INTRODUCTION

Understanding the context-specific causes of child malnutrition, including those related to political commitment and program and policy coherence, is essential for effectively reducing the prevalence of nutrition-related problems such as stunting and anemia and their subsequent negative impacts on human and national development [1–4]. Between 2005 and 2015 Rwanda made substantial progress in reducing malnutrition, reducing stunting and anemia among children < 5 years of age by 14 and 15 percentage points, respectively [5–7]. Despite these improvements, stunting and anemia remain important nutrition issues for young children in Rwanda with the prevalence of stunting (38%) among the highest in the world [8]. Furthermore, stunting reduction has varied across the country with some districts experiencing declines in stunting (“reduced stunting districts”), while in others stunting has either increased or stayed the same (“non-reduced stunting districts”).

To facilitate greater progress in reducing child malnutrition in Rwanda, we conducted a Stories of Change Study which aimed to document the drivers of stunting and anemia reduction in Rwanda, understand what may have contributed to the variation in stunting reduction across districts, and to understand the remaining nutrition problems and the potential barriers and facilitators to future progress. The overall goal is for these results to be used by program implementers and policymakers to refine programs and policies to further reduce child malnutrition in Rwanda. This study was modeled after similar studies conducted in Bangladesh, Ethiopia, Odisha (India), Nepal, Senegal, and Zambia under the Stories of Change in Nutrition project [9–15].

METHODS

To achieve the study aims, we used mixed methods combining qualitative and quantitative data. The qualitative data were collected using semi-structured interviews and focus group discussions (FGDs). Interviews were conducted with key stakeholders in nutrition at the national, district, and community levels (n=90) and the FGDs (n=40) with male and female community members separately. To assess differences between reduced and non-reduced stunting districts, we purposively selected one district from each province where stunting decreased between 2010 and 2015 and one where there was no change or stunting increased. This resulted in five districts of each type across the five provinces in which we conducted the district and community-level interviews and FGDs. For the quantitative data we used the Demographic and Health Surveys (DHS) from 2005, 2010, and 2014/2015 [5–7].

The qualitative data were analyzed by coding responses according to common themes. Data were disaggregated by type of respondent and by type of study district (reduced or non-reduced stunting) where appropriate. To quantitatively assess the contribution of different factors (e.g., asset accumulation, sanitation, parental education, and healthcare) to the observed changes in stunting and anemia we used linear regression models and decomposition analysis [16].

RESULTS

Drivers of change in nutrition based on the qualitative data

Leadership, peace and security, and decentralization

Over the last few decades, Rwanda has experienced political instability, and a devastating genocide followed by reconstruction. Leadership and good governance during reconstruction, according to study respondents, facilitated peace and security and created an environment conducive to development. Improved governance coupled with political stability helped the population to feel safe and motivated to work
and invest in their development and facilitated the implementation of nutrition-related programs. Study respondents believed that governmental decentralization also contributed to improvements in nutrition. They explained that the presence of leadership at different administrative levels had increased along with improved interactions between leaders and the people. They thought that together these changes had helped local leaders to be more informed about the health and nutrition-related problems facing their constituents, and increased nutrition awareness at sub-national levels. Furthermore, study respondents said that decentralized health infrastructures had increased access to health services due to the increased number, and thus, proximity of health centers and health posts to more communities.

**Political commitment to nutrition and multisectoral approaches**

For many years, Rwanda’s leadership has been championing nutrition. For example, the President, has raised awareness about the importance of nutrition through speech, discourse, and community visits which helped to put nutrition on the national agenda. This stated commitment was complemented by the organization of national nutrition summits, the development of Rwanda’s first national nutrition policy in 2005, and its successor, the National Food and Nutrition Policy 2013-2018 (NFP). The NFP highlighted the multisectoral nature of nutrition and emphasized the need for actors from different sectors to work together to improve nutrition. The policy was co-owned by the Ministry of Health, Ministry of Agriculture and Animal Resources, and the Ministry of Local Government and supported by others (e.g., Ministry of Education, Ministry of Gender and Family Promotion, and Ministry of Infrastructure). Each of the involved ministries had a specific role in nutrition and collaborated across the policy’s key strategies. Furthermore, Rwanda invested in different nutrition coordination mechanisms to facilitate actions across the different sectors and actors involved in nutrition at national and district levels.

