

Nutrition in Nepal: Three decades of commitment to children and women

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Funding information

UNICEF Nepal

Abstract

South Asia has made significant progress in reducing child undernutrition. The prevalence of stunting declined by one third between 2000 and 2019; as a result, in 2019, there were 34 million fewer stunted children than in 2000, indicating that progress for child nutrition is possible and is happening at scale. However, no country in South Asia is on track for all nutrition targets of Sustainable Development Goal 2, and the region has the highest prevalence of stunting (33.2%) and wasting (14.8%) in the world. Nepal, the best performing country in the region, narrowly missed the Millennium Development Goal (MDG) target to half the prevalence of child underweight between 1990 and 2015 and achieved the fastest recorded reduction in stunting prevalence in the world between 2001 and 2011. In 2019, UNICEF Nepal completed a series of papers to examine Nepal's progress on maternal and child nutrition during the MDG era. The series explores the trends, distribution and disparities in stunting, micronutrient deficiencies and feeding practices in children under 5 years and anaemia in adolescents and women. Besides, it reviews national micronutrient programmes (vitamin A supplementation, iron and folic acid supplementation and universal salt iodization) and Nepal's first Multi-Sector Nutrition Plan, to illuminate the success factors and enduring challenges in the policy and programme landscape for nutrition. This overview paper summarizes the evidence from these analyses and examines the implications for the direction of future advocacy, policy and programme actions to improve maternal and child nutrition in Nepal and other similar contexts.

KEYWORDS

adolescent nutrition, anaemia, child feeding, micronutrient deficiencies, Nepal, nutrition governance, stunting, women's nutrition

1 | INTRODUCTION

The 2020 Global Nutrition Report presents sombre news on the pace of global progress to improve nutrition (Development Initiatives, 2020). The world is off-track to meet the Sustainable Development

Goal (SDG) 2 targets on child stunting, wasting and overweight, and progress is inequitable and slow. Since these predictions were made, the COVID-19 pandemic has unleashed havoc on every necessary condition for good nutrition, including access to nutritious, safe and affordable diets; essential nutrition and health services;

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and positive feeding and care practices (Fore et al., 2020; Headey et al., 2020). Countries now face an uphill battle to bring nutrition progress on track at a time when the context is more challenging, and the needs are more urgent and necessary.

South Asia has made significant progress in reducing child undernutrition. The prevalence of stunting declined by one third between 2000 and 2019; as a result, in 2019, there were 34 million fewer stunted children than in 2000 (UNICEF, WHO, & World Bank Group, 2020), indicating that progress for child nutrition is possible and is happening at scale. Despite this progress, no country in South Asia is on track for all three SDG 2 nutrition targets, and the region continues to have the highest prevalence of stunting (33.2%) and wasting (14.8%) in the world (UNICEF, WHO, & World Bank Group, 2020). The high prevalence of malnutrition has immense consequences for survival, growth, development and learning in childhood and productivity, livelihoods and human capital in adulthood (Black et al., 2013; UNICEF, 2018). However, several countries in the region are making progress (Torlesse & Aguayo, 2018). Nepal narrowly missed the Millennium Development Goal (MDG) target to half the prevalence of child underweight between 1990 and 2015 (National Planning Commission, 2016) and achieved an impressive reduction in child stunting, experiencing the fastest recorded reduction in stunting in the world between 2001 and 2011 (Headey & Hoddinott, 2015). Currently, Nepal is on course to achieve the SDG target on child overweight, and there has been progress towards both the stunting and wasting targets (Development Initiatives, 2020).

Several studies have examined the drivers of Nepal's nutrition success up to the early 2010s (Cunningham et al., 2017; Headey & Hoddinott, 2015). Since then, the 2016 Nepal Demographic and Health Survey (NDHS) and Nepal National Micronutrient Status Survey (NNMSS) have generated new data on nutrition (MoPH, New ERA, & ICF, 2017; MoPH, UNICEF, EU, USAID, & CDC, 2018), which serve as a benchmark for progress at the endpoint of the MDGs and start of the SDGs. In 2019, UNICEF Nepal completed a series of papers to examine Nepal's nutrition progress during the MDG era (1990–2015). Several of these analyses use national survey datasets, including the latest 2016 NDHS and NNMSS, to explore trends and predictors of stunting, anaemia, micronutrient deficiencies and child feeding practices. Other papers conduct reviews of national micronutrient programmes (vitamin A supplementation in early childhood, iron and folic acid [IFA] supplementation during pregnancy and universal salt iodization [USI]) and the development and implementation of Nepal's first Multi-Sector Nutrition Plan (MSNP) to illuminate the success factors and enduring challenges in the policy and programme landscape. This overview article summarizes the findings of the nine original articles to guide future efforts in Nepal and other countries with similar nutrition challenges and contexts.

