

# Breastfeeding

## A triple-duty action in the context of the double burden of malnutrition

**Rafael Pérez-Escamilla**

Yale School of Public Health, New Haven, CT, USA

**Sofia Segura-Pérez**

Hispanic Health Council, Hartford, CT, USA

### Key messages

- > Breastfeeding is a triple-duty action that can help prevent undernutrition/infectious diseases and obesity/chronic diseases and improve cognitive development in the context of the double burden of malnutrition.
- > Breastfeeding reduces family poverty, improves long-term human development and productivity, and is key for national development and planetary sustainability.
- > Effective breastfeeding protection, promotion and support interventions are available for effective scaling-up of national breastfeeding programs but continue to be underutilized.
- > Improved investments in effective scaling-up of breastfeeding protection, promotion and support in the context of the double burden of malnutrition will increase the chances of countries meeting the Sustainable Development Goals.

### Why breastfeeding is a triple-duty action

The double burden of malnutrition (DBM) can be defined as the simultaneous presence of both under- and overnutrition at the individual, household and population level across the life course.<sup>1</sup> The world is indeed now deeply immersed in the DBM. Globally, it is estimated that 155 million children under five are stunted and 41 million are overweight.<sup>2</sup> Among adults, 462 million are underweight, and 1.9 billion are overweight or obese.<sup>2</sup> Furthermore, the DBM is characterized by widespread micronutrient deficiencies affecting both stunted and obese individuals. For example, it is estimated that iron deficiency anemia affects 246 million wom-

en of reproductive age.<sup>2</sup> Although stunting, obesity and micronutrient deficiencies call for nutrition-specific actions once they develop, it has recently been proposed that since they are caused by shared drivers related to the social determinants of health, well-coordinated strategies can be designed to prevent these conditions from happening.<sup>1,2</sup> The term 'double-duty action' in the context of the DBM refers to interventions that are capable of addressing all forms of malnutrition through well-coordinated policies and programs.<sup>1,2</sup> It is important, however, to recognize that there are actions that are capable not only of addressing the DBM but also of fostering early childhood development (ECD), i.e., triple-duty actions. Among these, breastfeeding stands out as a maternal-child behavior that fully meets the criteria of a triple-duty action in the context of the DBM.<sup>3,4</sup>

**“‘Double-duty action’ refers to interventions that are capable of addressing all forms of malnutrition through well-coordinated policies and programs”**

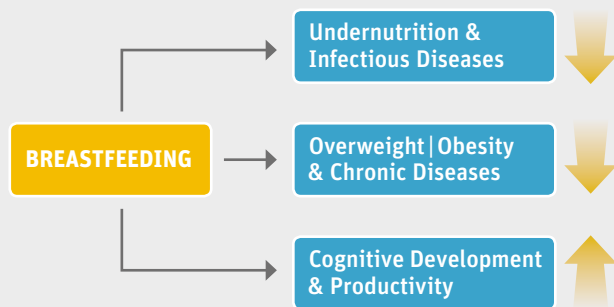
At the same time that breastfeeding has been causally linked with the prevention of infectious diseases and undernutrition, it has also been linked with a reduction in risk in the development of childhood obesity,<sup>3</sup> especially among those children who are more predisposed to become obese.<sup>5</sup> In addition, breastfeeding has been strongly linked with improved cognitive development in children, better educational attainment and higher income among adults.<sup>6</sup>

The triple-duty actions of breastfeeding are not surprising given how the nutritional composition and immunological factors of human milk change as a function of the developmental stage of the child as well as the specific pathogens that the infant needs to be protected against.<sup>3</sup>

Likewise, bioactive substances in breast milk and the process of breastfeeding help infants learn to self-regulate their energy intake and to have a hormonal profile that protects them against the risk of obesity.<sup>7</sup>



**FIGURE 1:** Breastfeeding is a triple-duty intervention as it reduces the risks of undernutrition and infectious diseases, obesity and chronic diseases, and improves cognitive development<sup>1-6</sup>



