

Nutritional Status of Children in Bangladesh: Changes and Challenges for Development

Md Idris Ali¹

¹ Department of Population Sciences, University of Dhaka, Bangladesh

idris.dpsdu@gmail.com

Abstract

Despite suffering from widespread poverty, Bangladesh has made remarkable improvements in the nutritional status of children over the past three decades. This paper describes the trends in the nutritional status of children in Bangladesh by age groups, explores factors associated with these trends, and concludes with a description of future challenges for development in Bangladesh. The national-level survey (BDHS), national plan and policy paper, and literature were used for the study. It is remarkable for Bangladesh that stunting, underweight, and wasting among children under five years old has improved gradually. Children 12- 23 months of age are the most vulnerable. Living in a rural vs urban area, wealth status and maternal education are the main determinants linked to the nutritional status of children. Poverty reduction, improved water and sanitation, strengthened maternal and child health care, education and other policies linked to food and dietary practices and many other policies and programs could continue to improve nutritional levels in children in Bangladesh. Attention is also needed to under five mortality and the double burden of malnutrition. Addressing gaps in policies and programs to achieve the goals of national plans and SDG targets will pay health dividends for the entire population.

Keywords: Nutrition; Malnutrition; Development; SDGs; Underweight; Stunting; Overweight

Introduction

Children's nutritional status is one of the major indicators of health in the development of a country (WHO 2024). In the 1990s, the trends in nutritional status in Bangladesh were poor. 60% of children under five were stunted, 52% were underweight and 21% were wasting (NIPORT 1997). Rural-urban residence, education level, household living standards, occupation level, maternal socioeconomic conditions, household size and number of children were contributing factors (Banerjee et al. 2021). With the emergence of methods for reducing child malnutrition and improving children's nutritional levels, many interventions and policies were implemented and the economy improved, especially women's employment in the textile and garment industries. Child undernutrition reduced sustainably for at least two decades (Headey et al. 2015). Recent Bangladesh Demographic and Health Survey (BDHS) data on 2022 key indicators now show significant improvement: 24% stunted, 22% underweight and 11% wasted (NIPORT 2023).

The two most common driving factors were parental education and wealth accumulation, which are major factors for reducing children's nutritional levels (Alom, Quddus, and Islam 2012; Headey et al. 2015). However, there is still a lack of policy implementation, and gaps and challenges are visible that are barriers to further development in Bangladesh. Additionally, many national and international plans, such as the 8th Five Year Plan 2020-2025 (8FYP), and SDGs, should be implemented for further future sustained development and demographic dividend

achievement by improving health conditions. If low child nutritional status is still a challenge, Bangladesh cannot focus on further achieving premium development. This paper provides a direction for understanding the nutritional status of children and the causes of remarkable improvement over the past three decades and highlights future challenges associated with developing premium plans, which can further emphasize and improve upon neglected factors for changing nutritional levels in children.

Methods

In this paper, relevant secondary data from national population surveys, such as the Bangladesh National Census, Bangladesh Demographic and Health Survey (BDHS) data, and government plans and policy papers, were used. Additional studies provided a broader view of nutritional status and causes of change.

Objectives

- To describe the trends in the nutritional status of young children in Bangladesh
- To differentiate these trends by age of the child
- To explore possible factors causing changes nutritional status
- To describe future developmental challenges in Bangladesh

Trends in the Nutritional Status of Children

According to the BDHS data from 1996-97 to 2022, plotted in Figure 1, the nutritional status of children in Bangladesh changes annually. Stunted children (height-for-age) were more vulnerable in the 1990s. Approximately one child out of two was stunted. The number of stunted children in Bangladesh has gradually decreased. Near the two decades since the 1990s, the rate decreased by half compared to that in the 1990s. In 2022, one child out of four was stunted.

