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IMPACTS OF FAMILY PLANNING ON FOOD SECURITY



This publication was prepared by Ellen Smith and Rhonda Smith of the Health Policy Project.

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Impacts of Family Planning on Food Security

MARCH 2015

This publication was prepared by Ellen Smith¹ and Rhonda Smith² of the Health Policy Project.

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EXECUTIVE SUMMARY

Voluntary family planning programs that emphasize the right of women and couples to freely choose the number and timing of their pregnancies have the potential to improve food security. Evidence shows that family planning can decrease fertility rates and slow the pace of population growth, thus reducing pressure on food security. In this way, family planning supports the four main pillars of food security: availability, access, utilization/consumption, and stability.

Food availability, the first pillar, is the supply of food in relation to the amount of food needed to feed a population adequately. Family planning links to food availability through its effect on fertility and population size. As a population grows, making sure that its need for food does not outstrip the amount of food produced can be challenging. Family planning is also linked to food availability through its effect on women's roles and gender equality: Unintended pregnancy, breastfeeding and child care may limit women's mobility and the time they are able to spend learning new agricultural techniques and contributing to the food supply. Rapid population growth can be behind the trends in developing countries of decreasing household plot size and expansion of agriculture and grazing into marginal, less productive lands. These trends may hamper a population's ability to adapt to the agricultural effects of climate change.

Food access, the second pillar, is linked to family planning largely through poverty, with low-income families less likely to have access to family planning. Large households may have fewer resources to spend on each family member, resulting in less food consumed per capita. High fertility can also limit women's labor force participation and thus their ability to contribute to household food security. In urban areas with fast population growth, people must buy rather than raise all of their food, which can limit access to food, particularly by the urban poor.

Food utilization/consumption, the third pillar, is affected by family planning, because pregnant and lactating women have higher biophysical energy requirements. In addition, rapidly growing urban populations may strain sanitation infrastructures to the point of increasing waterborne diseases, which can compromise nutrient absorption.

Household food stability, the fourth pillar, is present when populations have consistent food availability, access, and use over time. It is associated with resilience—the ability to adapt to crises. Lack of access to voluntary family planning compromises food stability, because it increases the probability of high-risk pregnancies and maternal mortality and morbidity. Childbearing at too-young an age can limit a woman's education and thus her earning potential, making her household less able to adapt to unforeseen challenges. And finally, rapidly growing, young populations are more prone to civil conflict, which can threaten food stability at the regional or national level.

ABBREVIATIONS

| | |
|-------|-------------------------------------------------------------|
| AA | Assistant Administrator |
| AFR | Bureau for Africa |
| ARP | Office of Agricultural Research and Policy |
| BFS | Bureau of Food Security |
| CSI | Country Strategy and Implementation |
| DCHA | Bureau for Democracy, Conflict, and Humanitarian Assistance |
| FAO | Food and Agriculture Organization of the United Nations |
| FFP | Food for Peace |
| GH | Bureau for Global Health |
| HIDN | (Office of) Health, Infectious Diseases, and Nutrition |
| HT | Health Team |
| IFPRI | International Food Policy Research Institute |
| NUT | Nutrition Division |
| PEC | Policy, Evaluation, and Communication |
| PRH | Office of Population and Reproductive Health |
| PTD | Policy and Technical Division |
| RTU | Research, Technology, and Utilization Division |
| SD | Office of Sustainable Development |
| USAID | United States Agency for International Development |

INTRODUCTION

Background

Ensuring that people have both physical and economic access to sufficient food is a complex challenge for developing countries. Tackling it requires cross-sector collaboration, innovative approaches, and making the most of all available interventions. In 2014, the Health Policy Project, funded by the U.S. Agency for International Development, conducted a review of existing empirical evidence on the ways in which one intervention—family planning—improves food security. The review is part of an overall effort that includes a complementary review on the linkages between family planning and nutrition, also conducted by the Health Policy Project, as well as a companion desk review synthesizing the programmatic experiences of integrating family planning with food security and nutrition, conducted by the Food and Nutrition Technical Assistance III Project (FANTA).

Links between family planning and food security have been noted for hundreds of years, as demonstrated by Thomas Malthus's influential treatise, *An Essay on the Principle of Population* (1798),¹ which explores the tension between population growth and constrained resources. This review examines the relationships among family planning, population growth, and food security from the perspectives of the four pillars of food security: availability, access, utilization/consumption, and stability (see Definitions on page 2). Although empirical evidence based on specific food security outcomes is discussed whenever possible, many of these relationships are conceptual and have no empirical evidence. Because many donors and development initiatives silo their funding and technical content, few programs track both family planning and food security metrics, adding to the challenge of understanding the links.