Breastfeeding provides a unique maternal-infant interaction that, coupled with specific bioactive substances in breast milk, likely explains its benefits in cognitive development. Specifically, breast milk is rich in omega-3 polyunsaturated fatty acids, which are essential for the myelination of the neuronal axons – which in turn is crucial for the proper development of the central nervous system. As a result of the benefits of breastfeeding, it has been estimated that over 800,000 lives could be saved annually and that the world could save US\$300 billion a year if breastfeeding practices improved globally.<sup>3</sup>

**“Epidemiological studies have consistently shown that breastfeeding reduces the risk of overweight and obesity and chronic diseases”**

Breastfeeding also offers major benefits to women, highlighting its importance for addressing the DBM across the life course. It protects against post-partum hemorrhage, which is the major cause of death among women of reproductive age.<sup>3</sup> Women who do not have access to modern methods of contraception are less likely to become pregnant if they breastfeed, especially if they breastfeed exclusively during the first six months after birth.<sup>8</sup> In addition, epidemiological studies have consistently shown that breastfeeding reduces the risk of overweight and obesity and chronic diseases including type 2 diabetes, as well as breast and ovarian cancer in women.<sup>3</sup> It has been hypothesized that the reduction of some chronic diseases among women is the result of breastfeeding leading to a resetting of glucose and lipid ma-

ternal metabolism to the way it was before pregnancy, i.e., the metabolic ‘reset hypothesis.’<sup>9</sup>

### Scaling up breastfeeding programs in the context of the double burden of malnutrition

In spite of being considered a highly cost-effective action by international health and development organizations such as the WHO and the World Bank,<sup>10</sup> breastfeeding continues to attract relatively little investment<sup>11,12</sup> and the scaling-up of breastfeeding protection, promotion and support programs is still happening only to a very limited extent globally. This is very surprising, given how central breastfeeding is to the WHO/UNICEF Global Nurturing Care Framework for Early Childhood Development<sup>13</sup> – designed to offer well-coordinated high-quality health, nutrition, responsive parenting, early stimulation and initial education, and safety and social protection services for all families with infants and young children – and, at the end of the day, for achieving each and all of the Sustainable Development Goals (SDGs).<sup>14</sup> My research team hypothesized that this is likely the result of a lack of knowledge on how to effectively scale up breastfeeding protection, promotion and support programs in the real world.<sup>15</sup> This led to the development of the Breastfeeding Gear Model (BFGM), which is based on a Complex Adaptive Health Care Systems framework,<sup>16,17</sup> a major systematic review of the breastfeeding scaling-up literature and interviews with key informants with experience in the area.<sup>18</sup> The BFGM is key for addressing the DBM given the proven benefits that breastfeeding offers for the prevention of both undernutrition and infectious diseases as well as obesity and chronic diseases.

Analogous to an engine, the BFGM is formed by a central coordinating gear and seven peripheral gears, all of which need to communicate and be in synchrony with each other under the steering of the central master coordinating gear. The BFGM postulates that evidence-based advocacy (gear one) is needed to generate the political will (gear two) that is crucial to assign a top priority to breastfeeding in the policy agent, which in turn is needed to facilitate the enactment and enforcement of legislation including the WHO Code of Marketing of Breastmilk Substitutes<sup>19</sup> and maternity protection (gear three). Legislation is needed to release and sustain the financial resources (gear four) needed to train the workforce and implement evidence-based programs at the facility (e.g., Baby Friendly Hospital Initiative<sup>20</sup>) and community (e.g., breastfeeding peer counseling<sup>21,22</sup> levels [gear five]). Successful national breastfeeding programs have also relied on effective behavior change communication campaigns<sup>23</sup> (gear six), and operational research is needed to understand barriers and facilitators for the scaling-up process (gear seven). The BFGM recognizes that sound management information and governance systems need to be in place for the master or coordinating gear (gear eight).



As postulated by the BFGM and verified through the Becoming Breastfeeding Friendly (BBF) initiative,<sup>24–29</sup> the pathways for scaling up breastfeeding programs are likely to be different across social, political and cultural contexts.

Nevertheless, in the context of the DBM it is important that such programs be well coordinated with national strategies designed to prevent and address undernutrition, infectious diseases, micronutrient deficiencies, overweight/obesity, chronic diseases and early childhood development.<sup>30</sup> This approach will require strengthening the breastfeeding workforce across sectors and programs.

