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Integrating Gender and Nutrition within Agricultural Extension Services

Technical Note
July 2017

Public Health Implications and Recommendations for Extension and Nutrition Agents in Rural Tajikistan

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Introduction

Tajikistan is geographically characterized by surrounding mountains and valleys, making it the most elevated country in the region[1]. Only 7 percent of land in Tajikistan is arable, and wheat and cotton compete for the limited land available[2]. Shaken by years of political and social turmoil in the post-Soviet era, the independence of Tajikistan was a major destabilizing force in this country of fewer than 8 million people[1, 2]. After the fall of the Soviet Union in 1991, a relentless struggle over who would control the newly born country began between the five major regionalist groups in Tajikistan: Leninabadis, Gharmis, Pamiris, Kulyabis, and ethnic Uzbeks[2]. The subsequent civil war was primarily one focused on who would control country resources, influence over government, and the drug trafficking network that snaked through Tajikistan as part of the transit route. Russia and Uzbekistan continue to have a noteworthy presence in the country; they have influenced Tajik elections since 1992, as Russia supported the Kulyabis in their efforts to ultimately control government structure (leading them to accept Russian military presence) and exclude native Uzbek populations from the peace process[2]. These continuing tensions have only exacerbated the economic network in the region. Prior to the breakup of the Soviet Union, the main source of livelihood for the rural household was the collective farm, *kolkhoz*, or the state farm, *sovkhoz; dekhan* are private farms independent of the kolkhoz, legalized in 1996[2].

Implications for empowerment, nutrition, and health

Paired with factors including the emigration of skilled laborers, increased corruption, and the breakdown of input supply and distribution channels, Tajikistan experienced a major collapse of agricultural production. The most significant consequence of this collapse was the low level or absence of salaries for collective farmers; other continuing issues in agriculture include irrigation methods, limited access to quality inputs, climatic conditions, livestock, and availability of labor[2]. This, in turn, led to severe economic outmigration by mostly Tajik males seeking a better quality of life and work elsewhere.

To some extent, all of the deeply rooted agricultural issues currently rattling Tajikistan stem from the availability of labor within the family. A dismal 10% percent of arable land and natural resources drove a shift of mostly male migrant workers to Russia[3]. Over 800,000 people, the large majority of whom are men, migrate out of Tajikistan in search of employment, with over 95% traveling to Russia[3]. The remittances they send back fund over half of the Tajik national economy, according to data from the International Monetary Fund[3]. The remittances sent back are generally controlled by the migrants' parents and not their wives[3]. Though this has reduced poverty levels, it has also "feminized" agricultural production to women who lack the education, resources, and technical training to transform the field. Currently, young women comprise only 7% of students studying agriculture. Rigid notions of women's role in society has meant education for girls is increasingly discouraged; as income poverty rates fall, social indicators for women deteriorate, particularly in the unequal division of the household[3]. Therefore, targeting these women who work mainly in agriculture and providing them with the needed skills and training to better cultivate the land and have a larger agricultural output would increase agency and yield better health outcomes.

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One a policy level, the Tajikistan constitution provides for gender equality but the law's enforcement is weak. The Committee on Women and Family Affairs (CWFA) was founded in 2001, responsible for managing Tajikistan's State Program on gender[3]. Polygyny, a form of polygamy in which a man takes more than one wife, is illegal; nevertheless, it is a growing response to the male-out migration. Generally, it is culturally accepted that even a second marriage is "more stable than a woman can achieve on her own" even when a second or third wife lacks legal rights to property or protection[3]. In the 2016 Report on Priorities for the region, the FAO agreed upon these major priorities: empowering rural women through increased decision-making, adding to the base of gender statistics for formulation and implementation of agricultural policies, and "gender-sensitive FAO technical assistance."[4]

To achieve this, the organization established a four-part action plan that involves the following:

1. Improve the current capacities needed to produce and use gender statistics through increased capacity of national statistics offices and MoA staff;
2. Development of social protection systems that enable women to share and build knowledge through policies and programs tailored for rural women;
3. Create an environment for women and men to attain food security and poverty reduction goals through improving skills of women laborers and involving national stakeholders;
4. Support more effective implementation of Country Programming Frameworks through programs that reflect needs of Tajik rural women and other marginalized groups[4].