**Policy coherence**

Rwanda’s adoption of multisectoral nutrition strategies through the NFP was reinforced with the establishment of national-level bodies to oversee and facilitate coordination such as the Social Cluster Food and Nutrition Steering Committee and the Food and Nutrition Technical Working Group. More recently in 2016, the National Food and Nutrition Coordination Secretariat was established to improve synergy among the different actors in nutrition and to improve coordination and monitoring and evaluation (M&E)\(^1\). In addition, Rwanda devised national and district level systems to jointly plan nutrition-related activities and monitor related indicators. At the national level this is done through the yearly Joint Plan to Eliminate Malnutrition (JAPEM) and at the district level through the District Plans to Eliminate Malnutrition (DPEM). Study respondents believed that the JAPEM and DPEMs had contributed to increasing nutrition awareness among the country’s leaders and helped the different ministries involved in nutrition to understand how they could and should contribute to nutrition. Furthermore, these systems were credited by some respondents with increasing collaborations across sectors including collective monitoring.

Study respondents reported that the decentralized governance structure also helped to improve the joint action of agencies at different government levels, or vertical coherence, through improved communication, the availability of staff responsible for nutrition at different administrative levels, and an integrated vertical chain of collecting M&E data.

**Programs and services at community level**

The changes in commitment to nutrition and policy coherence described above reportedly contributed to nutrition improvements at the community level through the increased provision of nutrition-related services and programs across sectors, especially within the health and agriculture sectors. Study respondents explained how the decentralized health system together with the national insurance plan had increased access to health services. This included increased access to basic services along with nutrition counseling at health centers and to more community health workers who can provide community-level care, and health and nutrition sensitization. Related to the health sector improvements, study respondents noted an increase in the number of women giving birth in health facilities and participating in antenatal care as well as an increase in the use of family planning, and improvements in the timeliness of care-seeking. Some respondents thought that agriculture programs and services have also played a key role in improving nutrition. They especially highlighted the contributions to nutrition of programs such as Kitchen Garden program and Girinka (One Cow per Poor Family program) as well as the training on improved farming techniques provided by agriculture frontline workers. Within the agriculture sector, study respondents reported that food production had increased which had helped decrease severe acute malnutrition and increase household income and consumption of healthier foods such as vegetables and eggs for some.

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\(^1\) Since our study was conducted, the National Food and Nutrition Secretariat was moved from the Ministry of Local Government and has been integrated with the National Early Childhood Development Program (NECDP) within the Ministry of Gender and Family Promotion.
Improvements in other sectors such as education, water, sanitation and hygiene, infrastructure and gender were also mentioned by study respondents as having contributed to improvements in nutrition, although less commonly than those in health and agriculture. These included increased access to schooling and in turn, the proportion of educated people, access to clean water sources and household latrines, the availability of social protection programs, and improvements in infrastructure (e.g., roads, housing quality and availability of electricity). Lastly, gender relations had also reportedly improved, leading to more women participating in community organizations and programs and in household decision-making. A few study respondents noted that men’s awareness of the nutritional needs of pregnant and lactating women and children had improved and that their attendance at their spouses’ and children’s preventive health visits had increased. Some respondents also thought that gender-based violence had decreased.

**Drivers of change in nutritional status based on the quantitative data**

Based on the data available across the 2005, 2010 and 2015 DHS, the factors that contributed the most to reducing stunting were related to maternal health. These drivers of change included the quality of prenatal visits received (59%), the proportion of women giving birth at a health facility (18%), and fertility factors such as the total number of children a woman had (6%). Household wealth, parental education, and insurance coverage accounted for 10%, 4%, and 4% respectively, of the reduction in stunting. For more information on these results please see Ramani et al [16]. There was limited high-quality data available to assess the drivers of change for reduction in child anemia. Among the available data, child fever and insurance coverage contributed the most to anemia reduction (51% and 49%, respectively).

**Differences between study districts**

Though undernutrition, specifically stunting, has decreased nationally, progress has varied across districts. The qualitative component of the study uncovered a few key differences between the districts with reduced and non-reduced stunting that may help to explain some of this variance.

The first main difference between the two types of districts was weaker horizontal and vertical coherence in non-reduced stunting districts. Regarding horizontal coherence, issues with DPEM implementation was a key difference. Respondents in non-reduced stunting districts were more likely to describe DPEM implementation as having low levels of participation and organization, less integration of sectors outside of the health sector and weaker evaluation. A few respondents suggested that increased support from development partners could improve this. Regarding vertical coherence, respondents in non-reduced stunting districts highlighted more shortcomings in their relationships with other actors and called for improvements in their relationships with the national government, non-government organizations, civil society organizations, and international organizations.

There were also notable differences in nutrition M&E between the two types of study districts. The key informant interviews highlighted that M&E for nutrition was likely more robust, multisectoral and integrated in reduced compared to non-reduced stunting districts. Supporting this, some respondents from non-reduced stunting districts specifically called for improvements in M&E, whereas this was not the case in reduced stunting districts. They asked for more training in nutrition, generally, and in the use of M&E tools. They believed their lack of knowledge and skills led to the poor use of available data. Lastly, a few respondents suggested the need for better indicators to evaluate nutrition.