2 | EARLY CHILDHOOD NUTRITION

Over the past 20 years, several South Asian countries have achieved a rapid decline in child stunting (Headey et al., 2016, 2017;

Key messages

- Nepal achieved a rapid reduction in child stunting, micronutrient deficiencies and anaemia during the Millennium Development Goal (MDG) era (1990–2015), despite periods of political and economic instability.
- Improvements in nutrition were due to the increased coverage of health and nutrition services and improvements in household wealth, parental education and sanitation.
- Nepal embraced multisectoral and multistakeholder action for nutrition through its Multi-Sector Nutrition Plan (2013–2017).
- Progress towards the Sustainable Development Goal (SDG) targets on stunting and wasting is not advancing at the speed, scale or equity required and may be further impacted by the COVID-19 pandemic.
- Greater attention is needed to improve children's and women's access to nutritious, affordable, safe and sustainable diets in ways that address socio-economic, sociocultural and geographic inequalities.

Torlesse & Aguayo, 2018). In this issue, Hanley-Cook et al. (2022b) examine trends in linear growth in children under 3 years in Nepal using data from five national surveys conducted between 1996 and 2016. They find that Nepal achieved a 38.5% increase in height-for-age z-score (HAZ) and 24 percentage point (pp) decrease in stunting (57% to 33%) over the two decades, despite periods of socio-economic and political instability, including a 10-year armed conflict, and natural disasters, including the 2015 earthquakes. The improvements in linear growth were consistent across all ages between 0 and 35 months and substantially larger in rural areas than urban areas. However, separate studies have found widening socio-economic disparities in stunting during this period, with wealthier households experiencing larger and faster declines in stunting than poorer households (Angdembe et al., 2019; Conway et al., 2020; Krishna et al., 2018).

Hanley-Cook et al. (2022b) also explore potential drivers of the rapid improvements in linear growth in Nepal. Comparison of the survey data in 1996 and 2016 shows remarkable improvements in the coverage of health and nutrition services, including ≥ 4 antenatal care visits (+56 pp), prenatal doctor visit (+31 pp), iron supplementation during pregnancy (+82 pp), childbirth in a medical facility (+56 pp) and children receiving all basic vaccinations (+52 pp). In addition, there were substantial improvements in household asset index (175%), open defecation (–64 pp), years of maternal education (+4.1 years), paternal education (+2.9 years) and maternal decision making (+15 pp). There were also positive changes, though modest, in women's body mass index (+1.4 kg/m²) and women's height ≥ 145 cm (+5 pp). Using decomposition analysis, the authors find that the increase in the utilization of health and nutrition services

accounted for most of the predicted change in child HAZ (22.6%), followed by household wealth (17.9%), parental education (15.5%) and women's body mass index and height (9.5%). The model for child stunting included most of these variables, together with improved sanitation, which explained 9.1% of the reduction in the percentage of stunted children over the two decades.

Despite the substantial progress in child linear growth during the MDG era (1990–2015), Nepal entered the SDG era with 35.8% of children under five stunted and 9.7% wasted. Two of the main underlying reasons for inadequate progress on stunting and wasting are poor women's nutrition—discussed later in this article—and poor infant and young child feeding (IYCF) practices.

Hanley-Cook et al. (2022a) examine trends in IYCF indicators between 1996 and 2016 and conduct regression-decomposition analysis to explore the contribution of IYCF practices to child growth in Nepal. Most IYCF practices have improved in Nepal; however, progress is mixed. Over the two decades, there was a 38 pp (208%) increase in early initiation of breastfeeding and 23 pp (42%) increase in the timely introduction of complementary feeding. However, exclusive breastfeeding fell by 5 pp (7%) and continued breastfeeding (12–15 months) by 4 pp (4%). Between 2006 and 2016, there was a 14 pp (46%) increase in minimum dietary diversity (MDD), 12 pp (15%) fall in minimum meal frequency (MMF), 6 pp (22%) increase in minimum acceptable diet (MAD), 18 pp (87%) increase in consumption of iron-rich or iron-fortified foods and 10 pp (31%) increase in consumption of animal-source foods (ASF). Indicators of complementary feeding (including the timely introduction of complementary feeding, MMF, MDD, MAD and ASF consumption) predicted a significant improvement in HAZ and/or decreased probability of stunting. However, these practices made only a 5% to 10% contribution to the reduction in age-specific stunting, perhaps because the changes were modest in magnitude and were dwarfed by greater changes in other drivers.

