

# Maternal Iron Folate Supplement Delivery during Pregnancy in a Developing Country: Scoping Review

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## Abstract

**Background:** It has been notified that ordinary consumption of dietary supplements containing iron or a combination of iron and folic acid for the duration of being pregnant improves maternal health and being pregnant results.

Iron deficiency is the prevalent usual nutrient deficiency and the most common reason of anemia global. Because of the elevated iron necessities for the duration of being pregnant, iron deficiency can cause maternal anemia and decreased new child iron stores. **Methods:** Scoping assessment of maternal complement applications distribution strategies in low-earnings country such as Bangladesh, Ethiopia, India, Kenya, and Nepal are examined. A systematic search became executed in six databases; CINAHL (Cumulative Index to Nursing & Allied Health), MEDLINE, Web of Science, PubMed, and Scopus, and FSTA (Food Science and Technology)

**Results:** A systematic search performed in six databases yielded a total of 526 un-duplicated results; (CINAHL: 42, Medline: 112, Web of Science: 77, PubMed: 90, Scopus: 179, FSTA: 10, and additional records: 16). Results after duplicates were removed (n=318), these results were screened, and relevant studies based on the research question identified and selected (n=10). The 10 full-text articles were assessed for eligibility and 5 of these studies were excluded for not meeting the scoping review criteria. Data was extracted and charted from the five remaining studies. The findings were collated and summarized. two modes of delivery were identified: 1. Community-Based Distribution for Routine Iron/Folic Acid Supplementation in Pregnancy; and 2. pregnant women who received iron folate supplements from health centers/local centers; **Conclusions:** Barriers in delivering maternal supplements included lack of trained professional volunteers, limited support and guidance provided to volunteers, and a high cost of equipment, supplies, and buildings. Pregnant women in developing countries faced many obstacles in accessing maternal supplement programs including poverty, rural isolation, limited transportation, low social status, traditional, cultural, and religious practices. Strategies required to improve program delivery involved an earlier invitation to prenatal supplements, increase in partnerships, a focus on adolescent girls' health, increase in training and incentives for volunteers, and self-help groups focused on prenatal education and counseling services.

**Keywords:** Pregnant mothers • Iron folate supplement • Developing countries • Low-income countries

## Introduction

Iron deficiency anemia, the past due manifestation of continual iron deficiency, is thought to be the common nutrient deficiency amongst pregnant ladies. Evidence has proven that using iron and folic acid dietary supplements is related to a discounted hazard of iron deficiency and anemia in pregnant ladies (1). Up to four to 5 billion humans can also additionally be afflicted by iron deficiency and an anticipated 2 billion are anemic. Women and younger kids are maximum vulnerable: 50 percentage of pregnant ladies and forty to 50 percentage of kids below 5 in growing developing country are iron

deficient. While inadequate iron intake is one reason, blood loss for the duration of menstruation and parasitic infections along with intestinal worms and malaria also can reason or infuriate the circumstance.

Prevention of maternal anemia is important to the health and nutrients of moms and their infants. Anemia debts for 12% of low birth weight, 19% of preterm births and 18% of your appearance after perinatal mortality. its miles anticipated that over 40 % of you who cope with pregnant ladies global are anemic. not less than half of this anemia burden is believed to bring about iron deficiency.

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Supplementation with 400 µg of folic acid across the time of conception drastically reduces the prevalence of neural tube defects. These defects reason extreme disabilities and toddler demise rates, and usually get up withinside the first weeks of being pregnant earlier than a woman can also additionally recognize she is pregnant. Folate supplementation all started after the primary trimester of being pregnant is simply too past due to save you beginning defects. A day-by-day dose of 400 µg of folic acid is taken under consideration as a stable and wholesome consumption for girls for the duration of being pregnant and lactation however is pretty the quantity required to offer a most desirable hemoglobin reaction in pregnant ladies.