At the community level, the differences in the observed nutrition trends were apparent to study participants. For example, only a few respondents mentioned a deteriorating nutrition situation in their communities, but of those who did, almost 80% were from non-reduced stunting districts. The most commonly mentioned contributor was decreased food availability. Regarding improvements in nutrition, respondents from reduced stunting districts were more likely to attribute these positive changes to improvements in leadership, the availability and/or use of programs and services in the health and water, sanitation and hygiene (WASH) sectors and to improvements in knowledge. Respondents from non-reduced stunting districts, on the other hand, were more likely to discuss changes in the agriculture sector describing increased availability of agricultural programs and services and increased visibility of agronomists.

**CONCLUSION**

The Rwandan government has had several achievements in their quest to improve nutrition, especially for young children. The push for change has been facilitated by strong political commitment to nutrition and developments in institutional commitment that solidified the use of multisectoral approaches to improve nutrition. The government also took steps to develop institutional, horizontal, and vertical coherence and encourage cross-sectoral collaboration to address the country’s remaining nutrition problems. At the community level, several positive improvements across sectors were thought to have contributed to the positive changes seen in nutrition such as the
increased access to health services and increased food production. In addition to these sector-specific improvements, the decentralized leadership structure along with frontline workers in health and agriculture were believed to have fostered the implementation of nutrition and nutrition-related programs and collaboration across sectors.

Despite these improvements in commitment to nutrition, coherence and at the community level, several challenges to further progress were highlighted throughout the study. To further reduce child stunting and anemia, Rwanda will have to keep the momentum of positive changes it has achieved and further strengthen existing plans, systems and approaches (e.g. JAPEM and DPEMs) while also looking for new ways to address the remaining challenges. Some of the key remaining challenges include financial constraints and subsequent financial commitment to nutrition, gaps in policy, institutional, horizontal and vertical coherence, nutrition M&E and community-level issues such as poverty, food security, gender relations and health, nutrition and WASH practices.

**KEY RECOMMENDATIONS**

**Commitment**
- Increase financial commitment to nutrition
  - Assess coordination and use of funds for nutrition
- Increase nutrition technical staff at all levels
- For those responsible for addressing nutrition (especially non-nutritionists)
  - Provide nutrition training, especially about the multisectoral causes of malnutrition and its solutions
  - Ensure manageable workloads

**Coherence**
- Improve institutional and horizontal coherence through clearly differentiating and outlining the roles and responsibilities of the different coordination bodies
- Improve horizontal coherence through:
  - Using JAPEM meetings to coordinate across sectors
  - Improving implementation of DPEMs through:
    - Increasing funding and staffing for DPEMs
    - Increasing integration across sectors
    - Increasing involvement of different stakeholders such as development partners where participation is low or non-existent
  - Increasing education opportunities in nutrition at university and beyond
- Improve vertical coherence through improving relationships among nutrition stakeholders at different levels in part through regular consultations on community needs and policy and program plans and feedback on existing programs
- Improve M&E for nutrition through:
  - Establishing an integrated national M&E and results framework
  - Providing training in M&E for nutrition and related tools
  - Rigorously evaluating nutrition policies and programs and using results to improve policies and programs as needed

**Community**
- Continue and reinforce existing effective nutrition and nutrition-related programs through:
  - Improving program designs where needed to focus on specific population needs
  - Increasing coverage (including rethinking targeting) and duration of programs where appropriate
  - Reducing duplication of efforts and programs aimed to address the same nutrition problems for the same populations
- Invest in new programs to address micronutrient deficiencies and prevent an increase in overweight
- Continue to make improvements in the health sector including increasing access to and use of family planning
- Improve food security, in part through improvements in agriculture such as:
  - Making agriculture more nutrition-sensitive
  - Implementing changes to help mitigate the effects of climate change
- Improve household access to affordable, nutritious, diverse and safe foods
- Improve dietary practices, especially infant and young child feeding practices
- Continue to improve infrastructure to improve food trade and access and sanitation and hygiene.
REFERENCES


Acknowledgements

The authors wish to thank Nicole Rosenvaigue and Lynette Aspillera for administrative support. We would also like to acknowledge the support received at various stages of this project from SNV-Rwanda and the Voice for Change Partnership (V4CP) program partners in Rwanda and the valuable support from Rwanda’s National Food and Nutrition Coordination Secretariat (now under the National Early Childhood Development Program), the Ministry of Health, the Ministry of Agriculture and Animal Resources, and the Ministry of Local Government in facilitating this work. We also wish to acknowledge all the different study participants for taking their time to share their experiences and the study data collectors for their inputs and support during data collection. Funding for this project was received from the Dutch Government through SNV and the V4CP program and from the CGIAR Research Program on Agriculture for Nutrition and Health led by the International Food Policy Research Institute.

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