Rationale

Conceptually, access to voluntary family planning has many connections to food security. Paramount among them is the influence of family planning on population size, which in turn has direct impacts on food security.

Today's fertility rate—the average number of children per woman—largely determines population growth in the future.² Family planning is one of the main determinants of fertility change.³ Modern contraceptives are highly effective, typically averting unintended pregnancy between 90 and 99.95 percent⁴ of the time, depending on the specific method used. Decreasing the number of births per woman decreases both household size and, at the aggregate level, a country's future population size. One example of this dynamic is an integrated family planning and maternal and child health program in Matlab, Bangladesh, where the share of women using contraceptives increased from less than 10 percent to more than 50 percent over a 20-year span. This increase brought the country's fertility rate down from more than six children per woman to approximately three children per woman.⁵

An estimated 225 million women in developing countries have an unmet need for modern family planning.⁶ Women who have an unmet need are those who say they would like to postpone their next birth or stop childbearing altogether but are not using a modern method of family planning to avoid pregnancy. This large, global unmet need for modern family planning methods underscores the significance of the challenge to strengthen and expand voluntary family planning programs around the world. The foundation of voluntary family planning, free of coercion, is the right of individuals to choose freely and responsibly the number and spacing of their children.⁷ A voluntary family planning program that respects, protects, and fulfills this right promotes the value and dignity of the individual and ensures a wide range of contraceptive options and high-quality services and information. The ability of a woman to express full agency in decisions about her fertility has far-reaching impacts not only for the woman herself but also for her children, her family, the community, and, ultimately, the nation. In this report, we

assume that increased use of voluntary family planning would occur among women with unmet need. In this way, women's own stated fertility intentions define the size of a possible future increase in family planning use.

Expanding access to voluntary family planning by women who have unmet need affects future population growth while also fulfilling women's stated fertility intentions. According to a recent analysis, if all unmet need were met between 2005 and 2050 in 99 developing countries, the total population in those 99 countries in 2050 would be 400 million lower than the United Nations' medium population projection: 6.3 billion versus 6.7 billion people.⁸ Given the high number of unintended pregnancies worldwide, breaking down barriers to voluntary family planning services would not only help satisfy women's stated needs but also give governments a tool to feed their populations, because when population growth slows, so does the food requirement.

Definitions

Food security exists "when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life."⁹ Food security comprises four distinct pillars:

1. *Food availability*: sufficient quantities of appropriate, necessary types of food are consistently available to individuals or are within reasonable proximity or are within their reach.¹⁰
2. *Food access*: individuals have adequate income or other resources to buy or barter to obtain levels the amounts of appropriate foods they need to maintain an adequate diet/nutrition level.¹¹
3. *Food utilization/consumption*: individuals meet the appropriate biophysical conditions (such as good health) to adequately use food to meet their dietary needs.¹²
4. *Food stability*: the first three pillars are consistent for populations, households, or individuals over time and are not lost as a consequence of sudden shocks or cyclical events. Food stability is associated with resilience, which is a person's or household's ability to return to a state of food security even after short-term shocks (such as droughts, natural disasters, sudden loss of income, or sudden illness or disability).¹³ According to the U.S. Agency for International Development, resilience is the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.¹⁴

The following family planning terms are also used throughout this review:

Family planning: the use of contraceptive methods to attain the desired number of children and to plan and space the timing of births.¹⁵

Unintended pregnancy: pregnancies that are reported to have been either unwanted (i.e., they occurred when no children, or no more children, were desired) or mistimed (i.e., they occurred earlier than desired).¹⁶

Unmet need: women have unmet need when they want either to postpone their next birth for two years or more or to have no more children but are not using any modern method of contraception.¹⁷

ORGANIZATION OF CONTENT

This review focuses on the unidirectional impacts of family planning on food security, drawing from the available evidence. It aims to increase policy dialogue and inform policy and programmatic decisions about how family planning can improve food security. The review concludes with discussion of gaps in the evidence base and suggestions for further research.