A secondary evaluation of countrywide Demographic and Health Survey (DHS) datasets in 19 African (3) country discovered that after pregnant ladies acquired at the least ninety iron-folic acids (IFA) dietary supplements thru antenatal care (ANC), the hazard of neonatal mortality reduced through 34%.

This scoping review verified the prevailing literature and pick out an gap withinside the assessment of maternal iron folate complement delivery. Conceptual evaluation is needed to interpret problems surrounding delivery strategies to similarly tell destiny studies and decision-making.

## Methods

### Search strategy

A priori inclusion and exclusion criteria were developed by a reviewer to pre-defined the objectives and methods for the scoping review. An initial systematic limited search was performed in a selection of relevant databases to find research-based articles on delivery methods for iron folate supplements for pregnant mothers in developing countries. A text word analysis to search each database including various key terms, mesh terms, and subject headings; Iron Folate Suplmente, prenatal Iron folate, antenatal Iron folate, pregnant, pregnancy, vitamin, supplement, AND/OR diet, AND third world country/ countries, developing country/countries, AND/OR low-income country/countries, AND delivery, access, programs, agencies, provision, AND/OR distribution. A second search, using all the terms identified above, was undertaken in six relevant databases; CINAHL (Cumulative Index to Nursing & Allied Health), MEDLINE, Web of Science, PubMed, Scopus, and FSTA (Food Science and Technology Abstracts). A reference management software, Mendeley, was used for recording and organizing all relevant bibliographic citations for the scoping review. The reference lists of all identified articles were searched for additional studies. A systematic search performed in six databases yielded a total of 500 un-duplicated results; (CINAHL: 42, Medline: 112, Web of Science: 77, PubMed: 90, Scopus: 169, additional records from other sources: 16). Results after duplicates were removed (n=308).

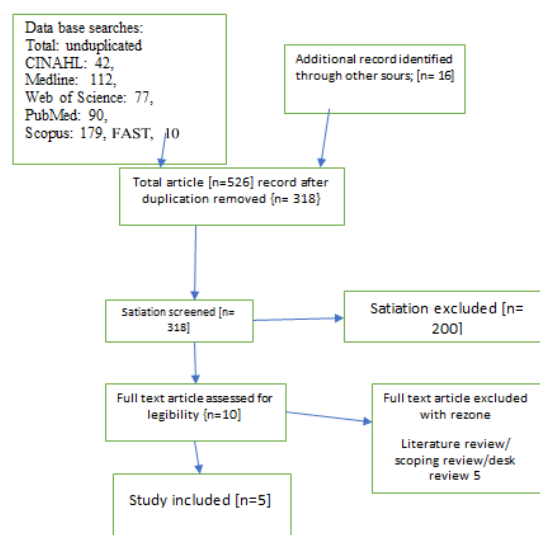
### Relevance screen and inclusion criteria

Inclusion screening standards were advanced through the reviewers for the scoping review. The outcomes (n=318) were screened primarily based totally at the inclusion standards. The preliminary inclusion screening standards included relevant articles published after January 1, 2015. Only English language articles were taken into consideration as this became a preliminary assessment

and unfunded studies, as a result our efforts were to obtain the broadest conceivable data set. Peer-reviewed articles were taken into consideration relevant in the event that they addressed the studies goal. Only research-based full-text articles were included in the scoping review. The second screen became executed through each reviewer, wherein articles had been extracted based on the title and abstract relevance. From this screening process, ten articles met the inclusion standards and had been assessed for eligibility. Both reviewers examine the 10 complete-textual content articles and decided that 5 of those research's had been now no longer studies-primarily based totally. This 5 research had been excluded from being literature reviews, scoping reviews, or table reviews. Therefore, 5 of the articles had been protected withinside the scoping review. (See Fig1.).