In a joint report by the World Bank and UNICEF, researchers highlighted the major three drivers of undernutrition in Tajikistan: stunting, iodine deficiency, and maternal and child anemia[5]. An estimated 35% of child deaths are attributable to undernutrition[5]. According to this report, the immediate causes of undernutrition are inadequate dietary intake and disease, driven by inadequate access to food, inadequate care provided to children, and insufficient health and environmental services[5]. This is also perpetuated by gender equality, girls' education, and general governance resource allocations that do not favor the poor[5]. Pneumonia and diarrhea remain the leading causes of death in children. After a substantial resurgence in Tajikistan in the 1990s, the number of reported cases of malaria is decreasing; nevertheless, the situation remains a critical public health issue, especially in the areas neighboring Afghanistan[5].

Perhaps most critical to public health, this report finds that the empowerment of women is central to improving household nutrition outcomes, especially children's nutrition, as women are more likely to invest in their child's well-being.[5] Supplementation with Vitamin A and Zinc were recognized as the first priorities, and iron fortification and salt ionization is the third priority[5].

In an epidemiological report on undernutrition in the region, every third child under five (29%) was stunted – the highest prevalence in the Central and Eastern Europe/Commonwealth of Independent States region[5]. The prevalence of stunting and underweight children was highest in the Khatlon, Sogd, and Ghorno-Badakhshan Autonomous Province (GBAO) regions[5]. In Dushanbe and the region (around Dushanbe) under Direct Republic subordination (Directly Ruled Districts, or DRD), the rates were lower, but still higher than 20 percent (stunting)[5]. Unsurprisingly, children whose mothers had higher educational levels and income status were less likely to be underweight or stunted than children whose mothers had little or no primary or secondary education.[5]

Education remains a threat to stabilizing food security, as a 2012 Feed the Future assessment highlighted; 9.4% of the Tajik population has not completed education above primary school[6]. That increases to 10.3% in Khatlon. According to the World Bank, Tajikistan does not generate enough access hydroelectric power in the summer to

last into winter; 70% of the Tajik people experience electricity shortages in winter[6]. A Feed the Future interview survey also underscored that 13.9% of household's report moderate to severe hunger[6]. Some of the most unexpected results indicate that while 40% of persons over the age of 15 are overweight, 10 percent of infants have low birth weights[6]. Unlike the UNICEF/World Bank reports, this is the first to mention wasting, an indicator of acute malnutrition in which children have extremely low birth weight for their height and a greater risk of mortality[6]. In the Tajikistan Zone of Influence, the wasting prevalence among all children under 5 years old is 6.9 percent. Severe wasting affects 3.6 percent of children under 5[6].

In the Zone of Influence (ZOI), there are higher numbers of overweight and obese women than underweight women[6]. Seasonal food shortages as well as less predictable events reduce household food security and have impacts on prenatal development, breastfeeding, and child nourishment[6]. Most helpful for our notes, the food most consumed by Tajik women are grain, roots, and tubers (98%), and three-quarters of the women sampled eat vegetables and fruits rich in Vitamin A (73.7 percent) but fewer consume dark green leafy vegetables rich in Vitamin A (34.4 percent)[6]. About two-thirds (58.1 percent) eat animal protein (flesh foods and other small animal protein), just less than half consume dairy products (46.8 percent), and 38.1 percent eat eggs[6]. Only 7.2 percent of surveyed women report consuming organ meat[6].