The current status of complementary feeding in Nepal is suboptimal and is holding back progress to reduce stunting and other forms of malnutrition. In 2016, only 45% of children aged 6–23 months had diets that met the MDD, 35% consumed non-dairy ASF and 38% consumed fruits or vegetables (MoHP, New ERA, & ICF, 2017). The most disadvantaged households have the poorest practices: children are less likely to achieve MMF, MDD and MAD if their mothers are less educated, they belong to a lower caste, their household's access to health services is constrained and they live in the Eastern region or Terai (Na et al., 2018). These inequities suggest that disadvantaged families face challenges in accessing nutritious foods and understanding how best to feed their young children. This may signal the low coverage, intensity or quality of programmes to inform, counsel and support caregivers of young children on complementary feeding (Cunningham et al., 2017) or the lack of concomitant action to support disadvantaged or geographically isolated families in accessing nutritious, safe and affordable foods. At the same time, unhealthy foods and beverages are entering children's diets from a very young age. A recent study in the Kathmandu Valley found that children aged 12–23 months

received one quarter of their daily calories from unhealthy foods and beverages, such as biscuits, instant noodles and juice drinks, which displaces the intake of essential vitamins and minerals from more nutritious foods (Pries, Rehman, et al., 2019; Pries, Sharma, et al., 2019).

The 2016 NNMS found that micronutrient deficiencies are widespread in early childhood (MoPH, UNICEF, EU, USAID, & CDC, 2018). Chitekwe et al. (2022) conduct secondary data analysis of the NNMS dataset to determine predictors of iron, vitamin A and zinc deficiencies, which affect 36.7%, 8.5% and 20.4% of children aged 6–59 months, respectively. Although the predictors vary between the micronutrient deficiencies, there are several commonalities, including geographic and socio-economic inequities. The prevalence varies significantly by ecological region for iron deficiency, by development region for vitamin A deficiency and between rural and urban areas for zinc deficiency. Poverty is associated with vitamin A deficiency (prevalence is highest in food-insecure households) and zinc deficiency (prevalence is highest in the lowest wealth quintile); however, children in the middle-wealth quintile are more likely to be iron deficient than those in the poorest quintile. In addition, children are more likely to be iron deficient if they are stunted or belong to specific ethnic groups. These predictors may reflect differences in young children's access to nutritious and nutrition services that promote optimal feeding practices and secure access to essential micronutrient supplements and fortified foods.

Although vitamin A deficiency remains a public health concern in children under 5 years, the prevalence in 2016 (8.5%) was half that in 1998 (17.0%). The progress in scaling up and sustaining a biannual vitamin A supplementation in Nepal has contributed to the success in improving vitamin A status. Thorne-Lyman et al. (2022) review the critical role that Nepal has played in contributing to global evidence on vitamin A and in developing a world-renowned supplementation programme that has strong collaboration between government, policymakers, donors, the scientific community, civil society and local communities. In the late 1980s, two randomized trials of vitamin A supplementation in pre-school children generated ground-breaking evidence of a 26%–30% reduction in child mortality. Bolstered by this evidence, and with strong political and donor support, Nepal introduced and scaled up the twice-yearly vitamin A supplementation programme to all districts in the country over 9 years. Female community health volunteers (FCHVs), coupled with nationwide community mobilization and demand creation, played a central role in the country's strategy to achieve scale. Concurrent monitoring and operational research enabled challenges to be identified early and new approaches to be tested and adapted to varying contexts in the country. These efforts achieved consistently high coverage of vitamin A supplementation (>80%) and narrowed the inequities in coverage between children in lower and higher wealth quintiles and urban and rural areas. Thorne-Lyman et al. (2022) estimate that the biannual vitamin A supplementation programme has saved over 45,000 child lives of the past 15 years but warn that the consumption of vitamin A and carotenoid-rich foods by children and women remains low, despite high caregiver knowledge. Efforts to improve complementary

feeding in Nepal should intensify so that young children's diets supply sufficient vitamin A—as well as other essential vitamins, minerals and nutrients—before a decision is taken to scale down vitamin A supplementation.