METHODS

The methods used to identify relevant literature for this review were (1) searches of electronic databases such as Pub Med and Medline; (2) searches in the *Journal of Nutrition*; *Advances in Nutrition*; *Global Food Security*; *Agriculture and Food Security*; *Studies in Family Planning*; and *International Perspectives on Sexual and Reproductive Health*; (3) follow-up with technical experts on their recommendations from completed or ongoing research; (4) searches of the websites of key agencies or organizations engaged in research and programming in the areas of food security, food production, food expenditures, family planning, nutrition, and calorie consumption, among others; (5) review of articles referenced by key sources; and (6) searches of specific links identified or suggested by the literature. Themes emerging from the relationships among population growth, family planning, and food security were identified and summarized. An annotated bibliography of all significant sources as well as a table showing titles, authors, themes, findings, and recommendations were also compiled to organize the evidence.

FINDINGS

Food Availability

The concept of food availability focuses on the question of sufficient quantities of appropriate, necessary foods; thus, both the quantity of food produced and the quantity of food needed have an impact on food availability. The total population size—one of many factors that affect food availability—helps to determine the total quantity of food that is needed.

Globally, demand for more food and demand for more types of food are rising in response to changes in diet as well as population growth. Increasing wealth influences food consumption, as better-off families are able to spend more money on food and demand greater quantities of animal-based foods—both of which require increased food production.¹⁸ At the same time, projected world population growth from almost 7 billion in 2010 to 9.5 billion in 2050—a 36 percent increase—means that total demand for food will continue to rise, even independent of changing consumption patterns. With the total fertility rate, or average number of children per woman, still high in the world's least-developed countries (approximately 4.5 children per woman in the 49 least-developed countries, according to the latest United Nations projection, for 2005–2010), population growth is fastest in places already suffering from the greatest food insecurity.¹⁹

In response to changes in consumption and population growth, agricultural outputs will need to increase by an estimated 70 percent by 2050 to ensure an adequate food supply.^{20, 21} To close this gap through agricultural production alone, total crop production would need to increase even more from 2006 to 2050 than it did from 1962 to 2006.²² During the same period, milk and meat production would need to increase 40 percent more than it did from 1962 to 2006.²² To meet projected crop needs just by increasing production and without expanding the annual area harvested, crop yields on average would need to grow by 32 percent more from 2006 to 2050 than they did from 1962 to 2006.²² To meet projected demands for milk and meat from cows and sheep without expanding pasture, annual output from pasture lands per

hectare would need to grow more than 80 percent by 2050.²² As countries develop, the shift away from a vegetable-based diet to a meat- and dairy-based diet is increasing the rate of per capita consumption of food.²³ More grain is needed to feed animals to produce more meat and dairy products, and thus a meat- and dairy-based diet requires more input than a vegetable-based diet.²⁴

Population projections—estimates of population size and structure in the future—change with fertility rates. Several models have looked at the potential impact of lower fertility and slower population growth on various food security measures. As mentioned, meeting women’s own fertility health goals would likely cause such decreases in fertility and population growth. For example, according to a model by Rosengrant et al., if the average number of children per woman followed the United Nations’ low-fertility scenario, the number of malnourished children under age five would decline substantially. This decline is estimated to be in large part due to higher per capita food consumption and not solely the result of slower population growth and a smaller population of children in the under-five age group.²⁵

Another model, by Searchinger et al., suggests that achieving worldwide replacement fertility by 2050—2.1 children per couple—would reduce demand for crops by roughly 600 trillion kilocalories per year compared to the demand projected with the current United Nations medium variant population at midcentury, closing about 9 percent of the 6,500 trillion kilocalorie-per-year global gap between food available in 2006 and the amount needed in 2050. In sub-Saharan Africa, reaching replacement fertility in 2050 would reduce the size of the projected gap in crop production for that period by approximately one-quarter.²⁶ Thus, a part of the required future productivity increase in crop demand is necessitated by population growth. Searchinger’s study demonstrates that lower fertility rates, which can be affected by family planning use, would reduce global, and especially African, demand for crops.