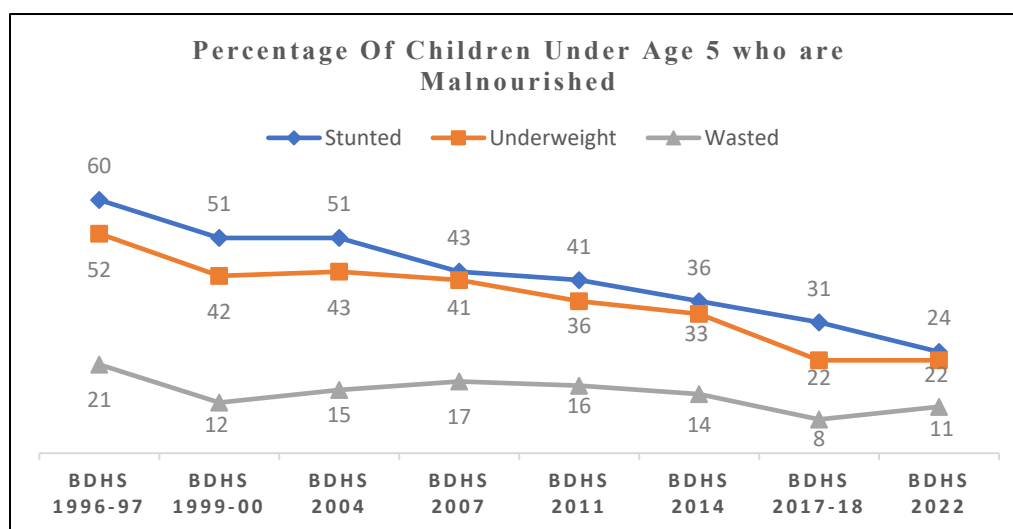


Figure 1

Given its poor health systems and slow progress toward poverty alleviation and nutrition program implementation, Bangladesh's progress in improving nutritional status have been considered as

paradoxical. (Nisbett et al. 2017). Both dietary intake and improved health status are the main determinants of such a reduction in stunting, underweight and wasting. Although wasting rates are decreasing, stunting and underweight are still high and these are challenges for Bangladesh. In 1996-97, 52% of the children were underweight. It decreased gradually, remaining at 22% in 2017-2018 and 2022. On the other hand, in 1996-97, 21% of the children were wasted and this dramatically decreased to 12% in 1999-2000, then going up and down until 2022 when it was 11% (NIPORT 2023). Wasting is considered to be a very stubborn indicator to improve. Some years it has increased and others have had a decreasing trend (Nisbett et al. 2017).

There was overall a gradual reduction in stunting from the 1990s to the 2020s. However, 12- 23-month-old children experienced more stunting than did children of other ages (Figure 2). Intervention should emphasize this age (12-23 months) to reduce stunting in children.

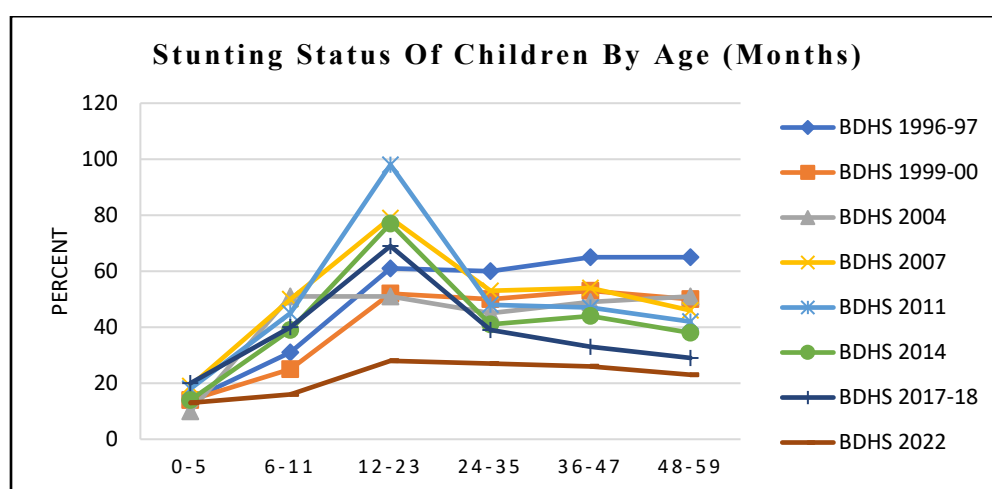


Figure: 2

The wasting status of children of different ages was also greater for children aged 12-23 months as well as 6-11 months (Figure 3).