### PROSPERA conditional cash transfer (CCT) program

A case in point is the PROSPERA conditional cash transfer (CCT) program in Mexico, which serves 6.1 million low-income households. PROSPERA provides cash to low-income families as long as they meet certain conditions, including keeping the children in school, attending prenatal care, bringing infants and young children to be immunized, and having family members attend medical screenings and check-ups. PROSPERA operates in the context of a middle-income, highly inequitable country with one of the highest rates of obesity and type 2 diabetes in the world.<sup>31</sup> Studies have found that, whereas the program is preventing stunting and infectious diseases among young children, at the same time it may be fostering overweight/obesity among family members in the recipient households through the use of some of the extra income to purchase more sugar-sweetened beverages and energy-dense foods of low nutritional value.<sup>31</sup> In addition,



Mothers taking their children to the local community health clinic in Bolivar, Colombia

PROSPERA may be benefitting the cognitive development of children through improved nutrition, healthcare, and schooling<sup>32</sup> and is now investing in the breastfeeding training of healthcare providers and breastfeeding counselors.<sup>33</sup> However, current national infant and young child nutrition and early childhood development strategies have not positioned breastfeeding as a strategic triple-duty action in the context of the DBM as part of PROSPERA. This may represent a major loss of opportunity for this program, in which the Mexican government invests US\$ 5.6 billion per year.<sup>32</sup>

Because CCTs such as PROSPERA focus on the family as a whole across the life course and have in place strong coordination among the social protection, healthcare and education sectors, it is important that they be considered as unique platforms for integrating and coordinating breastfeeding protection, promotion and support programs across sectors and programs.

Following the family-centered life-course approach being strongly endorsed by the WHO/UNICEF Global Nurturing Care Framework for Early Childhood Development,<sup>13</sup> well-monitored referral and counter-referral systems could be designed so that prenatal, perinatal and postnatal health services communicate with each other and properly address the breastfeeding needs of their clients. In addition to strengthening the communication across maternal-child health services, personnel working as part of infant feeding or chronic disease screening/management programs can make families aware of the links between breastfeeding, obesity and chronic diseases, and of services available to support breastfeeding, prevent the onset of obesity, and improve the self-management of chronic diseases such as type 2 diabetes in their communities. This healthcare systems' strengthening approach to position breastfeeding as being central for addressing the DBM could provide much needed synergy for other maternal-child nutrition programs including comple-

**FIGURE 2:** The Breastfeeding Gear Model for the scaling-up of breastfeeding protection, promotion and support programs. Adapted with permission from the author.<sup>18</sup>



mentary feeding, young child feeding, adolescent and prenatal nutrition and micronutrient initiatives across the life course, as well as for integrated early child development programs.

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**“Breastfeeding is a triple-duty action in the context of the DBM, as it helps prevent child malnutrition in all its forms and fosters cognitive development”**

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#### Conclusions

The evidence presented in this article leaves no doubt that breastfeeding is a triple-duty action in the context of the DBM that can help prevent child malnutrition in all its forms while simultaneously advancing early childhood development<sup>4</sup> and which also helps protect against the development of obesity-related chronic diseases in women. Therefore, breastfeeding is crucial to protect the health and food security of families and to foster national development globally. In addition, breastfeeding is also central to the sustainability of our planet, given the millions of tons of waste from the formula industry derived from cans and plastic bottles, the major emissions of methane (a greenhouse gas) from dairy cattle, as well as the massive use of fossil fuels in the processing, transportation and storage of infant formula and the excessive use of water: 4,000 liters of wa-

ter are needed to produce 1 kilogram of dry infant formula.<sup>11</sup> Indeed, it is difficult to imagine how countries can meet the SDGs if they do not improve investments in the effective scaling-up of breastfeeding programs. We know the kind of lactation management and social support that is needed to make breastfeeding work, and we have learned many lessons from countries that have successfully scaled up their breastfeeding programs. Therefore, when it comes to breastfeeding as a major triple-duty action in the context of the DBM, inaction with regard to investments to scale up effective breastfeeding, protection, promotion and support programs globally is no longer justifiable.

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**“We know the kind of lactation management and social support that is needed to make breastfeeding work”**

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