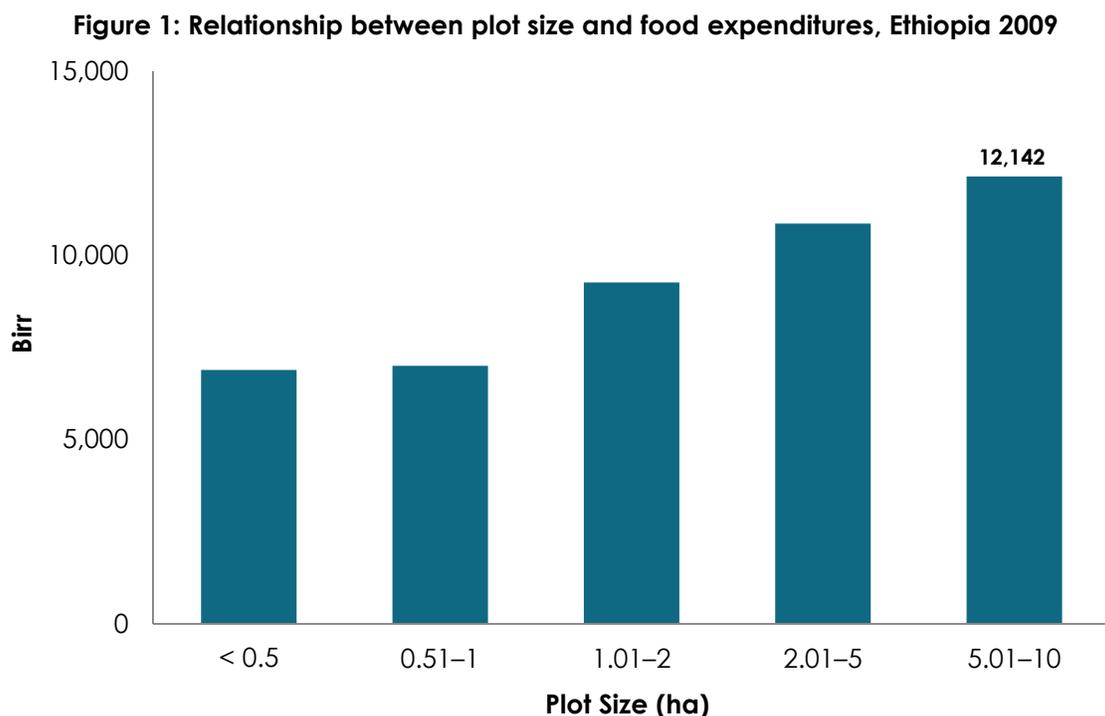
Land quality

Population growth can also cause pressure on land, water, and other resources necessary for agriculture and grazing. This situation may compound the problem of meeting the increasing food needs described above, as resource limitations can decrease agricultural productivity and food supply. The agriculture sector accounts for 70 percent of all water withdrawals. As the global population grows, more water will be required worldwide for domestic and industrial use.²⁷ There is already intense competition for water in peri-urban zones and urban hinterlands in developing countries.²⁵ In some countries, massive amounts of groundwater have been used for agriculture, resulting in reduced capacity to maintain per capita food production while also meeting domestic, industrial, and environmental water needs.²⁵ Some argue that population growth may be accompanied by technological and economic advances that can increase crop output, counteracting any possibility of decrease in food supply due to more limited resources.²⁸ However, land resources are finite, and a 2012 analysis by Kastner et al. found that, combined with poor land management, population growth can result in soil erosion, land degradation, and agricultural activities on marginal lands—all of which can decrease agricultural productivity.²⁹ Kastner also found that from 1963 to 2005, population growth contributed almost 75 percent to increasing cropland demand for food.²⁹

Some of the land in developing countries (particularly in sub-Saharan Africa) is arid or semi-arid and not conducive to agricultural production. As arable land becomes exhausted from overuse, moving into these areas with the intention of growing crops there is a dubious proposition. As Das Gupta et al. state, “In response to population pressure, people are degrading land through over-cropping and over-grazing, and expanding into more fragile lands.”³⁰ Researchers in Ethiopia conducted focus group discussions and in-depth interviews to learn more about community perspectives on the links between population growth, food security, and climate change. One community member explained the effect of population growth on fertile land as follows: “In earlier years, we had a lot of fallow land, but now, as a result of population growth, we don’t have adequate fallow land.”³¹

Deforestation also causes erosion and land degradation. Though it may bring more land under agricultural production, it threatens clean water, climate regulation, and biodiversity—all of which are important for human wellbeing. Another community member from the study in Ethiopia explained that population growth is one of the main reasons for deforestation and shrinking natural resources: “In the past, when few people lived in this area, it had huge forest reserves, but as the population increased, forests got damaged.”³¹

When rapidly growing subsistence populations use a fixed amount of arable land, agricultural plots shrink, diminishing the farmers’ ability to produce enough food to sustain their families and communities. In many countries, the amount of agricultural land per capita is declining significantly. For example, in Nigeria in 1960 land per capita averaged 0.68 hectares; by 2025 the per capita average is projected to be 0.14 hectares.³² In Kenya, Ethiopia, and Zambia, the ratio of arable land to agricultural population is half what it was 50 years ago.³³ As population pressures shrink plot sizes and more intensive land use makes soil less fertile, the total yields of small-holder farmers decline. All of these factors can undermine food security. For example, analysis of results from a 2009 survey in Ethiopia showed that, as rural families’ plot size declines, families spend less money on food—possibly because smaller plots mean less income from cash crops, curtailing purchases.³⁴