To determine the effectiveness of food fortification programs through wheat flour fortification and salt iodation, a study was conducted assessing the micronutrient level of about 40 families in a region of mostly Central Asian countries: Mongolia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan[7]. Achieved nationally at the time of round three, levels of fortified wheat flour production were 15% to 20% of annual consumption in Tajikistan[7]. By round three, women's awareness of wheat flour fortification was good in all countries; 60% in Tajikistan were aware of fortified wheat flour, but 49% actually used the products in their homes[7]. Children in Tajikistan and Kazakhstan were at the greatest risk for anemia, with 70% prevalence in Tajikistan[7]. In Tajikistan, the initial levels of anemia prevalence among women (33.3%) placed them at medium-to-high risk.[7]

Another intervention involved the implementation of quinoa production projects in Tajikistan and eight countries with similar climatic conditions from 2014-2015 with the aim of strengthening food and nutrition security[8]. As part of the FAO's Year of the Quinoa, the projects experimented with different quinoa genotypes to determine the best variety suited to each region. One Tajik site was analyzed in the study, and of the three improved varieties tested, the PUNO and TITICACA quinoa genotypes were most successfully harvested[8]. Quinoa is resistant to drought, cold, and salt, and offers an optimal source of protein[8]. Successful implementation of quinoa could be a way of bolstering nutritional value of the Tajik diet and bridging gaps in access to arable land[8].

Undernutrition affects Tajik people of all ages and demographics. Iodine deficiency can be prevented by salt iodization[9]. There is a persisting high prevalence of goiter, elevated thyroglobulin and low UIC despite interventions implemented by Tajikistan and international partners[9]. A cross-sectional study implemented in ten primary schools in four districts in South Tajikistan collected urine samples from 589 schoolchildren to test for iodine deficiency[9]. Of the subjects assessed, farmers or workers represented two third of the household heads[9]. Overall, goiter was diagnosed in almost every second schoolchild (46.6%; 95% CI = 42.4%-50.6%) with pronounced geographic disparities across locations of schools ranging from 19.3% (95% CI = 10.4%-31.4%) to 65.1% (95% CI = 52.0%-76.7%)[9]. Goiter was more prevalent in girls than boys, as well as in households that bought salt less frequently[9]. This data supports that there have been no distinct changes in the prevalence of goiter in the regions of Khatlon and RRS in the South during the past years, leaving IDD as a thriving public health threat[9].

Recommendations

- Investigate ways to better prepare the women within a household for winter months, when food shortage is low due to low crop yields and the return of males to the homes.
- Partner and potentially train Primary Health Clinic staff to educate and screen for diabetes mellitus and gestational diabetes mellitus. Women are specifically afraid of delivering large babies, or macrosomia.
- Target mothers-in-law for any nutrition or health intervention due to their status within the household. Mothers-in-law have shown a great deal of power and decision-making abilities when men are not in the household; therefore, strategies to improve health would potentially be better incorporating the Diffusion of Innovation theory toward mothers-in-law.
- Address common misconceptions surrounding food and health, such as certain meats causing cleft palates or giving an infant under six months old cow's milk. Seminars focusing on the benefits of animal-sourced foods, especially for children two and older, would increase their intake and promote healthier development among children.
- Support any opportunities for young females to earn a wage or learn a trade. Women often identified potential solutions to increase accessibility to food by creating small entrepreneurial opportunities for young women to earn extra income. However, by offering more ways to improve agricultural output, this can also provide them with extra income to address food diversity and malnutrition.

Conclusion

This note demonstrates the need for gender-responsive solutions using agricultural extension agents to counter barriers to a healthy diet and dietary diversity in Khatlon Province. Results also established a link between emigration of males to Russia for work and changing household social structure. The impact of migration on household decision-making is worth exploring further to offer more mindful approaches for future intervention strategies in the province. Additionally, a food recall study may be a comprehensive follow-up to glean a more accurate picture of the dietary patterns in the Khatlon province. Further investigation may also prove useful in assessing if there exists an effect of village proximity to District Markets on food access.

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January 2018