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EDITORIAL

Breastfeeding in Brazil: major progress, but still a long way to go☆,☆☆

Amamentação no Brasil: grande progresso, porém ainda há um longo caminho pela frente

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The innovative and well-designed retrospective study by Oliveira et al. featured in this issue documents encouraging secular trends in breastfeeding duration in Rio de Janeiro during the 1960–2009 period. Study participants were staff from a university in the city of Rio de Janeiro interviewed between 1999 and 2012 who were asked to recall the breastfeeding duration of their first-born child.[1] Median breastfeeding duration among women giving birth in the 2000–2009 period was 12 months, compared with six months among children born between 1960 and 1969, five months among those born between 1970–1979, six months among those born between 1980–1989 and eight months among those born between 1990 and 1999. Given how strikingly similar these findings are to secular breastfeeding trends previously reported for Brazil as a whole using repeated cross-sectional survey data,[2,3] this commentary extrapolates implications from Oliveira's et al. study to the whole country.[3] Data from national surveys and Oliveira et al.[1] on one hand point to the major progress in breastfeeding outcomes in Brazil over the past four decades, as illustrated by dramatic national improvements, including an increase in breastfeeding duration from 2.5 months in 1975 to 11.3 months in 2008 and a 14-fold increase in the prevalence of exclusive breastfeeding, which currently stands at 41% among infants under 6 months of age. These improvements correspond nicely with the timing of the launch of major breastfeeding protection, promotion, and support efforts and investments in the country.[2] On the other hand, these studies indicate that the country still has a long way to go to meet the World Health Organization (WHO) recommendations that call for exclusive breastfeeding for six months and total duration of any breastfeeding of at least two years.

An innovative contribution from Oliveira's et al. article is that it documents that modifiable risk factors for short breastfeeding durations are not static, as they do indeed change over time. For example whereas in the 1970s, higher levels of income were associated with shorter breastfeeding duration, by the 2000s the opposite became true (*i.e.*, lower maternal education became the risk factor for short breastfeeding duration). Because shifts in risk factor directionality do not happen overnight, it is important to analyze secular trends in breastfeeding outcomes within different socio-economic and demographic groups.[4,5] For example, whereas breastfeeding rates in Mexico continue to be higher in rural *vs.* urban areas, lower *vs.* higher income women, and indigenous *vs.* non-indigenous communities, it is clear that the rate of decline is significantly faster among the most socio-economically vulnerable, to a point where in the near future the most vulnerable groups will be those with the

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worst breastfeeding outcomes, as it is now happening in Brazil.[4,5] This inequity is very important to address, as it can profoundly affect the health and wellbeing of those already left behind. As a result, a key question that pediatricians and other key stakeholders may have is this: What can be done to protect breastfeeding behaviors among the most vulnerable?

Recent evidence strongly indicates that the answer to this question is quite complex, as multiple sectors and initiatives need to work in coordination at multiple levels – from local to national – to further protect, promote, and support the right of women to breastfeed their children as long as they want.[6] Actions needed include improved paid parental leave policies, stronger enforcement of the WHO International Code of Marketing of Breast-milk Substitutes, hospital and community based programs, and management information systems that offer high quality breastfeeding support services with adequate coverage across the continuum of care, behavior change communications campaigns, and family support including the involvement of fathers.[6,7]

At the clinic and community level, improved anticipatory guidance during pregnancy and lactation management support during the first days and weeks after birth is crucial for long-term breastfeeding success. Specific themes that deserve further consideration include perceived insufficient milk (PIM),[8,9] delayed onset of lactation,[10] prelacteal feeds (*i.e.* foods/liquids offered other than breast milk during the first 72 hours after birth),[11,12] the maternal obesity epidemic,[13] and the high prevalence of C-sections in Brazil and globally.[14]

PIM has been documented as one of the main reasons reported by women for the premature interruption of breastfeeding.[8,9,15] Although it was initially thought that PIM was simply a socially acceptable excuse given by women who did not wish to breastfeed their infants and felt ashamed to admit so, that explanation is now considered to be too simplistic and often times inaccurate. PIM is indeed likely to have its roots in serious but preventable lactation difficulties establishing the process of lactation.[15] The capacity of the mammary gland to produce breast milk evolves through four highly interconnected stages: (1) preparation and further development of the mammary gland during pregnancy, (2) birth to onset of lactation, *i.e.*, the beginning of secretion of copious amounts of milk from the breast, which usually happens 48–72 hours after birth, (3) establishment of lactation, and (4) maintenance of lactation, the latter two based on a maternal supply-infant demand process driven by the frequency and intensity of sucking by the infant.[15] At each of these stages, there are modifiable risk factors that can prevent human lactation from succeeding.