Opportunities to reach young children with fortified foods, including fortified complementary foods, are currently being missed. Only 13% of children aged 6–23 months consume fortified complementary foods (MoPH, UNICEF, EU, USAID, & CDC, 2018). About 95% of children 6–59 months consume vegetable oil, and because very little is produced inside the country, a fortification policy that requires all imported vegetable oil to be fortified could effectively reach a large proportion of the population. Micronutrient powders can also fill the micronutrient gap in early childhood and provide an opportunity to counsel parents and caregivers on complementary feeding practices, yet coverage remains low. A study in Nepal found that children who consumed at least 30 sachets of micronutrient powders were more likely to have diets that met MMF, MDD and MAD (Mirkovic et al., 2016).

3 | ADOLESCENT'S AND WOMEN'S NUTRITION

Nutrition deficits during adolescence and the childbearing years (15–49 years) affect the health and well-being of adolescents and women and that of their future children (Aguayo & Paintal, 2017; Vir, 2016). In recent years, there have been improvements in maternal height and body mass index in Nepal, which were associated with the fall in child stunting between 1996 and 2016 (Hanley-Cook et al., 2022b), but the prevalence of low stature and low body mass index remains high. A recent study of 200 countries found that Nepalese adolescent girls aged 19 years are ranked the third shortest globally (NCD Risk Factor Collaboration, 2020). One in 10 (11%) adolescents and women aged 15–49 years have short stature (<145 cm), and 17% have a low body mass index (<18.5 kg/m²) (MoPH, New ERA, & ICF, 2017). These conditions underlie the high prevalence (22%) of low birthweight in Nepal (UNICEF & WHO, 2019) and predict stunting and wasting in Nepalese children (Harding et al., 2018; Kim et al., 2017).

Anaemia during pregnancy also increases the risk of low birthweight, as well as neonatal and maternal mortality. Two articles in this issue examine predictors of anaemia in Nepal: the first in adolescent boys and girls aged 10–19 years (Ford et al., 2022a) and the second in non-pregnant women aged 15–49 years (Ford et al., 2022b). Both studies conduct multivariate analyses of nationally representative data from the 2016 NMMSS, which reported anaemia in 11% of adolescent boys, 21% of adolescent girls and 20% of women.

The analyses reveal modifiable predictors for anaemia, including poor iron status (low serum ferritin or high soluble transferrin receptor) and vitamin A status (low serum retinol-binding protein) in all three population groups; lack of hormonal contraceptive use in women; a poor health environment in adolescent boys (open defaecation) and

women (earth floor in the home); and non-consumption of animal-flesh foods in adolescent boys. There are also nonmodifiable predictors, including age (higher odds of anaemia in older adolescent girls than younger), ecological zone (higher odds among adolescent girls and women in Terai than Mountain or Hill zones) and glucose-6-phosphate dehydrogenase deficiency and haemoglobinopathies (only examined in women).

The modifiable predictors can be addressed through a combination of interventions to improve dietary intake of micronutrient-rich foods (including ASF and fortified foods), fill micronutrient gaps through micronutrient supplementation, prevent and control infections that cause anaemia (e.g. soil-transmitted helminths and malaria, where endemic) and use hormonal contraception to lighten menstrual blood loss and reduce and space pregnancies. These interventions were included in Nepal's first (2013–2017) and second (2018–2022) MSNPs and in complementary policies, strategies and plans of the health and water and sanitation sectors. The most successful of these interventions has been reaching pregnant women with IFA supplements and anthelmintic treatment. The percentage of women who took IFA supplements during pregnancy for at least 90 days increased from 6% to 71% between 2001 and 2016, and the percentage of women who took anthelmintic treatment increased from 20% to 69% between 2006 and 2016. In this issue, Paudyal et al. (2022b) argue that the increase in uptake of IFA supplements may partially account for the declines in neonatal mortality, low birthweight and child stunting in Nepal, as well as maternal anaemia.

Paudyal et al. (2022b) also present the findings of a literature review that explores how Nepal's Iron Intensification Programme improved women's access to IFA supplements and anthelmintic treatment during pregnancy. They discuss how Nepal mobilized its network of >50,000 FCHVs to reach pregnant women with IFA supplements at the community level and counsel women to take them daily. They caution that this vital community workforce is involved in many public health and nutrition interventions, despite their volunteer status, and that investment in the capacity development, supervision and monitoring of FCHVs is essential to sustain their motivation and build their knowledge and skills.

