anemia prevention", "family support", and "pregnant women". Criteria inclusion covering article study original, review, and report interventions that focus on engagement family in effort prevention of anemia in mothers pregnant. The results of the study show that support family, especially husband and parents play a role important in increase compliance increased Iron Folic Acid Supplementation (IFAS), fulfillment need nutrition balanced, and access to antenatal care. Several intervention models based family proven capable lower prevalence of anemia in mothers pregnant through improvement knowledge, motivation, and change behavior. Discussion confirm that approach model family relevant implemented in society with culture collectivistic, including in Indonesia, where decisions health often influenced by the family. In conclusion, integration approach family in the anemia prevention program in mothers pregnant need reinforced, good through intervention education, policy health, as well as support cross sector.

Keywords: Anemia; Pregnant_Mother; Approach_Family; Prevention; Support_Family.

1. Introduction

Anemia in pregnant women remains a global public health problem, with a high prevalence in developing countries. Approximately 40% of pregnant women worldwide suffer from anemia, and this figure contributes to an increased risk of bleeding, prematurity, low birth weight (LBW), and even maternal and infant mortality WHO (2022). Date **SSGI 2022** shows the prevalence of anemia in pregnant women reached 48.9%, a relatively high figure compared to the target *Sustainable Development Goals (SDGs)* <20%. Anemia remains a serious challenge in efforts to improve maternal health [1].

Beliefs/culture about how much to eat during pregnancy, how much weight gain is considered “appropriate”, and the practice of “eating down” (reducing food intake) due to fear of a large baby and difficult delivery [2]. Most pregnant women still suffer from anemia due to a lack of family support. Cultural barriers, such as inherited food taboos, for example, prohibitions on consuming fish or eggs for pregnant women because they are believed to cause pregnancy complications. These barriers are reinforced by close family members, thus hindering the fulfillment of nutritional needs for pregnant women. The relevance of the family approach is increasingly prominent, not only as a provider of positive support, but also as an agent of change to correct myths that are detrimental to maternal health.

The success of anemia prevention cannot be separated from the family context. Most previous research has emphasized individual interventions, while research developing systematic,

family-based models for anemia prevention is still limited, particularly in Indonesia. The family plays a crucial role in ensuring the health of both mother and baby. The family, as a close support system for pregnant women, can provide motivation and support in anemia prevention [3] *The family approach model, particularly involving the husband as a partner in prenatal care, involves education, support, and shared decision-making. This approach is expected to increase adherence to iron supplement consumption, improve nutritional intake, overcome cultural barriers, and ultimately reduce the prevalence of anemia in pregnant women.* To develop and analyze a Family Approach Model for preventing anemia in pregnant women as an integrated promotive and preventive strategy.