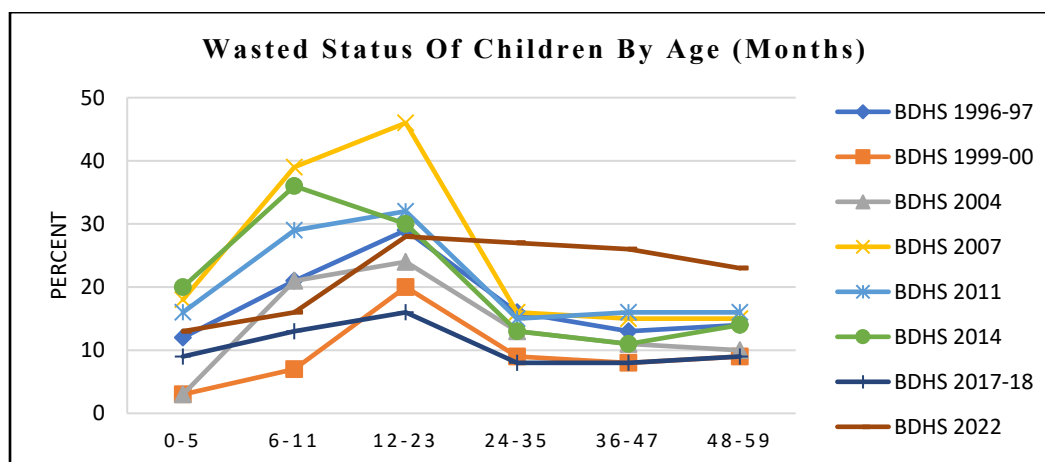


Figure: 3

Finally, the proportion of underweight children aged 12-23 months was also greater than that of the other age groups (Figure 4).

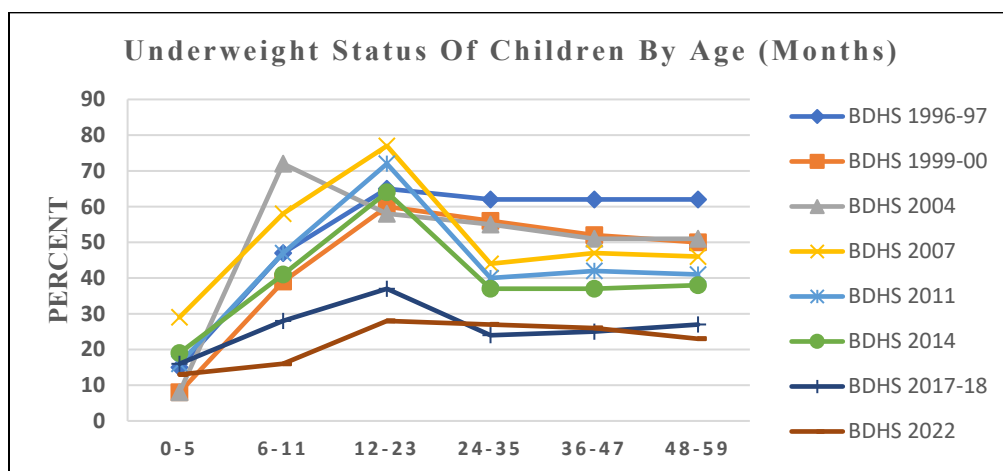


Figure: 4

Therefore, it is also clear that children 12-23 month are the most vulnerable. There are also rural–urban, wealth status and maternal education factors that affect children’s nutritional levels (Sen et al. 2020).

Causes of Changes in the Nutritional Status of Children

There are many factors that drive the changes in nutritional status of children in Bangladesh (Headey et al. 2015). Some represent policy and program achievements to improve the nutritional status of children and improve child health.

Income, Poverty and Inequality

Increases in household wealth and a concurrent reduction in poverty are thought to be important factors for changing nutritional status in Bangladesh. Monthly household income increased from 7,203 BDT in 2005 to 32,422 (HIES 2023). However, food consumption for women and children was disproportionately distributed. The Gini coefficient of income is currently 0.499, an increase from 0.482 in 2016. Nevertheless, nutritional status improved; other factors have clearly been involved.

Additional infrastructure developments in Bangladesh, such as a rural electricity supply and improved roads have also been mentioned as fundamental factors linked to better nutritional status. For instance, rural electricity made it possible to light outdoor toilets at night and that roads improved access to hospitals and clinics (Nisbett et al. 2017).