Despite the high coverage of IFA supplements, maternal anaemia remains a public health problem. As multiple micronutrient deficiencies are the norm and multiple micronutrient supplements are more cost-effective than IFA supplements (Kashi et al., 2019), policymakers in Nepal should consider replacing IFA supplements with multiple micronutrient supplements. In addition to micronutrient supplementation programmes, greater investments in dietary diversification and fortification of staple foods are needed to improve the micronutrient status and haemoglobin concentrations of adolescent girls and non-pregnant women so that they enter pregnancy free from micronutrient deficiencies and anaemia (Ford et al., 2022a, 2022b).

Fortification of industrially produced wheat flour with iron, vitamin A and folic acid has been mandatory in Nepal since 2011 and is the only population-based micronutrient intervention that currently reaches non-pregnant adolescents and women of

reproductive age. However, the programme is not meeting its potential to reduce micronutrient deficiencies because the iron compound in the fortification premix has low bioavailability. Only 37% of households are consuming flour that meet the national standard for iron fortification, whereas 59% of households grow wheat and only purchase fortified wheat flour seasonally (Ford et al., 2022b; MoPH et al., 2018).

Nepal has achieved tremendous success in achieving optimal iodine nutrition through USI. Although iodized salt has public health benefits for the entire population, it is particularly important for adolescents and women of reproductive age because iodine deficiency has the most severe and irreversible impacts on cognition during fetal development. Paudyal et al. (2022a) review the evolution, progress and future direction of Nepal's USI programme. They find that a well-executed USI programme has achieved optimal iodine intake for its population, effectively eliminating the adverse consequences of iodine deficiency disorders. Between 1998 and 2016, the percentage of households using adequately iodized salt (>15 mg/kg) increased from 35% to 77%, and the median urinary iodine concentration in women of reproductive age increased from 114 to 286 µg/L. These improvements are seen throughout the country and indicate that Nepal has achieved optimal iodine intake, thus reducing the risk of cognitive impairment among newborns and enabling children to thrive. The USI programme's achievements are attributable to the political commitment to mandatory legislation on salt iodization, strategic planning, routine monitoring at border stations, consumer education through communication campaigns and periodic surveys and programme reviews to track performance. However, evidence of excessive iodine intake in some subgroups—including women of reproductive age in the Terai—indicates a need to consider a reduction in the standard for salt iodine.

4 | MULTISECTOR GOVERNANCE

The global Scaling Up Nutrition (SUN) Movement in 2010 brought attention to the role of nutrition governance in influencing the development and implementation of policies and legal frameworks to improve nutrition (Mejia Acosta & Fanzo, 2012). Nepal was one of the first countries to join the SUN Movement in 2011 and embrace its ethos of a country-led, multisectoral and multistakeholder effort to improve nutrition. Within a year, the Government of Nepal had developed its first 5-year MSNP (2013–2017), which combined actions across health, agriculture, education, WASH, social welfare and local government sectors as part of a 10-year vision to reduce stunting.

Although the case for multisector planning for nutrition is clear, documented evidence on how to design, plan and scale-up multisectoral approaches is rare (World Bank, 2013). In this issue, Ruducha et al. (2022) use organizational network analysis and qualitative interviews to explore the governance processes that underpinned the development of Nepal's first MSNP. Prior to MSNP, nutrition programming in Nepal was primarily driven by the health sector, with little engagement from other sectors. The findings of a

Nutrition Assessment and Gap Analysis in 2009, combined with the persistently high prevalence of stunting, triggered the National Planning Commission to bring key government ministries together to develop the MNSP in 2011. The factors contributing to the success in developing the MSNP include (1) the leadership and stewardship role of Nepal's National Planning Commission, under the Prime Minister's Office, which had the convening power to bring sectors together; (2) the introduction of nutrition coordination structures at all administrative level; and (3) the high degree of organizational connectivity across sectors and stakeholders that supported a unified understanding and potential for joint action.

However, there were some challenges. The organizational network analysis found that partners were less connected on the implementation of the MSNP than for its policy dialogue and strategic planning, which may have constrained collaborative scale-up efforts within districts. The implementation of multisector nutrition policies and plans is complex and demands a high degree of coordination that can be challenging when management and technical capacities are limited, and budget allocations and accountability mechanisms are sectoral (World Bank, 2013). A previous study identified the low nutrition capacity at district and community levels in Nepal as a barrier to scaling up the MSNP interventions (Shrimpton et al., 2014).