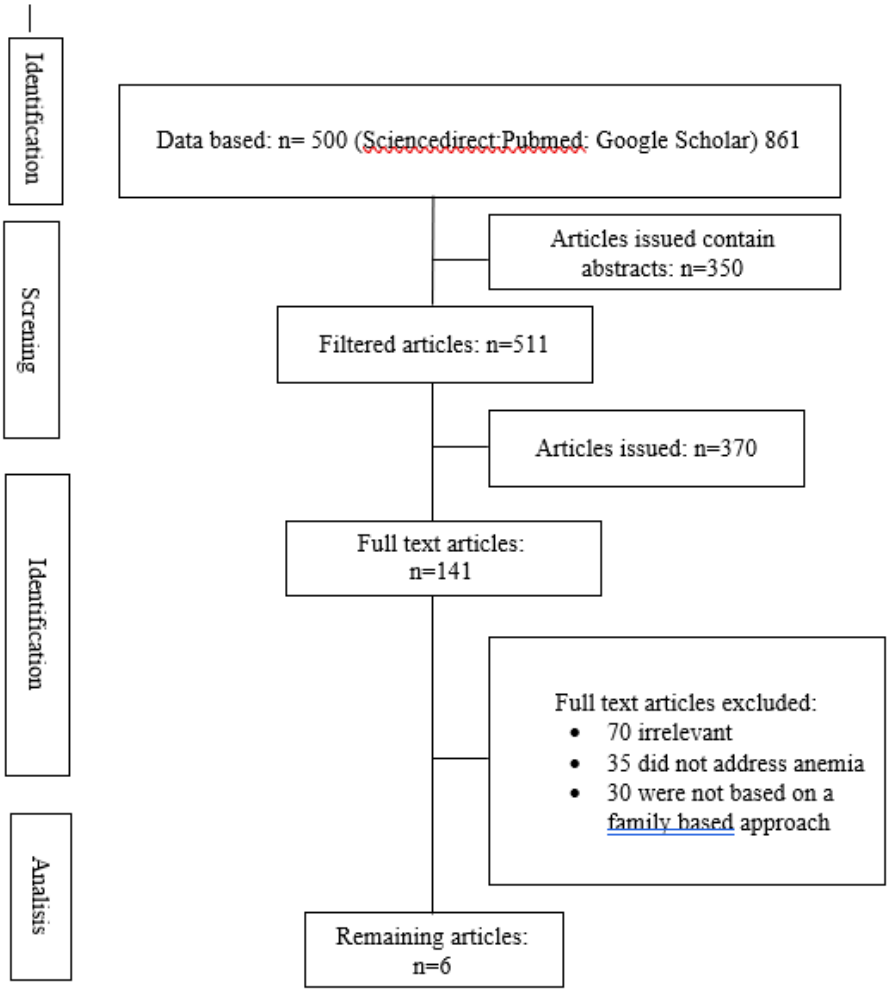
2. Methodology

A systematic literature search was conducted through three major databases PubMed, Scopus, and Google Scholar to obtain relevant and up-to-date articles on the topic of family involvement in preventing anemia in pregnant women. The publication period used was 2015 to 2024. The search process used a combination of keywords and Boolean operators, including: ("family approach" OR "family involvement" OR "family support") AND ("maternal anemia prevention" OR "iron supplementation" OR "pregnant women").

Inclusion criteria included original research articles (quantitative, qualitative, or mixed methods), systematic reviews, and reports of family-based interventions or programs focused on anemia prevention in pregnant women. Selected articles must be available in full text, written in English or Indonesian, and must present empirical data on the role or support of families, particularly husbands, in improving adherence to iron supplementation (IFAS) or nutrient intake in pregnant women.

Exclusion criteria included articles that did not focus on the pregnant population, did not address the role of the family, or only discussed the clinical aspects of anemia without a social or behavioral context. The article selection process was carried out in stages, including identification, title and abstract screening, eligibility assessment based on the inclusion criteria, and content analysis of the selected articles.

Matrix and synthesize information from sources that have been obtained and create a literature review.



3. Result and Discussion

3.1 Result

Table 1. Research Result Family Approach Model Towards Anemia Prevention In Pregnant Women

No	Title	Methods/ Sampel	Model	Results
1.	Family centered health education intervention for improving iron folic acid adherence and anemia reduction among antenatal mothers in Rural Jodhpur[4]	Quasi Experimenta Sample: pregnant women with gestation 14–16 weeks.	Family centered with iron folic acid	The results revealed significant improvements in knowledge, attitude, practice, adherence to iron supplements, and anemia status within the intervention group.
2.	The effect of family empowerment on hemoglobin levels in pregnant women[5]	Quasi eksperimental Sample: of 70 pregnant women	Family empowerment	In summary, the treatment involving the family empowerment model significantly affected the hemoglobin levels in pregnant women.

