



Women's Equality and Nutrition
Strengthening resilience of communities and
economies over generations

NUTRITION FOR RESILIENCE WHITE PAPER #2 | March 2023

Summary

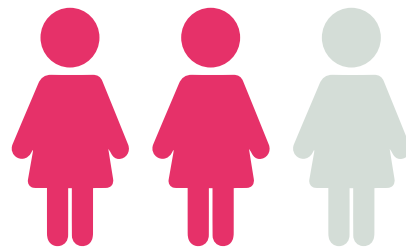
At every stage of life, women have specific nutrition needs that they are often unable to meet owing to long-standing gender inequalities they confront across social, political, and economic domains. As a result, 1.2 billion women of reproductive age globally are estimated to suffer from deficiencies in one or more micronutrients, with serious consequences for their health and productivity as well as for the well-being of their families. In the current context of crisis upon crises, empowering women while investing in their nutrition will have a multiplying effect on the resilience of women, their families, and their communities. This means mainstreaming women's empowerment and equality into all nutrition programming, both direct (such as food fortification and micronutrient supplementation) and indirect (such as agriculture, climate change, and other development interventions). Health, education, and social protection systems must address women's nutrition at all life stages, regardless of their reproductive choices. And it is crucial to fill the data gaps on women's nutrition status to guide programming, support research, and clarify guidelines on nutrition interventions for women and girls. The links between women's equality and micronutrient nutrition go in both directions and can enhance the resilience of women and their households as they seek to cope with and adapt to a succession of shocks and crises.

Introduction

In an era of overlapping crises, women worldwide are facing a crisis of micronutrient malnutrition. Recent evidence shows that 2 in 3 nonpregnant women of reproductive age—equivalent to 1.2 billion women globally—suffer from deficiencies in one or more essential vitamins and minerals.¹ The impacts of this form of malnutrition are widespread. Micronutrient deficiencies threaten women’s economic productivity, health, and even their lives. Furthermore, the effects of women’s poor micronutrient nutrition often cascade down through generations, jeopardizing the life changes and long-term health of their children, and ripple outward, imposing costs on their households, their communities, and the broader economies of which they are a part.

This white paper describes the alarming scale of women’s micronutrient malnutrition, the underlying inequalities that give rise to the problem, the heavy costs imposed

by this form of malnutrition, and the kinds of empowerment strategies and interventions that can build nutrition resilience in women and girls which shape a set of policy recommendations for action and investments.

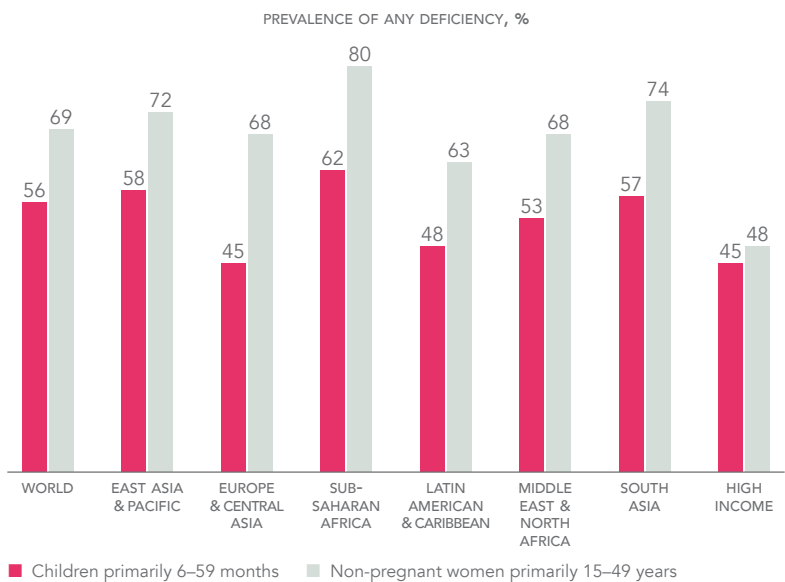


2 in 3 WOMEN OF REPRODUCTIVE AGE
Are affected by at least one micronutrient deficiency