The implementation of the MNSP was limited to only five pilot districts by the end of the MDG era. However, it has since expanded geographically, and its framework for multisectoral and multi-stakeholder action has continued under the Sustainable Development Agenda with the second MNSP (2018–2022), which sets out the country's vision to achieve national and global targets on nutrition in the context of the new federalist governance structure.

5 | A NEW DECADE, A NEW AMBITION FOR NUTRITION

Today, Nepal has a very different policy and programme landscape to that at the start of the MDG era, and there are new opportunities and challenges in the quest to achieve the national and global targets on nutrition. Nepal has embraced the concept of multisector and multistakeholder action for nutrition across the life cycle, and the new federalist structure means that local governments have the authority to develop plans and allocate resources to address the most pressing local needs. The country has achieved globally renowned progress in scaling up vitamin A supplementation, IFA supplementation and salt iodization and its community-based platforms to reach children and women with essential nutrition services. Despite major progress over the last two decades, stunting continues to affect 35.8% of children, and the prevalence of wasting remains largely unchanged. Maternal undernutrition, poor IYCF practices and socio-economic disparities lie at the core of the nutrition challenges. Meanwhile, the rapidly changing food environment is exposing children to unhealthy foods and beverages. These conditions require multisystem actions that enable children and women to access nutritious foods, use essential nutrition

services and adopt healthy nutrition practices. More recently, the COVID-19 pandemic has become a human and socio-economic crisis that threatens to unravel past progress on nutrition.

The research findings in this issue suggest the following implications for the future direction of Nepal's efforts on nutrition as it enters the remaining 10 years of the 2030 Sustainable Development Agenda.

5.1 | Position the diets of children, adolescents and women at the centre of multisystem and multistakeholder efforts to improve nutrition in Nepal

In Nepal, poor diets determine why adolescent girls and women are too thin and anaemic when they enter pregnancy, gain too little weight during pregnancy and give birth to low-birthweight infants and why their poorly fed children fail to grow and develop to their full potential. During the MDG era, national nutrition efforts focused disproportionately on filling dietary micronutrient gaps through supplementation and salt iodization, and the progress in improving the quality of complementary foods and feeding practices was very slow.

In the years ahead, much greater attention must be given to identifying and addressing the barriers to accessing nutritious, safe, affordable and sustainable diets throughout childhood, adolescence and in the years of childbearing. As economic, social and physical constraints to good diets often coexist, a multisystem approach involving the food, health, water and sanitation, education and social protection systems is needed (UNICEF, 2019; UNICEF, 2020).

5.2 | Sustain and strengthen community-based delivery platforms to deliver nutrition services to children, adolescents and women

Much of Nepal's success in scaling-up nutrition services is due to its cadre of community-based FCHVs and the strong network of community support. This valuable resource needs to be carefully protected to ensure that children, adolescents and women, including those in isolated rural communities, continue to access nutrition services and knowledge. Despite intermittent calls for remuneration, FCHVs remain volunteers. This volunteer status has earned FCHVs the trust and respect of community members and is considered essential to the financial sustainability of community-based health and nutrition services. Nevertheless, the policy of volunteerism should be periodically reviewed by government to ensure it remains viable. Mechanisms are needed to assess and sustain the motivation and performance of FCHVs, including means to recognize their roles and contributions, training opportunities, supportive supervision and other incentives. Meanwhile, concurrent efforts are needed to better integrate essential nutrition services into the existing service delivery platforms of facility-based health workers (e.g. family planning, antenatal, delivery and post-natal care and well-child and sick-child care) to maximize the opportunities to reach women and children.

5.3 | Address disparities and inequalities in access to nutritious food and nutrition services

During the MDG era, Nepal successfully reduced inequalities in access to micronutrient interventions, including vitamin A and IFA supplementation, and improved women's nutrition, a major determinant of child nutrition. This achievement was primarily due to the policy of FCHVs, who ensured that supplements were distributed to children and women at the community level, including those in geographically isolated locations. However, substantial inequalities in dietary practices and nutritional status persist and have even widened for stunting. This trend is contrary to the government's commitment to enhance equity (Angdembe et al., 2019) and indicates that targeted action is needed to reach children, adolescents and women who are at economic, social or geographic disadvantage. Social protection programmes can offset the structural factors that cause unequal wealth distribution.