### Study selection

Four complete-texted studies-primarily based totally articles that replied the studies goal had been decided on and fundamental traits such as study methodology, sample population, location, distribution strategies interventions, results, key findings, and suggestions had been extracted. Scoping assessment control, data charting, and analysis Data became collected, analyzed, and synthesized right into a Microsoft Word record the usage of a pinch chart to facilitate categorization and organization. The reviewers identified various interventions and, even though the interventions attempted to obtain the same outcomes, they differed in nature, supplying medical heterogeneity. All articles had been peer-reviewed, indexed in, and available thru one or extra of the chosen databases, and protected ethics and/or important administrative approvals.



## Results

### Iron folate supplement delivery approaches

In the distinct scoping review, there has been a lot of articles that trays addressed maternal iron folate dietary supplements however few that targeted on a way to supply the iron folate

dietary supplements. The scoping review of maternal iron folate complement delivery in growing settings (which, on this case, included Bangladesh, Ethiopia, India, Kenya, Rwanda and Nepal), infamous two distribution methods for dispensing iron folate dietary supplements to ladies for the duration of the prenatal period. The first method pondered approach that had Community-Based Distribution for Routine Iron/Folic Acid Supplementation in Pregnancy. The second became pregnant ladies who acquired iron folate supplements from health centers/neighborhood centers.

### Community-Based Distribution for Routine Iron/Folic Acid Supplementation

In Community-Based Distribution for Routine Iron/Folic Acid Supplementation Mode health extension employees can attain pregnant ladies thru domestic visits to offer IFA dietary supplements, counseling, referrals, and follow-up. Workers dispensed Iron-Folic Acid (IFA) dietary supplements residence-to-residence. This distribution gadget allowed the pregnant girl to obtain the iron folate dietary supplements without the inconvenience of travelling for the duration of being pregnant.

Volunteer pregnant moms' nutrients educationalist dietary supplements in the volunteer maternal nutrients educator brought API method, maternal iron folate dietary supplements and/or meals rations had been delivered to the pregnant ladies domestic. Workers dispensed Iron-Folic Acid (IFA) dietary supplements residence-to-residence in remote communities. This delivery approach allowed the pregnant girl to obtain the dietary supplements without the inconvenience of travelling for the duration of being pregnant.

### Barriers for Routine Iron/Folic Acid Sustainability

From the reviewed literature, its miles misleading the sustainability of IFA supplementation is predicated on authorities' rules, human resources, verbal exchange networks together with transportation, and fragile health system infrastructures. The fundamental problem is the low degree of attention amongst policymakers regarding the severity and results that maternal underutilization of iron folate has at the populace which can also additionally, in turn, make contributions to the low prioritization of pregnant mom macro nurturant complement package supplement program control.

### Barriers for pregnant women's

There is a lack of know-how and schooling amongst pregnant ladies. For example, a few pregnant ladies considered IFA as an anemia remedy in place of prevention. In Ethiopia, a key barrier to the IFA supplementation became that contributors lacked attention of presidency tips for IFA for the duration of pregnancy.

Traditional ideals and customs additionally affected complement intake amongst pregnant ladies. Some pregnant ladies believed that taking IFA can pose a risk to the mom and infant and makes infants massive and reasons problems for ladies for the duration of hard labour. ladies did now no longer

recognize the advocated number of ANC visits or length of IFA supplementation, counting on the orders given through health care providers as to while to go back for the subsequent ANC visit.

External obstacles to persisted access to IFA dietary supplements include economic constraints associated with tour to ANC clinics for ladies in Kenya, receiving an insufficient quantity of IFA capsules from health centers in Ethiopia, and stockouts at health centers in Senegal that required filling prescriptions at pharmacies at a further fee and inconvenience, lowering the probability that she can be able to get them. Relational elements additionally played a role, along with in Senegal, wherein many ladies depended on their husbands to offer cash to attend ANC and buy iron folate supplements.