3.	The effectiveness of a theory based intervention program for pregnant women with anemia[6]	Arandomized control trial Sample: 60 pregnant women with anemia	The My Pink Mom program was disseminated through a mobile messaging application to pregnant women to educate them on the prevention of anemia in pregnancy	Program My Pink Mom (intervensi berbasis pesan/messaging) mencegah anemia.
4.	Effectiveness of local mother's kitchen recipe talks in reducing the burden of anemia among children under five, adolescents, pregnant women, and lactating mothers in guntur district, india: a communitybased intervention trial Gupta[7]	Methode community-based intervention trial Sample: 504 participants were enrolled, including children under five, primary school children, and adolescents.	The mother's kitchen model fosters sustainable dietary modifications	Participants who attended more than six sessions demonstrated an increase in hemoglobin levels, particularly among children under five (β = 0.70, 95% CI: -0.24 to 1.60) and primary school children (β = 0.40, 95% CI: -0.74 to 1.54). Significant reductions in stunting (92% to 7.7%), underweight, and wasting were observed
5.	A randomised controlled trial on the Four Pillars Approach in managing pregnant women with anaemia in Yogyakarta Indonesia: a study protocol [8]	Cluster randomised controlled trial	The “Four Pillars” model and a comprehensi ve approach to the management of anemia in pregnancy	If the Four Pillars Approach is effective in improving the outcome for pregnant women with anaemia, this approach could be implemented nationwide and be taken into consideration to improve the outcome for other conditions in pregnancy, after further research.
6.	Effect Of Educational Intervention on Family Support For Pregnant Women in Preventing Anemia[9]	A quasi experimental design Sample: 60 pregnant women	Educational interventions were	After educational intervention, there was a significant change from the pretest score to the posttest score in the experimental group ($p<0.05$). There was an increase in the average score in the experimental group, 14.47 ± 2.89 becomes 16.83 ± 2.32.

Based on the table of previous research results, it can be concluded that various familybased interventions, education, and empowerment play a significant role in preventing and managing anemia in pregnant women. Singh's research shows that family centered health education interventions can improve knowledge, attitudes, practices, and adherence to iron and folic acid tablet consumption, as well as improve anemia status in pregnant women.[4] These results align with Mardiyati's research in Indonesia, which demonstrated that the family empowerment model significantly impacts hemoglobin levels in pregnant women. [5] Furthermore, Rahman highlighted the effectiveness of the My Pink Mom program, based on the health belief model through a messaging app, as an effort to educate about anemia prevention, focusing on improving knowledge, attitudes, adherence to iron tablet consumption, and iron intake.[6] Mira's research also strengthens these findings, as educational interventions have been shown to increase family support for pregnant women in preventing anemia, as indicated by an increase in post-test scores in the experimental group. [9] Furthermore, Gupta's research expands the evidence that a community approach through the Local Mother's Kitchen and nutrition education can increase hemoglobin levels and improve the nutritional status of the target group, although the research subjects are not only pregnant women.[7] Meanwhile, Widyawati's research is still in the study protocol stage, but it shows that the Four Pillars Approach has the potential to become a comprehensive approach to managing anemia in pregnancy if proven effective.[8] In general, these studies confirm that family involvement, ongoing education, and community approaches are promising strategies for improving the health status of pregnant women, particularly in preventing anemia.

3.2 Discussion

Anemia in pregnant women is a health problem that seriously impacts both the mother and the fetus, including the risk of premature birth, low birth weight, and maternal death. Although various programs have been implemented to address anemia, the success of interventions depends heavily on social support, particularly from the family. Therefore, a family based approach has become a strategy gaining increasing attention in preventing anemia during pregnancy.

Families, especially partners and other household members such as mothers or in-laws, play a crucial role in influencing pregnant women's behavior. Family-based health education interventions can significantly improve knowledge, adherence to iron supplementation (IFAS) consumption, and hemoglobin levels in pregnant women. This demonstrates that families are not merely passive supporters but also active agents in health behavior change. [4].

The family empowerment model, as implemented, focuses on increasing family capacity to support pregnant women by providing nutritious food and monitoring supplement consumption. Hemoglobin levels in pregnant women in the intervention group. With the right knowledge and skills, families can help optimally meet the nutritional needs of pregnant women[5].