Source: Rural Household Survey 2009, authors’ calculations

Women’s roles and gender equality

Food availability is also influenced by the ability of small-holder farmers to produce food. In many countries, women contribute substantially to agricultural labor. For example, women perform half of all agricultural labor in sub-Saharan Africa.³⁵ However, pregnancy, breastfeeding, and child care may limit women’s mobility and the time they are able to spend learning new techniques and contributing to increased food production. Voluntary family planning programs can ease such limitations while simultaneously helping women to achieve their desired fertility. Access to family planning information and services is critical to fulfilling reproductive rights and ensuring the wellbeing of women.³⁶ When women can plan and space their pregnancies, they are more able to do agricultural or paid work that

provides food for the household while also caring for their children's health and wellbeing. Access to family planning not only improves women's health but also increases their freedom to pursue education. Eliminating medical, policy, and social barriers (such as gender inequality) to family planning increases the capacity of women to contribute to food availability in their communities.

Climate change

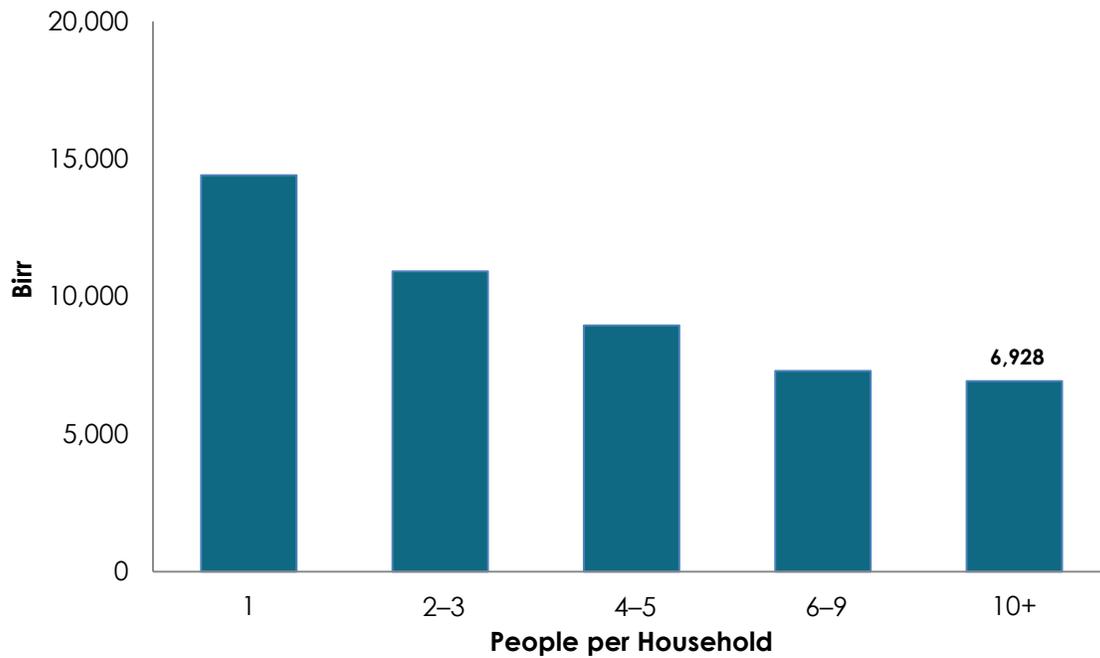
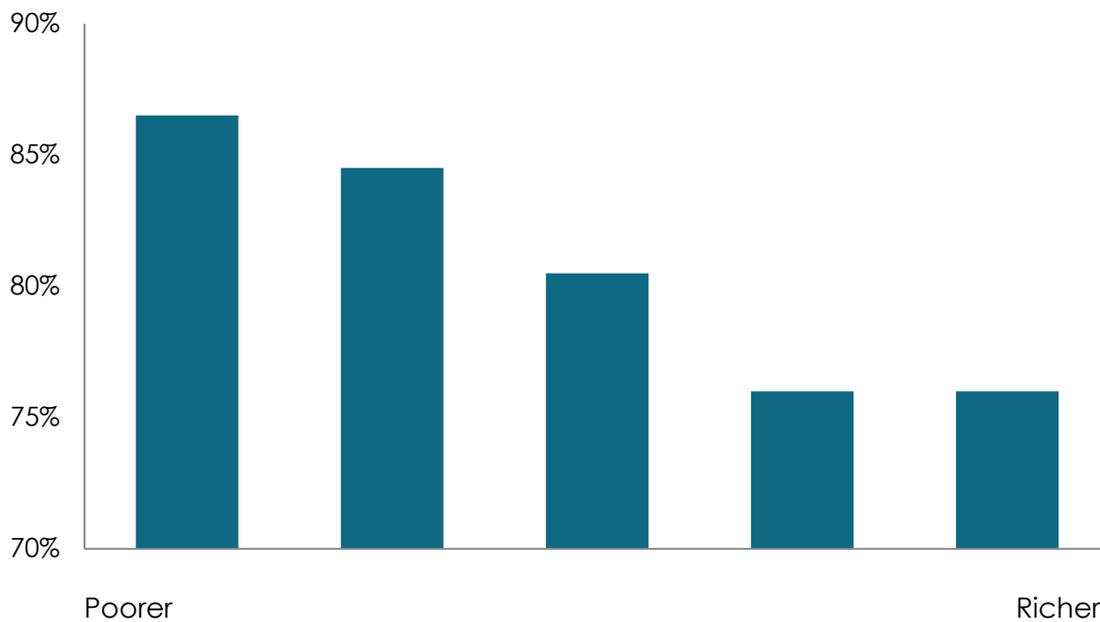
This review deals with adapting to climate change, not mitigating it. Climate change is expected to influence local climate patterns and their impact on agriculture. In much of sub-Saharan Africa, for example, variations in temperature and precipitation associated with climate change are predicted to lower food production.³⁷ Coping with these phenomena will be particularly challenging in the many developing countries whose economies rely primarily on the agriculture sector and that lack access to new technologies that could help them adapt to climate change.