Mothers’ Education

Increased women's education and employment for young women has delaying marriage and first pregnancies. Some researchers have attributed the initial increase in women's educational access and attainment to school food programmes starting in the 1970s, as well as girls' education stipends

starting in the 1990s (Baulch 2011; Huq and Rahman 2008). In the 1974 Census of Bangladesh, the female literacy rate was 15%; this increased to 39% in 2001 and 72% in 2022 (Census 2022).

Water and Sanitation

A government effort in the early-mid 2000s included giving local councils responsibility for achieving 100% household latrine coverage, utilizing community-led total sanitation and other approaches facilitated by nongovernmental organizations (Hanchett 2016). Reducing open defecation decreases the incidence of stunting in children (Headey et al. 2015).

Maternal and Child Health Care

Improvements in maternal and reproductive health care are considered to be key drivers of women's empowerment and affect both their child and woman nutritional status (Nisbett et al. 2017). The large scale of the childhood vaccination programmes and the successful use of ORSs and zinc in the treatment of diarrhoea also improved child health and nutritional levels (Nisbett et al. 2017).

Home births are still common in Bangladesh, accounting for 23% of births in 2023 (with 70% of all births attended to by modern health professionals), though there was a rapid increase in hospital births, as 50% of births were at home in 2018 (with a total of 53% with modern professionals attending them) (NIPORT 2023; 2018). Training traditional birth attendants can improve early infant feeding indicators (Talukder et al. 2017). Indeed, training of both traditional and modern midwives can reduce maternal mortality and increase child health and status.

Under five mortality decreased from 134 per 1000 live births in 1993-94 to 88 in 2004 and 31 in 2022 (NIPORT 2023). Among children aged 12-23 months, 46% had been vaccinated in 1993-4, whereas 86% had been vaccinated in 2017-18; (NIPORT 2018). The prevalence of exclusive breastfeeding for children aged 0-5 months increased from 45% the day before the survey in 1996-97 to 65% in 2017-2018 (NIPORT 2018).

Food Security and Diet

Improved agricultural production has increased food security and dietary diversity in Bangladesh (Nisbett et al. 2017). In addition, the increased numbers of women with extra household income were able to purchase a greater variety of food and this plus improved maternal education levels no doubt has led to improved household dietary practices.

Nutritional Policies and Programmes

The key policies and programmes which, from the 1990s, may have led to long-term effects on nutritional changes in children are the following:

- National Plan of Action on Nutrition (1997)
- National Food and Nutrition Policy (1997)
- Bangladesh Pure Food Act (2005)
- National Food Policy (2006)
- National Food Policy Plan of Action for 2008–2015 (2006)
- National Health Policy (2011)

- National Child Policy (2011)
- Health Population and Nutrition Sector Development Program (2011)
- National Food Safety and Quality Policy (2012 draft)
- National Nutrition Policy (2015)
- National Strategy on Infant and Young Child Feeding (2007)
- National Communication Framework and Plan of Action on Infant and Young Child Feeding (2010)
- Prevention of Iodine Deficiency Diseases Act (1989)
- National Strategy for Anaemia Prevention and Control in Bangladesh (2007)
- National Guidelines for the Management of Severely Malnourished Children (2008)

Other factors that may have contributed to improving child nutrition include behaviour change communication (BCC) programs, strengthened child vaccination, and the continuous work by mainstream health workers for child health (Headey et al. 2015).

Future Challenges for Nutrition in Bangladesh

Child and Under 5 Mortality Rate

Bangladesh has made progress in reducing child and under five mortality rates. However, there is still a need to further decrease the mortality rate among children, especially those under five years old. According to (NIPORT 2023), the under-five mortality rate is 31 per 1000 live births, which is higher than the target level of the 8FYP of Bangladesh to reduce the under-five mortality rates to 27 per 1000 live births by 2025 (Government of the People's Republic of Bangladesh 2020). Therefore, improving the mortality rate of children and children under five years of age is still a challenge for Bangladesh. Further improving nutritional status should improve child health and reduce mortality as well.

Child and Adult Malnutrition Status

According to BDHS 2022, 24% of children under five years of age are stunted, 22% are underweight and 11% are wasted (NIPORT 2023). The 8FYP calls for reducing stunting by 20%, wasting by 7% and underweight by 15% by 2025. (Islam, Hossain, and Sanjowal 2022)) highlighted the future challenges of population and development that place child nutritional status at continued risk.