Family empowerment has a significant influence on the ability to manage diet and increase hemoglobin (Hb) in pregnant women who experience anemia [10]. The My Pink Mom intervention model, based on behavioral theory (Health Belief Model), involves family support through structured messages that can change perceptions of the risks and benefits of anemia

prevention. This intervention involves families reinforcing healthy behaviors for pregnant women, such as iron consumption and ANC visits[11].

Pregnant women who have greater decision making capacity, often influenced by family support, tend to be more compliant with iron supplementation. This underscores the importance of creating a family environment that supports women's empowerment in making health decisions[12]. Family support is an important factor that influences the behavior of pregnant women in preventing anemia, so family involvement is needed to increase the compliance of pregnant women with anemia prevention efforts[13]

Family education can increase the knowledge and involvement of family members in supporting pregnant women, thereby increasing compliance with IFAS consumption. [14]. Anemia prevention is carried out using a 4 pillar model, one of which is social support from the husband or other family members (social support from husband/family) with the method used as intervention in the pregnant women group in the week with parenting classes involving husbands/families [8].

Selain itu peran suami dalam pengingat konsumsi TTD dan penyediaan makanan kaya zat besi berhubungan signifikan dengan peningkatan kadar hemoglobin ibu hamil. Penelitian lainnya berbasis model pemberdayaan keluarga dapat meningkatkan kadar Hb setelah intervensi edukasi[15]**.** Regarding perceived outcomes and self-efficacy, the author links them to Protection Motivation Theory (PMT). This means that if a pregnant woman believes that anemia-preventing behaviors will actually yield positive results and feels capable of doing so, she is more likely to change her behavior. Therefore, this article emphasizes the importance of internal motivation and a sense of efficacy in anemia prevention.[16]

The Mother's Kitchen model, an approach combining local recipes and family discussions, successfully increased iron intake and hemoglobin levels. This emphasizes that interventions based on local culture and values are more acceptable and effective when families are actively involved [7].

Comprehensive models such as the Four Pillars family approach are a key component in managing anemia during pregnancy. This approach combines education, ANC services, clinical management, and family engagement in one comprehensive intervention framework.

4. Conclusion

The family approach to anemia prevention in pregnant women has proven effective in various contexts. Families play a crucial role as supporters, shared decision makers, and resource providers for pregnant women. Some key components of this approach include: (1) Education and increased family health literacy about anemia and the importance of iron supplements; (2) Empowering families to provide nutritious food and support supplement compliance; (3) Strengthening the role of husbands and other family members as primary supporters of pregnant women; (4) Integrating family interventions with antenatal care services and public health programs; (5) Adapting local culture and values to make the family approach more relevant and easier to implement. The family approach is not only a complement to anemia prevention efforts, but is a key strategy that can increase the effectiveness of maternal health interventions in a sustainable manner.

5. Reference

[1] SSGI, "Laporan Survei Status Gizi Indonesia (SSGI) 2022," 2023, *Kemenkes RI, Jakarta*.

[2] Kavle Justin A and M. Landry, "Addressing barriers to maternal nutrition in low- and middle income countries: A review of the evidence and programme implications," *Matern Child Nutr.*, pp. 1–13, 2017.

[3] M. Noviyanti, M. Triharini, and E. Ulfiana, "Pemberdayaan Keluarga Terhadap Peran Keluarga dalam Pencegahan Anemia pada Ibu hamil," *J. Telenursing*, vol. 6, no. 2, pp. 2234–2242, 2024.

[4] G. Singh *et al.*, "Family-centered Health Education Intervention for Improving Iron-folic Acid Adherence and Anemia Reduction among Antenatal Mothers in Rural Jodhpur: A Quasi-experimental Study," *Indian J. Public Health*, vol. 68, no. 4, pp. 495–501, 2024, doi: 10.4103/ijph.ijph_844_23.