A highly sensitive human lactation period happens between birth and the onset of lactation. If the onset of lactation is delayed beyond 72 hours, maternal anxiety and stress increase, which in turn can further prevent the successful establishment of lactation as excessive levels of stress hormones are very harmful to the lactation process. This vicious cycle ultimately leads to the premature interruption of exclusive breastfeeding and short breastfeeding durations independent of original maternal breastfeeding intentions.[15] Modifiable risk factors for delayed onset of lactation include maternal stress during labor and delivery, C-sections, maternal obesity, and delaying the first offering of the breast to the newborn.[15] Once lactation is established, factors that interfere with breastfeeding on-demand (*i.e.*, interfering with the natural development of the supply-demand human milk production process) – including poor latch, sore nipples, and breast engorgement – become risk factors for diminished milk production.[15] Fortunately, these risk factors are highly preventable through timely and adequate lactation management education and counseling.[15]

To overcome threats to breastfeeding success, a qualified workforce of health care professional and paraprofessionals (*i.e.*, community health workers or peer counselors) is required for the offering of high quality and timely breastfeeding support services.[6] Thus, pediatricians and other health providers (including obstetricians and nurses) need to be adequately trained on normal human lactation physiology, including the four phases of human lactation, sudden changes in infant hunger and milk production as a result of infant growth spurts, the correct interpretation of hunger cues (as it cannot be assumed that crying is always an expression of hunger by the infant), and the need to address any concerns about insufficient milk supply through careful monitoring of infant growth using the WHO growth reference standards.[15] Pediatricians should also be extensively trained on how to effectively educate and provide support to breastfeeding women. Their efforts can benefit greatly from the inclusion of lactation specialists and breastfeeding peer counselors in their practices.

Given the great relevance that the WHO Code has for protecting the rights of women to breastfeed if they choose to do so, schools of medicine and allied health professions should consider including curriculum on conflicts of interest and their prevention, especially with regards to the interactions of health care professionals and health care institutions with formula company representatives and products.[6,15]

Although little is still known about the actual cost of implementation of programs at scale that include adequate workforce development and other key elements that breastfeeding programs need to succeed,[16] we do know that investing in improving breastfeeding outcomes has a very high return on investment due to major benefits for the wellbeing of children, women, the environment, and society as a whole. Specifically, it has been estimated that improving exclusively breast feeding (EBF) rates can foster national development by saving billions of dollars in preventable morbidities and premature deaths globally.[17] This is why it is fully justified for breastfeeding protection, promotion, and support to be central to the attainment of the 2015–2030 Sustainable Development Goals. Indeed, Colchero et al.[18] recently estimated the annual costs of inadequate breastfeeding in Mexico associated with pediatric respiratory infections, otitis media, gastroenteritis, necrotizing enterocolitis, and sudden infant death syndrome to range between US$ 745.6 million and US$ 2.4 billion, with the costs of infant formula accounting for 11–38% of total costs. The annual number of disease cases attributed to inadequate infant breastfeeding practices ranged from 1.1 to 3.8 million and the number of infant deaths from 933 to 5796 per year; altogether, these represent nearly 27% of the total number of episodes of the diseases examined.[18] Bartick

& Reinhold[19] recently estimated that if 90% of families in the United States were to comply with the recommendations to breastfeed exclusively for six months, the country would save US$ 13 billion per year and prevent 911 excess deaths, the vast majority being infants. The authors based their cost estimates on prevention of necrotizing enterocolitis, otitis media, gastroenteritis, hospitalization for lower respiratory tract infections, atopic dermatitis, sudden infant death syndrome, childhood asthma, childhood leukemia, type 1 diabetes mellitus, and childhood obesity.[19] Bartick et al.[20] have also recently estimated the cost of suboptimal breastfeeding in the United States with regards to suboptimal maternal health. Their analysis indicates that suboptimal breastfeeding rates result in 4981 excess cases of breast cancer, 53,847 cases of hypertension, and 13,946 cases of myocardial infarction compared with women who optimally breastfed. The resulting excess morbidity translates into US$ 17.4 billion in annual costs to society resulting from premature death, in addition to US$ 733.7 million in direct costs, and US$ 126.1 million in indirect illness-related costs.[20]

In conclusion, the innovative and thought-provoking article by Oliveira et al.[1] strongly supports previous findings indicating that Brazil is a model country when it comes to investing in effective breastfeeding protection, promotion, and support efforts, as illustrated by a spectacular increase in exclusive breastfeeding rates among infants under 6 months of age between 1975 (3.1%) and 2008 (41%).[3] It is indeed quite remarkable that this has happened at a time when all the odds were against this outcome as a result of accelerated urbanization, and especially given the higher participation of women in the labor force.[5] The findings of Oliveira et al. also show that there is substantial room for improvement in Brazil with regards to both breastfeeding exclusivity and duration of any breastfeeding. Brazil must pay close attention to the breastfeeding inequities that have developed over time and also to strengthening the role of health care professionals in ensuring that the road to success continues for all. Health care professionals including pediatricians, obstetricians, and nurses have a central role to play in further protecting, promoting, and supporting optimal breastfeeding practices in Brazil. It is essential that the new generation of health providers operate within a supportive environment that is free from conflicts of interest, especially with regards to their interactions with the infant formula industry and baby food companies within and outside the clinic environment. Health care providers should strongly advocate for further strengthening the highly effective Baby Friendly Hospital Initiative,[7] paying special attention to better integrating and coordinating facility- and community-based protection, promotion, and support efforts.[7] The attainability of these recommendations will depend to a large extent on the quality of pre-service and in-service breastfeeding and human lactation training received by Brazil's future and present health care providers. The use of mobile communications technology, including two-way text messaging and social media, to improve the reach and timeliness of breastfeeding support should also be considered as part of a national program designed to meet the needs of women benefiting from the technological opportunities of the 21st century.

Conflicts of interest

The author declares no conflicts of interest.

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