Micronutrient Malnutrition Affects Women Everywhere

New estimates published in *Lancet Global Health* in October 2022 found that, worldwide, an estimated two-thirds of women of reproductive age suffer from deficiencies in one or more micronutrients. This is a global average; in some regions the prevalence of deficiencies in women is even higher: up to 80% of women in Sub-Saharan African and 74% in South Asia suffer from one or more micronutrient deficiencies. Also in high-income countries like the United Kingdom and the United States, nearly half of women (48%) are micronutrient deficient. Owing to a lack of data, the study could only consider three core micronutrients (iron, zinc, and folate) for its regional composite estimates; if deficiencies of other micronutrients were taken into account, these findings may well underestimate the severity of the problem.¹ Other data on the prevalence of individual micronutrient deficiencies suggest that one-third of women of reproductive age in low- and middle-income countries are anemic, 63% are deficient in vitamin D; 41% are deficient in zinc, 23% are deficient in folate, and 16% are deficient in vitamin A.²

the pandemic, women accounted for 60% of undernourished people worldwide.³ Globally, 450 million women of reproductive age are estimated to have short stature due to maternal undernutrition, and more than 240 million women are underweight.⁴ Compared with men, women are 9% more likely to be underweight and 36% more likely to be obese.⁵



Source: G.A. Stevens, T. Beal, M.N.N. Mbuya, et al., Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys. *Lancet Global Health*. 2022;10(11):E1590-E9.

These widespread micronutrient deficiencies come on top of other forms of malnutrition faced by women, exacerbating the impacts on their health and well-being. Even before

Recent trends in micronutrient malnutrition are not promising. The only indicator in the Sustainable Development Goals (SDGs) related to a micronutrient deficiency is indicator 2.2.3 on prevalence of anemia among women aged 15 to 49. Although the World Health Assembly (WHA) has set a target of halving the prevalence of anemia in women of reproductive age by 2030, little progress has been made. Between 2000 and 2019, the share of nonpregnant women with anemia fell only from 31 to 30%, and the share of pregnant women dropped from 41 to 36%. In South Asia and West and Central Africa, half of all women suffer from anemia.⁶ It seems likely that the vast majority of countries will fall short of achieving the WHA anemia goal.⁷

Underlying and Unaddressed Inequalities

Malnutrition is both a consequence and a cause of gender inequality in a context in which women lack the agency, resources, and opportunity structure they need to build healthy, well-nourished lives.⁸ Women have particular nutritional needs at every stage of life but are often unable to meet those needs owing to social, political, and economic gender inequality. This means that they often suffer from deficiencies of key micronutrients and other forms of malnutrition even when the males in their household do not.

The social, political, and economic forms of inequality facing women are complex and context specific. Though gender inequality exists in both Africa and Asia, in Asia it is related to lower overall women’s empowerment, which has been attributed to the generally lower rates of women’s autonomy in this region than in other regions. In Africa other drivers of gender inequality, such as social stigma and cultural beliefs, may play a role in determining women’s food consumption and access to health care. As a result, in most regions women often eat last and least and due to inequitable social norms that limit their food intake and health care. In Nigeria, for example, 42% of women had inadequate intakes of folate, compared with only 3% of men.⁹

Women often face barriers to participating in economic, social, and political systems and lack access to remunerative work and equal pay. These inequalities may affect women’s nutritional status irrespective of poverty. A World Bank study of 30 countries in Sub-Saharan Africa found that 75% of underweight women do not necessarily live in the poorest households; furthermore, 75% live in households where the male head of household is not underweight.¹⁰

Even in food systems, where women play large and vital roles, their access to information and resources and their decision-making power are not commensurate with their labor burden. Women more often work in the informal sector,

where they lack job protections, and bear a heavy burden of unpaid labor.¹¹ Complicating matters is the fact that there can be tradeoffs between women’s empowerment and their nutritional outcomes because increased involvement in agriculture also increases women’s workload, demanding more energy and cutting the time available for child care.¹² Furthermore, food, education, and health systems do not adequately support healthy diets or prioritize nutrition as essential care for women and girls. Nutrition programs for women and girls are often considered non-essential and underfunded. These social determinants of nutrition often impede women’s access to high-quality diets with foods rich in vital micronutrients.¹³

Figure 1. The unequal burden of COVID-19 on women’s education and economic, health, and nutrition status