[5] I. Mardiyanti, A. W. Pratama, L. K. Rizki, and E. P. Rahayu, "The effect of family empowerment on hemoglobin levels in pregnant women," *PAGEPress*, vol. 12, no. 11987, pp. 1–5, 2024, doi: 10.4081/hls.2024.

[6] R. A. Rahman, I. B. Idris, Z. M. Isa, and R. A. Rahman, "The effectiveness of a theory-based intervention program for pregnant women with anemia: A randomized control trial," *PLoS One*, pp. 1–16, 2022, [Online]. Available: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0278192

[7] A. Gupta, V. Rajan, V. R. B, M. Kollimarla, and R. Aravindakshan, "Effectiveness of Local Mother's Kitchen Recipe Talks in Reducing the Burden of Anemia Among Children Under Five, Adolescents, Pregnant Women, and Lactating Mothers in Guntur District, India: A Community-Based Intervention Trial," *Cureus*, pp. 1–17, 2025, doi: 10.7759/cureus.88215.

[8] W. Widyawati, S. Jans, H. Bor, R. Siswishanto, J. van Dillen, and A. L. M. Lagro-Janssen, "A randomised controlled trial on the Four Pillars Approach in managing pregnant women with anaemia in Yogyakarta-Indonesia: A study protocol," *BMC Pregnancy Childbirth*, vol. 14, no. 1, 2014, doi: 10.1186/1471-2393-14-163.

[9] M. Triharini, N. K. A. Armini, and A. A. Nastiti, "Effect Of Educational Intervention On Family Support For Pregnant Women In Preventing Anemia," *Belitung Nurs. J.*, vol. 4, no. 3, pp. 304–311, 2018, doi: 10.33546/bnj.332.

[10] Kasad, Keumalahayati, Azwarni, M. S. Harahap, and A. Helmi, "The effect of the family empowerment model on the ability to managing diet and increasing hemoglobin in anemic pregnant women Pengaruh model pemberdayaan keluarga terhadap kemampuan mengelola pola makan dan peningkatan hemoglobin pada ibu hamil anemia Abs," *AcTion Aceh Nutr. J.*, vol. 8, no. 4, pp. 675–682, 2023.

[11] M. A. Rahman, M. N. Khan, and M. M. Rahman, "Maternal anaemia and risk of adverse obstetric and neonatal outcomes in South Asian countries: A systematic review and meta-analysis," *Public Heal. Pract.*, vol. 1, no. December 2019, pp. 1–9, 2020, doi: 10.1016/j.puhip.2020.100021.

[12] G. Shibre, B. Zegeye, H. Yeboah, G. Bisjawit, E. K. Ameyaw, and S. Yaya, "Women empowerment and uptake of antenatal care services : A meta-analysis of Demographic and Health Surveys from 33 Sub-Saharan African countries," *Arch. Public Health*, vol. 79, no. 1, p. 87, 2021, doi: 10.1186/s13690-021-00604-5.

[13] E. Sulpat *et al.*, "THE RELATIONSHIP BETWEEN FAMILY SUPPORT AND PREGNANT WOMEN ' S BEHAVIOR IN EFFORT PREVENT ANEMIA," vol. 5, no. 1, pp. 45–51, 2024.

[14] M. Triharini, N. K. A. Armini, and S. A. Pitaloka, "The correlation between family role and anemia prevention in pregnancy," *Healthcare*, vol. 11, pp. 1–5, 2023.
[15] L. Ade, A. Wiradnyani, H. Khusun, E. L. Achadi, D. Ocviyanti, and A. H. Shankar, "Role of family support and women ' s knowledge on pregnancy-related risks in adherence to maternal iron – folic acid supplementation in Indonesia," *Public Health Nutr.*, vol. 19, no. 15, pp. 2818–2828, 2016, doi: 10.1017/S1368980016001002.
[16] P. Khuanloy and A. Songthap, "Factors affecting anemia prevention behaviors among pregnant women in Phetchabun," *BMC Pregnancy Childbirth*, vol. 7, 2025.