Increasing access to voluntary family planning can slow population growth, which could make the challenges of food insecurity that arise from climate change less formidable. In a computer simulation model of the relationships among climate change, food security, and population growth in Ethiopia, Moreland et al. estimated that Ethiopians would have 373 kilocalories less per day in 2050 due to the impact of climate change on food supply than they would if climate change did not occur. Interestingly, the model also showed that slower population growth in Ethiopia could compensate entirely for the effects of climate change on food availability by 2050. If, by 2050, Ethiopia's birthrate were 1.8 children per woman rather than 2.3 children per woman, individuals would have approximately the same amount of food available to them then as they do now, despite the negative impacts of climate change on agriculture.³⁸

Climate change is also projected to decrease the amount of arable land, which is already in short supply with growing population demands. Sub-Saharan Africa could lose up to 247 million acres of farmland by 2050 due to climate change; at the same time, the population is projected to increase by approximately 1.1 billion.³⁹ Thus, strong, voluntary, family planning programs and population policies that uphold and protect the rights of individuals to control their fertility must be part of the solution to climate change, particularly as it relates to food availability.

Food Access

Food access is largely determined by food prices and the ability of households to pay for adequate food to meet household members' needs. Thus, poverty is the nexus of the relationship between food access and family planning. Low-income families are less likely to have access to family planning, are more at risk of unintended pregnancies, and have more children. Figure 2 demonstrates the inverse relationship between household size and per capita expenditure on food in rural Ethiopia, showing that smaller households spend more than twice as much per capita on food than larger households do.³⁴ Figure 3 shows that the poorer the family, the greater the percentage of income it must spend to obtain enough food to meet everyone's nutritional needs. Many low-income families are challenged with the double burden of larger than desired family size—resulting from limited access to family planning and unintended pregnancy—and less money to spend on food for nutritional needs.

Figure 2: Per capita food expenditure by household size, rural Ethiopia, 2009**Figure 3: Percentage of household expenditures on food by wealth quintile, rural Ethiopia, 2009**

Many women in developing countries combine time spent caring for their children with other productive activities, but a few studies have found that fertility reduces women's time in the labor force. Bloom et al. find "a large negative effect of the fertility rate on female labor force participation. The direct effect is concentrated among those aged 20–39, but we find that cohort participation is persistent over time giving an effect among older women."⁴⁰ Ashraft et al. estimate that women spend approximately 0.5 years caring for each additional child that could be spent participating in the labor market.⁴¹ However, the calculations

regarding the time cost of each additional child in the Ashraft model do not show a large impact on per capita income over time, indicating an area for additional research. For women to have the power to make decisions regarding their participation in the labor market, their contraceptive needs must be met. Thus, lack of access to voluntary family planning could impact food security by reducing women's incomes while preventing women from fulfilling their own fertility desires. While Ashraft's research does not show causality, it is evident that women's roles in the labor force can be restricted if family planning needs are not met, limiting women's wages and thus potentially women's access to food for themselves and their families.