Source: Standing Together for Nutrition, 2022. [COVID-19 and Malnutrition: A Toxic Combination for Women.](#)

The COVID-19 pandemic, and the efforts to contain it, disrupted economic, education, health, and food systems, exacerbating these underlying inequities, with severe impacts on women. According to an analysis by the Standing Together for Nutrition Consortium, “Underlying inequitable norms and structures, such as gendered job protections, access to economic resources, decision-making power, expectations of caregiving, and division of labor, exacerbated the indirect effects of the pandemic on women and girls. These norms, roles, and relations fueled and exacerbated poor health and nutrition outcomes for women and girls.”¹² Research suggested that 4.8 additional women would suffer from anemia, owing to the economic and food system disruptions from the pandemic, and that the additional cases of anemia during pregnancy would result in \$177 million in lost productivity between 2020 and 2022.¹¹

Climate change, to which women are particularly vulnerable, complicates the situation. Women are disproportionately affected by infectious disease outbreaks and water insecurity related to climate change.¹⁴ In response to stresses and disruptions imposed by climate impacts, households may

take girls out of school, force them into early marriage, or engage in violence against women.¹⁵ Pulling girls out of school removes them from school meal programs and other school-based nutritional interventions as well as reducing their future economic prospects and the nutritional status of their future children. When men migrate to urban areas in response to climate stresses, women are often left behind on farms facing an increased workload and precarious income-earning prospects.¹⁵ These impacts all reduce women's ability to adequately meet their nutritional needs.¹⁴

Inequitable Burden and Immeasurable Costs

When women lack essential vitamins and minerals, the consequences are severe. For women themselves, micronutrient deficiencies can lead not only to serious health threats but also to reductions in energy level, cognition, and overall capacity. These effects can in turn impair women's educational outcomes, reduce their work productivity, and increase their risk from other diseases and health conditions.¹⁶ The most common micronutrient deficiency—*anemia*—caused predominantly by iron deficiency, poses a host of problems for women, including reducing their energy efficiency, work capacity, and productivity.⁶

In pregnant women, the impacts of micronutrient malnutrition travel down the generations. A lack of essential vitamins and minerals can be devastating both for women themselves and for their unborn baby. Inadequate nutrition increases the odds that a mother will experience complications or death in pregnancy⁴ (in 2019, iron-deficiency anemia was estimated to cause 22% of maternal deaths⁶). She also faces a heightened risk that the baby will be born prematurely, have low birth weight or be small for gestational age, suffer from congenital defects or cognitive impairment, develop

and grow poorly, or die.⁴ As noted in a new UNICEF report, “Daughters of undernourished mothers are more likely to become undernourished mothers themselves, rotating the cycle of malnutrition to the next generation of children.”¹⁷

A mother's nutritional status has particular importance for the developing brain of the fetus; inadequate nutrient intake during pregnancy is associated with brain defects, an increased risk of abnormal behavior, neuropsychiatric disorders, altered cognition, visual impairment, and motor deficits.¹⁸ Furthermore, an excess or shortage of vitamins and minerals can trigger fetal programming—that is, lifelong health effects on the fetus stemming from suboptimal nutrition at critical points during pregnancy. For instance, a pregnant woman with low vitamin B12 and zinc levels has a higher risk of having a baby who will develop insulin resistance in adulthood.¹⁹

Women's micronutrient malnutrition has consequences that extend well beyond the household. Losses in women's physical productivity owing to iron deficiency have been estimated to impose heavy economic costs and result in significant losses in gross domestic product.⁷ More broadly, the cost to the global economy of malnutrition in all its forms, including micronutrient malnutrition, has been estimated at US\$3.5 trillion a year.²⁰ This enormous cost is the economic outcome of impaired learning potential, poor school performance, diminished labor productivity, increased health care costs, forgone economic growth, lost investments in human capital associated with preventable child deaths, and premature adult mortality linked to diet-related noncommunicable diseases.²¹ By diminishing women's health, productivity, and economic well-being, women's malnutrition perpetuates the cycle of poverty.

Greater Equality for Improved Women's Nutrition

Empowering women while investing in their improved nutrition will have a multiplying effect on the resilience of women, their families, and their communities. Evidence points to the need for a range of approaches.