Double Burden of Malnutrition

The double burden of malnutrition is characterized by the co-occurrence of undernutrition along with overweight and obesity or diet-related noncommunicable diseases within individuals, households and populations (WHO 2020). While underweight has decreased, among married women for example, overweight and obesity increased by approximately 130% from 2004 to 2014 (Tanwi, Chakrabarty, and Hasanuzzaman 2019).

Gaps in the Implementation of Policies and Programs

Currently, there are many nutrition-relevant plans and policies in place, such as the Delta Plan 2100, Perspective Plan 2021-2041, 8th Five Year Plan 2020-2025, National Health Policy 2011

and the 4th Health, Population, and Nutrition Sector Program (HPNSP, 2017-2022). However, there is a large gap in terms of management, inadequate resources and proper implementation. In addition, the National Population Policy 2012 and National Health Policy 2011 have not yet been updated. A major problem has been coordination and management, according to (Islam, Hossain, and Sanjowal 2022). Therefore, the future development of children's nutritional status in Bangladesh is still challenging.

Conclusions

The nutritional status of children in Bangladesh has improved substantially in recent decades. In particular, the prevalence of stunting, underweight and wasting gradually decreased from the 1990s to the 2020s. Bangladesh is currently also undergoing a major change in its age structure (Islam, Abdullah, and Hossain 2023), which has assisted in achieving economic success as well as improving education, health, and perhaps good governance. However, challenges to the government remain, such as poverty reduction, maternal education, water and sanitation improvement and better management of nutrition-relevant policies and programs. National and SDG targets remain elusive.

Acknowledgments

The author Md. Idris Ali would like to thank Professor Dr. Mohammad Mainul Islam, Department of Population Sciences, University of Dhaka for inspiring by his academic works.

Competing interest statement

The author declares no conflicts of interest.

References

- Alom, J., Quddus, Md. A., & Islam, M. A. (2012). Nutritional Status of Under-Five Children in Bangladesh: A Multilevel Analysis. *Journal of Biosocial Science*, 44(5), 525–535. <https://doi.org/10.1017/S0021932012000181>
- Banerjee, S., SubirBiswas, Roy, S., Pal, M., Hossain, Md. G., & Bharati, P. (2021). Nutritional and immunization status of under-five children of India and Bangladesh. *BMC Nutrition*, 7(1), 77. <https://doi.org/10.1186/s40795-021-00484-6>
- Bangladesh Bureau of Statistics (BBS). (2019). Bangladesh Multiple Indicator Cluster Survey (p. 564).
- Baulch, B. (2011). The medium-term impact of the primary education stipend in rural Bangladesh. *Journal of Development Effectiveness*, 3(2), 243–262. <https://doi.org/10.1080/19439342.2011.570449>
- Census. (2022). Population-and-Housing-Census—2022 বাংলাদেশ পরিসংখ্যান ব্যুরো-গণপ্রজাতন্ত্রী বাংলাদেশ সরকার. <http://www.bbs.gov.bd/site/page/47856ad0-7e1c-4aab-bd78-892733bc06eb/Population-and-Housing-Census>
- Chowdhury, T. R., Chakrabarty, S., Rakib, M., Afrin, S., Saltmarsh, S., & Winn, S. (2020). Factors associated with stunting and wasting in children under 2 years in Bangladesh. *Heliyon*, 6(9). <https://doi.org/10.1016/j.heliyon.2020.e04849>
- Government of the People’s Republic of Bangladesh. (2020). 8th Five Year Plan July 2020-June 2025. https://plancomm.gov.bd/sites/default/files/files/plancomm.portal.gov.bd/files/68e32f08_13b8_4192_ab9b_abd5a0a62a33/2021-02-03-17-04-ec95e78e452a813808a483b3b22e14a1.pdf
- Hanchett, S. (2016). Sanitation in Bangladesh: Revolution, Evolution, and New Challenges—Sanitation Learning Hub. <https://sanitationlearninghub.org/resource/sanitation-in-bangladesh-revolution-evolution-and-new-challenges-2/>
- Haq, I., Hossain, Md. I., Parvin, Mst. M., Saleheen, A. A. S., Habib, Md. J., & Chowdhury, I.-A.-Q. (2021). Gender differences in child nutrition status of Bangladesh: A multinomial modeling approach. *Journal of Humanities and Applied Social Sciences*, 4(5), 379–392. <https://doi.org/10.1108/JHASS-02-2021-0030>
- Headey, D., Hoddinott, J., Ali, D., Tesfaye, R., & Dereje, M. (2015). The Other Asian Enigma: Explaining the Rapid Reduction of Undernutrition in Bangladesh. *World Development*, 66, 749–761. <https://doi.org/10.1016/j.worlddev.2014.09.022>
- HIES. (2023). Income-Expenditure-&-Poverty—বাংলাদেশ পরিসংখ্যান ব্যুরো-গণপ্রজাতন্ত্রী বাংলাদেশ সরকার. https://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b343a8b4_956b_45ca_872f_4cf9b2f1a6e0/2023-12-28-14-40-ac2b3d298f569f155a80871a49b7dd9e.pdf
- Huq, M., & Rahman, P. M. M. (2008). Gender Disparities in Secondary Education in Bangladesh. *International Education Studies*, 1(2), 115–128.
- Islam, M. M., Abdullah, S. M., & Hossain, M. (2023). Age Structure Transition and Demographic Dividend in Bangladesh (pp. 109–139).
- Islam, M. M., Hossain, Md. A., & Sanjowal, R. K. (2022). Bangladesh at Fifty: Changes and Challenges in Population and Development. *Journal of Governance, Security & Development*, 3(1), 1–38. <https://doi.org/10.52823/PNIF4859>