5.4 | Strengthen local government leadership and management capacities to plan, budget, implement and monitor nutrition services

Nutrition has enjoyed high political attention and commitment in Nepal for many years. In 2017, the Nepalese government shifted to a federal structure, thereby decentralizing its decision-making authority and budgetary power to the 753 local governments (*palika*). Decentralization provides the opportunity to adjust programme design and plans to Nepal's local contexts but is not without its difficulties. The shift to federalism is particularly challenging in Nepal because the administrative capacities of provincial and local governments to deliver and manage services are not yet well developed (World Bank & UNDP, 2019). The federal government and its development partners should build the leadership and management capacities of provincial and local governments to plan and budget, implement and monitor multisectoral nutrition services that address local needs.

5.5 | Continue Nepal's commitment to generating data, information and evidence to assess progress and inform decisions

During the MDG era, Nepal conducted regular national surveys to track national and global nutrition targets and was the site of pioneering nutrition research and nutrition innovations that informed both global normative guidance on nutrition and national policies and programmes. This commitment to evidence-based nutrition policy and programming should continue with a learning agenda that (1) researches and evaluates the effectiveness of MSNP implementation in the context of decentralization in Nepal and (2) approaches to improving the diets of children and women. It is also crucial that the indicators to assess the coverage of nutrition interventions are embedded in the District Health Information System-2 (DHIS-2).

6 | CONCLUSIONS

Nepal achieved rapid and sustained progress on reducing child stunting and micronutrient deficiencies in children and women during the MDG era, despite periods of political and economic instability. This supplement examines the drivers of this success and identifies where greater policy and programme action is needed pursue the SDG nutrition targets.

Progress has been possible in Nepal because successive governments welcomed ground-breaking research to test interventions to resolve nutrition challenges (e.g. vitamin A supplementation), introduced mandatory legislation to protect child nutrition (e.g. salt iodization), took swift policy and programme action to introduce new evidence-based interventions and invested in primary health care platforms to reach children and women. In particular, Nepal's workforce of community-based FCHVs, coupled with operational research and monitoring, enabled the country to achieve scale in reaching children with vitamin A supplements and pregnant women with IFA supplements. Investments in other sectoral programmes during the MDG era—including education and sanitation, which were associated with the improvements in child linear growth—are also likely to have contributed to the nutrition success.

However, the country still faces considerable nutrition challenges. Micronutrient deficiencies remain prevalent, whereas progress towards the SDG targets on stunting and wasting is not advancing at the speed, scale or equity required and may be further derailed by the effects of the COVID-19 pandemic. Poor maternal nutrition and suboptimal feeding practices, combined with socio-economic, cultural and geographic inequalities in access to resources and services, are holding back progress on child nutrition. Greater attention is needed to improve the access of children, adolescents and women to nutritious, safe, affordable and sustainable diets in ways that protect against all forms of malnutrition and address these inequalities.

In recent years, the health, education, water and sanitation, social welfare and local government sectors have come together under the leadership of the NPC in a multisector and multistakeholder effort to improve nutrition through the first (2013–2017) and second (2018–2022) MSNP. The NPC has the convening authority to support multisectoral collaboration within the government because it is located under the Prime Minister's Office and approves each line ministry's annual plans. Combining multiple sectors with multiple stakeholder groups creates the potential to strengthen the key systems that are likely to be most impactful on maternal and child nutrition—health, food, social protection and water and sanitation. Both Nepal and the global nutrition community will benefit from implementation research to understand the context-specific barriers, enablers and pathways to multisystem action to improve diets, practices and access to nutrition services in the context of the new federalist governance structure.

ACKNOWLEDGEMENT

The research was funded by UNICEF Nepal.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

CONTRIBUTIONS

SC, HT and VA conceptualized the manuscript. SC and HT drafted the manuscript and VA provided intellectual feedback to help revise the manuscript. All authors read and approved the final manuscript. [Correction added on 22 November 2021, after first online publication: the content of the Contributions section has been revised in this version.]

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How to cite this article: Chitekwe, S., Torlesse, H., & Aguayo, V. M. (2022). Nutrition in Nepal: Three decades of commitment to children and women. *Maternal & Child Nutrition*, 18(S1):e13229. <https://doi.org/10.1111/mcn.13229>