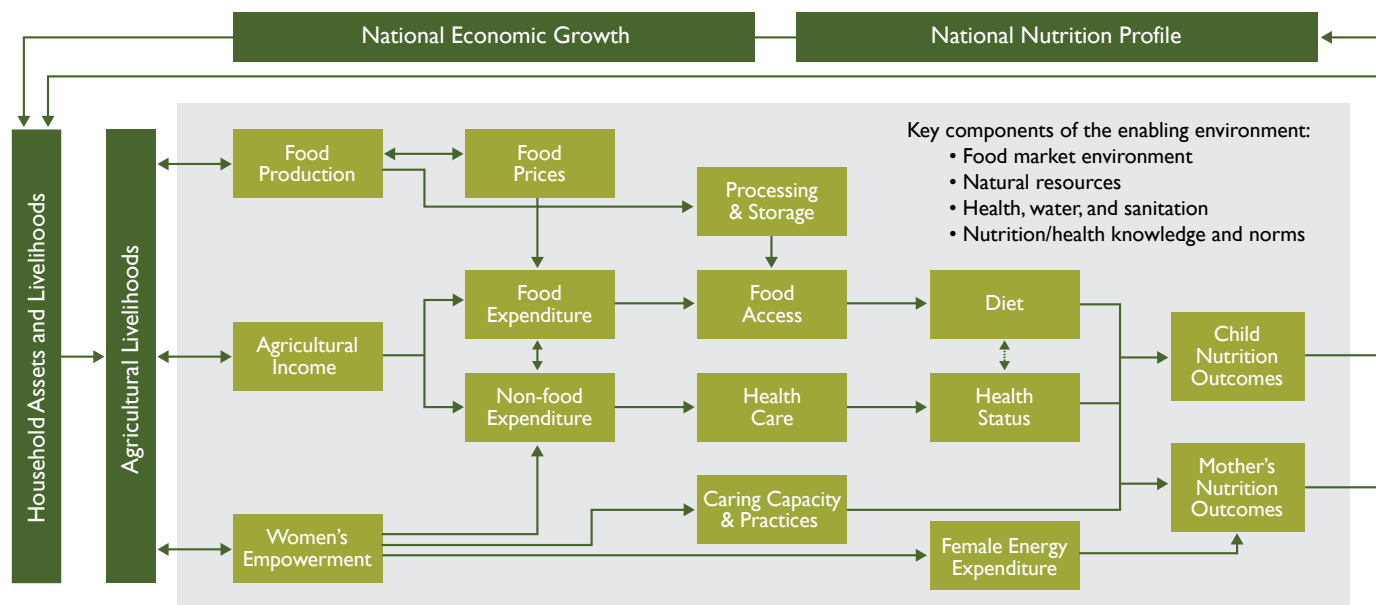
At a foundational level, it is crucial to empower women socially, economically, and politically so they have the capacity and resources to support their health and nutrition. According to a 2022 Emergency Nutrition Network paper, “Empowering women is one of the most effective ways to improve nutrition outcomes, both for women themselves and for other members of the household, and can help to break intergenerational cycles of malnutrition. However,

recognition of the links between gender empowerment and women's nutrition is largely lacking in guidelines and programming efforts.”²

Pathways to Empowerment

Women's empowerment has multiple dimensions and is dependent on the situation and context, making it challenging to define and measure.²² One framework shows the pathway from women's empowerment to improved nutrition consisting of three related components: women's use of income for food and nonfood expenditures, women's ability to care for themselves and their families, and women's energy expenditure (see Figure 2).

Figure 2: Steps toward Improved Nutrition: The Women's Empowerment Pathway



Adapted for Feed the Future by Anna Herforth, Jody Harris, and SPRING, from Gillespie, Harris, and Kadiyala (2012) and Headey, Chiu, and Kadiyala (2011).

Source: A. Herforth and J. Harris, *Understanding and Applying Primary Pathways and Principles*, Brief #1, Improving Nutrition through Agriculture Technical Brief Series (Arlington, VA: USAID/Strengthening Partnerships, Results, and Innovations in Nutrition Globally [SPRING] Project, 2014).

Note: The women's empowerment pathway appears in blue.