Another challenge in food access is urban population growth, which has resulted in an increasing number of people who pay for food and do not produce their own food.⁴² Many of the urban poor lack a fixed income and thus are even more vulnerable to changing food prices in determining their ability to access adequate food. The urban poor can spend 60 percent or more of their income on food, which can lead to more limited food access.⁴³ Rural poor also have multiple, compounding challenges that affect their access to food. They generally have the smallest plot sizes with low crop yields, but they do not engage in many other income-generating activities that could help them buy additional food to meet their nutritional needs.⁴⁴ Further, in response to higher food prices, many poor consumers who already spend most of their income on food revert to cheaper and less nutritious choices.⁴⁵

Investments in family planning and reproductive health can improve families' economic security and access to food. An integrated family planning and maternal and child health program in Matlab, Bangladesh, for example, set up a "comparison area," which received public health services provided routinely by the Ministry of Health, and a "treatment area," which received those services plus immunization for children and pregnant mothers, treatment of diarrheal diseases, and medicines for contraceptive side effects and some illnesses. According to a report on the project, "Community health workers were trained to inform and educate mothers about contraceptive methods, advantages of small family and spacing births, safe delivery practices and hygienic practices for prevention of diarrhea and other diseases."⁴⁶ A study of the effects of long-term investment in the program found that women in the treatment area earned 450 taka more for each year of schooling than women in the comparison area did.⁴⁷ Women in the treatment area also weighed more and had higher body mass index, perhaps because their households had more income for food purchases. In another study, Lee-Rife et al. found that having fewer, well-spaced children increases female labor force participation and educational attainment, which may empower women individually and as a group, and may increase their status and resources within the household.⁴⁸

Women generally spend a higher proportion of the income under their control on food than men do,⁴⁹ so increasing women's income and decision-making ability can increase the resources that families dedicate to food purchases. Notably, as one author claimed, "increasing resources in the hands of women (rather than men) has a positive impact on family welfare, in particular children's health (child survival and nutrition rates) and education."⁵⁰

Food Utilization and Consumption

The third pillar of food security—food utilization and consumption—concerns both the amount of food necessary to meet a person's biophysical needs and a person's ability to process that food and make use of appropriate nutrients. Differing levels of fertility can change the age structure of a given population, affecting the population's food requirements, because people's energy intake requirements drop as they age.⁵¹ Thus, slowing population growth can mean that less food will be needed to adequately meet a population's nutritional needs. Additionally, although breastfeeding has many benefits, pregnant and breastfeeding women have greater caloric requirements than nonpregnant or nonbreastfeeding women do, thus increasing the consumption requirements to meet their biophysical needs and potentially increasing

the risk of food insecurity. These requirements are 300 to 500 extra calories per day, and pregnant or lactating women have the highest overall dietary needs relative to their size not only for calories but also for proteins, vitamins, and minerals.^{52, 53} In communities with higher fertility rates where more women may be pregnant or breastfeeding at any given time, food requirements may be greater. Further, when pregnant women experience food insecurity, the consequences for their children are long-lasting: Proper maternal nutrition during the 1,000-day window between pregnancy and a child's first two years of life has significant impacts on the child's health and development through adulthood.⁵⁴

The high population growth rate in urban areas also influences sanitation and the risk of diseases associated with population density, which can affect food utilization by people who are ill. Rapid population growth in urban areas could more than double the urban population in developing countries to 4.3 billion people by 2020 and 6.3 billion by 2050.⁵⁵ The vast majority of urban dwellers in developing countries will be in small and medium-size cities, which have poverty rates even higher than larger cities do.⁵⁶ Additionally, these small cities and towns are less likely than larger cities to have adequate sanitation facilities or adequate health care personnel and health services, including family planning services.⁵⁷ Poor sanitation in these cities can increase the prevalence of waterborne diseases and their consequences (such as diarrhea—a leading cause of child malnutrition) that harm people's ability to absorb nutrients from the foods they eat. Urban residents may eat a good deal of food prepared outside the home, in kiosks and on the street, so even the food they have access to may not have as much nutritional value as unprocessed food.^{58, 59} Therefore, population growth, particularly within urban slums, can influence food use and people's ability to process the nutrients that they need.