A primary barrier to pregnant ladies often ingesting IFA capsules is the inconsistent prescription practices of health care companies. When requested approximately IFA complement dosage and length, medical experts' responses various each inside and throughout country. Furthermore, medical experts appeared to have insufficient equipment and capabilities in counseling to guide and monitor adherence. In Senegal, notwithstanding adequate information of anemia and IFA supplementation, 40% of prescribers did now no longer advise ladies after they prescribed IFA dietary supplements. In Bangladesh, community health workers stated that ladies had been simplest given 20 capsules every time, and refills had been hampered through insufficient stocks. Lack of promotional substances and activity aids at health centers had been additionally mentioned as obstacles to enhancing adherence.

### Approaches to improve iron folate sapling delivery modes

Noznesky cautioned handing over newlywed applications of IFA dietary supplements/ dietary supplements to all younger ladies who're at hazard for anemia earlier than they come to be pregnant. There wishes to be a gadget for figuring out and handing over iron folate dietary supplements to all pregnant ladies to make certain complete insurance of offerings.

The gadget has to additionally encompass data on who acquired dietary supplements/IFA and display the quantity of antenatal educational/health care visits. Technology may be used to expand and put into effect a data control system for IFA Supplementation applications. Incentives for skilled experts might be supplied to work in faraway and rural regions and construct public-non-public partnerships to coordinate enforcing dietary interventions. Volunteers have to train and guide community participants to introduce their projects which are suitable for neighborhood culture, tradition, and spiritual ideals.

Success is primarily based totally at the cap potential to enhance IFA supplementation and consumption popularity and schooling of pregnant ladies, construct partnerships and enhance coordination. Government partnerships will increase the concern to expand rules and beef up software interventions. Improving the monitoring and evaluation system of IFA supplementation program is crucial to measure the

**effectiveness of distribution strategies. Promoting early and frequent ANC, improving the quality of ANC counseling, and selling the information of ladies on anemia are crucial techniques for enhancing the usage of iron dietary supplements .**

## Discussion

The two delivery strategies for dispensing maternal iron foliate dietary supplements to ladies for the duration of the prenatal period. The first mode pondered program that had community-Based Distribution for Routine Iron/Folic Acid Supplementation in Pregnancy. The second became pregnant ladies who acquired iron foliate dietary supplements from health centers/neighborhood centers. Each of those modes became examined and it became recognized that there's a loss of documenting and tracking withinside the iron foliate distribution program which contributed to the uncertainty of success and efficiencies. For example, the IFA dietary supplements employees dispensed residence-residence however did now no longer record or display which ladies acquired dietary supplements. In Ethiopia, Health care companies and health extension employees aren't monitored iron-folic acid through tablet count for the duration of their domestic-to-domestic visits.

Data collection and tracking are important to enhancing dietary package delivery. Through Data collection, applications can start to expand and optimize evidence-based delivery interventions and evaluation the results of those modalities to cope with maternal iron foliate implementation.

## Conclusion

An infant development is suffering from the mom nutrients and iron foliate consumption states earlier than and for the duration of being pregnant. Maternal underutilization of iron foliate reasons a recurrent cycle of anemia and main to negative health outcome. Barriers of pregnant mom iron foliate usage are multifaceted such as meals insecurity, poverty, social norms, discrimination, traditional, cultural, and spiritual ideals. Nutritional programs want to attention on supplying early prenatal iron rich meals dietary supplements, increasing coverage of distribution, supplying information iron foliate utilization for pregnancy leave from work, focusing in adolescent health, growing education and guide for volunteers, presenting

incentives to maintain precious volunteers, and developing authorities' policymakers' partnerships to set clean tips for program implementation. Maternal iron foliate supplementation face more than one obstacle to efficaciously supply supplements and schooling to pregnant ladies. In this scoping assessment, two delivery strategies had been recognized however outcomes are inconclusive in inspecting program delivery strategies due to a loss of dates in monitoring and evaluating maternal iron foliate interventions during pregnancy.

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