These pathways, as well as other conceptions of women's empowerment, are applicable to programs across sectors. The links between women's equality and micronutrient nutrition go in both directions. Gender equality promotes women's ability to get access to the vitamins and minerals they need. Reducing inequalities and empowering women can, for example, make nutrition-related programs more effective. Randomized controlled trials in Bangladesh and India have found that nutrition-sensitive agricultural interventions were more successful when they included women's empowerment.²³ In turn, better micronutrient status has been shown to empower women by improving their health, increasing their educational attainment, and enabling greater economic participation.⁵ Exploiting these links can enhance the resilience of women and their households as they seek to cope with and adapt to a succession of shocks and crises.

Nutrition-related programs for women and adolescent girls include direct nutrition interventions like supplementation and food fortification as well as indirect interventions like nutrition counselling and nutrition-sensitive agriculture projects. Often, however, the evidence on these programs focuses on benefits for infants and children, neglecting evidence on women's nutrition and health outcomes.²

Nutrition Specific Interventions

Nutrition interventions have been identified as one of the most cost-effective development actions. It is estimated that meeting global targets for cutting prevalence of anemia would provide a 12:1 return on investment and generate US\$110 billion in economic benefits in low- and middle-income countries over 10 years.²⁴ Nonetheless, coverage of programs to provide nutrients, especially iron, through supplements, fortification of staple foods, and multiple micronutrient powders is inadequate.⁶ Only 43% of pregnant women benefit from iron-folate supplements for the prevention of maternal anemia.¹⁷

Guidance on micronutrient supplements for women and adolescent girls worldwide, and in low- and middle-income countries in particular, is lacking and lags behind the evidence. In addition, health systems typically include established antenatal services but offer few nutrition services for new mothers and for nonpregnant women and girls.²

Multiple micronutrient supplementation (MMS) provides pregnant women and their unborn babies with appropriate amounts of 15 vitamins and minerals to support maternal and fetal health, growth, and development (see Figure 3). It has been proven to enhance mothers' nutritional status

and, in comparison with the more standard iron–folic acid supplementation, reduces the risk of preterm birth, stillbirth, low birth weight, and small for gestational age.^{25, 26} Though antenatal MMS or similar multivitamins are accessible in high-income countries, only 29 low- and middle-income countries provide these supplements.¹⁷ Now it is urgent to scale up programs that deliver MMS to vulnerable mothers by strengthening supply chain systems, policy adoption by governments and antenatal health care providers, and building awareness among mothers, communities.²⁷

More broadly, to improve women nutrition and specifically micronutrition, health policies and health systems need to be strengthened by investing in the capacity of health care workers in nutrition counseling, including MMS in antenatal care policies and programmes enhancing supply systems of nutrition supplements.

Nutrition Sensitive Interventions

Nutrition-sensitive programming across sectors must also focus on eliminating gender disparities. Women farmers, for example, face discrimination that prevents them from fulfilling their potential and achieving adequately nutritious diets. Whereas women make up 43% of the global agricultural labor force, they constitute only 15% of global landowners.²⁸ Agricultural interventions thus need to expand women's access to productive resources, including land, improved seeds, technology for planting and harvesting, credit, and training. Women also need greater decision-making power over productive assets and the use of income. At the same time, efforts to lift women's agricultural productivity must avoid excessively increasing the time and work burdens women face.²²

Climate change can exacerbate gender inequalities in agriculture. Interventions to promote climate-smart agriculture should aim to reduce gender inequalities and ensure equal access to productive resources, technologies, practices, and services. A gender-responsive approach to climate-smart agriculture can help narrow the gender gap in agriculture and thereby improve the micronutrient resilience of women, their households, and their communities.²⁹

Education is also critical for empowering girls and women and improving their nutritional status. According to the World Bank, "Better-educated women tend to be more informed about nutrition and healthcare, have fewer children, [and] marry at a later age, and their children are usually healthier, should they choose to become mothers. They are more likely to participate in the formal labor market and

Figure 3: Micronutrient Content of the United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP)

Vitamin A	800 µg
Vitamin D	200 IU
Vitamin E	10 mg
Vitamin C	70 mg
Thiamin	1.4 mg
Riboflavin	1.4 mg
Niacin	18 mg
Vitamin B6	1.9 mg
Folic Acid	400 µg
Vitamin B12	2.6 µg
Copper	2 mg
Iodine	150 µg
Iron	30 mg
Selenium	65 µg

Source: Healthy Mothers Healthy Babies, "Multiple Micronutrient Supplementation," n.d.