Food Stability

Food stability is present when populations have consistent food availability, access, and utilization over time.¹³ Food stability also depends on resilience: the ability to adapt to changes, particularly as they influence one of the other three pillars of food security.¹³ For example, as mentioned above, increasing food prices are hard on poor households—especially poor, nonagricultural households—because the only way these households can adapt is to spend an even higher percentage of their income on food.

Women are less likely than men to be resilient in the face of external changes and shocks—from increasing food prices to droughts, floods, and other natural disasters—that can influence their ability to access food consistently over time.⁶⁰ Lack of voluntary family planning can result in early childbearing and higher fertility rates, two outcomes that are associated with early departure from school and lower participation in the labor force, making women less able to adapt to shocks. Additionally, maternal mortality and morbidity, which are associated with childbearing that is too early, too often, or too late in a woman's life, diminish the capacity of women to help their families access enough food to meet their nutritional needs. As Bremner et al. state, “pregnancy-related death and disability impact thousands of households each year, removing caregivers, the essential providers of a family's food and water and the critical agents of change, who could otherwise help their children, families and communities adapt...”⁶¹ Thus, expanding family planning programs—along with women's education and employment opportunities—can improve women's ability to handle changes in food availability, access, or utilization.

Although there is not much literature on the connection between family planning and food stability, population growth is thought to increase the likelihood of civil conflict, particularly in countries with young population structures. Analyses show that 86 percent of countries that experienced a new outbreak of civil conflict in the 1970s, 1980s, and 1990s had age structures with 60 percent or more of the population younger than 30 years of age.⁶² Civil conflict often disrupts regular systems and economies, influencing the ability of individuals to produce or access food.⁶³

GAPS NEEDING RESEARCH

Although this review points to many potential relationships between family planning and food security, not all of the links rest on sound evidence. Most of the evidence is around food production, food expenditure, and calorie consumption and does not examine the composite indicators for food security that have been tested over the past few years: the Household Dietary Diversity Score, the Food Consumption Score, the Household Food Insecurity Access Scale, the Household Hunger Scale, the Coping Strategies Index, and the Months of Adequate Household Food Provisioning Index. Moreover, most of the research provides evidence of the links between population growth and food security but not of direct links between family planning and food security. This dearth of evidence may be due in part to the challenges of linking an intervention measured at the individual level—family planning—with food security, which is generally measured at the community or national level. Even so, the relationship between family planning and food security warrants further research. In addition, many current measures of food security focus on the first component—food availability—and there are fewer outcome measures associated with food access, utilization, or stability. Again, this may be because some of the components of food availability are easy to measure but ways to measure food utilization and stability are less clear.

To increase understanding of the relationship between family planning and food security, more health programs should investigate outcomes of food security along with the more commonly measured outcomes of contraceptive use on fertility and maternal health. The first step could be to determine whether there are any validated food security questions that could be readily added to routine national surveys, such as the Demographic and Health Survey and the Multiple Indicator Cluster Survey. A parallel recommendation is to collect standardized family planning data within nutrition and food security programs—for example, through surveys conducted by Food for Peace, Feed the Future, the World Food Programme, and the Food and Agriculture Organization of the United Nations.

This rapid review identifies several topics for further investigation:

- How parity affects household resilience to food security shocks
- The impact of family planning on women’s ability to produce or purchase food
- Household-level analysis of the impacts on food security of plot size, parity, birth spacing, and maternal mortality and morbidity
- A disaggregation, if possible, of the economic and food security outcomes of the Matlab, Bangladesh program—a unique social experiment—into those attributable to family planning and those attributable to other interventions
- How urban population growth and patterns of family planning use have changed urban poor communities in terms of food availability, food access, and the presence of waterborne diseases that might limit food utilization
- How civil conflict relates to family planning and food stability

These will be important topics for further study as urban centers continue to grow and as climate change further impacts agricultural production.

CONCLUSION

This review draws attention to several important linkages between voluntary family planning and food security. It sets the stage for dialogue about how best to exploit these linkages to achieve optimal food security outcomes. Importantly, the evidence presented can refocus the lenses through which we conventionally view both family planning and food security. For the family planning community, it offers a broader view of the benefits that can be achieved by addressing unmet need. And for the food security community, it draws attention to the often overlooked potential of family planning to strengthen current approaches and more effectively achieve food security goals. Ultimately, this work aims to galvanize our collective thinking and encourage a more collaborative, integrated approach to the development of public health policies and programs.

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