- Islam, M. R., Rahman, M. S., Rahman, M. M., Nomura, S., de Silva, A., Lanerolle, P., Jung, J., & Rahman, M. M. (2020). Reducing childhood malnutrition in Bangladesh: The importance of addressing socio-economic inequalities. *Public Health Nutrition*, 23(1), 72–82. <https://doi.org/10.1017/S136898001900140X>
- Kuddus, M. A., Sunny, A. R., Sazzad, S. A., Hossain, M., Rahman, M., Mithun, M. H., Hasan, S. E., Ahmed, K. J., Zandonadi, R. P., Han, H., Ariza-Montes, A., Vega-Muñoz, A., & Raposo, A. (2022). Sense and Manner of WASH and Their Coalition with Disease and Nutritional Status of Under-five Children in Rural Bangladesh: A Cross-Sectional Study. *Frontiers in Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.890293>
- NIPORT. (1997). Bangladesh Demographic and Health Survey 1996-97.
- NIPORT. (2018). Bangladesh Demographic and Health Survey 2017-18.
- NIPORT. (2023). Bangladesh Demographic and Health Survey 2022: Key Indicators Report.
- Nisbett, N., Davis, P., Yosef, S., & Akhtar, N. (2017). Bangladesh’s story of change in nutrition: Strong improvements in basic and underlying determinants with an unfinished agenda for direct community level support. *Global Food Security*, 13, 21–29. <https://doi.org/10.1016/j.gfs.2017.01.005>
- Sen, L. C., Ahmed, M. S., Touhiduzzaman, A. S. M., Mandal, S., Ahmed, A. T., Das, S. K., & Saha, R. (2020). Nutritional status of under-five children in rural Bangladesh. *International Journal of Public Health Science (IJPHS)*, 9(3), Article 3. <https://doi.org/10.11591/ijphs.v9i3.20425>
- Talukder, S., Farhana, D., Vitta, B., & Greiner, T. (2017). In a rural area of Bangladesh, traditional birth attendant training improved early infant feeding practices: A pragmatic cluster randomized trial. *Maternal & Child Nutrition*, 13(1), e12237. <https://doi.org/10.1111/mcn.12237>
- Tanwi, T. S., Chakrabarty, S., & Hasanuzzaman, S. (2019). Double burden of malnutrition among ever-married women in Bangladesh: A pooled analysis. *BMC Women’s Health*, 19(1), 24. <https://doi.org/10.1186/s12905-019-0725-2>
- WHO. (2020). WHO Double burden of nutrition | Nutrition site. World Health Organization - Regional Office for the Eastern Mediterranean. <http://www.emro.who.int/nutrition/double-burden-of-nutrition/index.html>
- WHO. (2024). Fact sheets—Malnutrition. <https://www.who.int/news-room/fact-sheets/detail/malnutrition>