Note: UNIMMAP is safe, efficacious, cost-efficient, and affordable and meets micronutrient requirements that poor diets cannot meet.

earn higher incomes."³⁰ While girls are enrolled in primary school at rates similar to boys, their completion rates at all levels lag behind those of boys.³⁰ Furthermore, school feeding programs not only provide nutritious meals for all students, including girls, but also provide an incentive to keep girls in school.³¹

Empowering women will involve men in changing gender norms and promoting equality. It is important to engage with men and boys as potential agents of change and to promote alternative positive masculine gender identities. A project in Senegal cultivated gender champions to promote gender-sensitive best practices for nutrition. Men engaged more in traditionally female tasks such as collecting water while women were encouraged to play a larger role in decision making on finances and food purchases, with benefits for household nutrition.³² In a project in Ethiopia, improving men's nutritional knowledge was positively associated with households' dietary diversity.³³

Recommendations for Action

- **Mainstream women’s empowerment and gender equality into all nutrition programming, both nutrition specific (such as food fortification and micronutrient supplementation) and sensitive (such as agriculture, climate change, and other development interventions).** Policies and programs must ensure that women have access to productive resources and decision-making power over those resources. Including women’s empowerment components in direct nutrition programming can raise the impacts of those interventions; for instance, efforts to reduce iron-deficiency anemia can seek to break down cultural barriers that limit women’s access to iron-rich animal-source foods.³⁴ Empowering women in agriculture can help increase agricultural and food production, boost incomes, and promote food and nutrition security for women and their families. Climate-smart agriculture programs should focus on increasing women farmers’ resilience to climate change. Given the evidence on returns to nutrition interventions, governments and other key stakeholders need to fully fund nutrition programming and target the most vulnerable women and girls.
- **Build resilient health, education, and social protection systems that address women’s nutrition at all life stages, regardless of their reproductive choices.** Adolescent girls, pregnant women, lactating women, and nonpregnant women all have specific nutritional needs that should be fully met, with well-designed, fully funded programs based on the latest evidence. Multiple micronutrient supplementation should become standard during pregnancy. Other micronutrient supplements, including iron–folic acid supplementation, should be routinely administered to adolescent girls. The nutritional needs of lactating women may also require special care. To address nutrition inequities, nutrition care should be an integral part of universal health coverage.³⁵ Educating girls helps improve their current and future nutrition status and that of their future families. School feeding programs can not only promote girls’ nutrition directly but also help keep girls in school.
- **Fill the data gaps on women’s nutrition status.** Greater investments in gender-disaggregated data on the micronutrient nutrition status of girls and women are needed to guide programs and policies, support research on what works, and monitor and track progress. In addition, the latest guidelines on nutrition for women and adolescent girls should be assembled in a repository where they are easy to find and follow.

Nutrition Resilience: More Equitable & Nourished Futures for Women

The links between gender equality and micronutrient nutrition go in both directions and can enhance the resilience of women and their households as they seek to cope with and adapt to a succession of shocks and crises. Indeed, advancing gender equality and empowering women and girls are at the very foundation of nutrition resilience. Solutions that empower women and girls with the agency, resources, and opportunities they need can set the stage for a virtuous circle in which nutrition resilience extends through households and communities, as well as down through the generations for the benefit of all.





Micronutrient Forum 6th Global Conference

The Hague, The Netherlands & ONLINE
16–20 October 2023

About the Nutrition for Resilience (N4R) White Paper Series

This white paper is part of a series designed to stimulate new thinking and discourse in advance of the Micronutrient Forum 6th Global Conference “Nutrition for Resilience (N4R): Ensuring Micronutrient Security in an Era of Complex Global Challenges,” scheduled for 16–20 October 2023. This hybrid conference, with an in-person component in The Hague, Netherlands, will explore the interdependence of micronutrient nutrition and the resilience of individuals, communities and systems, within the context of a world where global crises are the new normal. **For more information, click [here](#).**

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Endnotes

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