

## Fostering healthy eating in children

Mieke Faber<sup>a,b,c</sup> 

<sup>a</sup>Non-Communicable Diseases Research Unit, South African Medical Research Council, Tygerberg, South Africa

<sup>b</sup>Department of Dietetics and Nutrition, University of the Western Cape, Bellville, South Africa

<sup>c</sup>Centre of Excellence for Nutrition, North-West University, Potchefstroom, South Africa

Correspondence: mieke.faber@mrc.ac.za



Malnutrition has a negative effect on the health, development and educational achievement of children, highlighting the importance of fostering healthy eating behaviour and interventions that address both under- and over-nutrition in school-aged children, particularly in low- and middle-income countries.<sup>1</sup> Eating breakfast has positive effects on behaviour in the classroom, mainly in primary school age children, and academic performance.<sup>2</sup> Skipping breakfast has been shown to be consistently associated with an increased risk of overweight/obesity.<sup>3</sup> Maintaining a healthy weight in childhood reduces the risks of overweight, obesity and cardiovascular disease later in life.<sup>4</sup> South Africa's *Strategy for the Prevention and Control of Obesity 2015–2020* has a strong focus on preventing childhood obesity, aims to promote healthy eating, and enables access to healthy food choices in various settings, including schools.<sup>5</sup>

During early childhood, children's eating behaviour is influenced mostly by parents and the home environment. However, as children grow older and spend more time outside of the home, they are exposed to a wider range of food environments.<sup>6</sup> School children spend a considerable amount of time at school, and the school food environment should therefore be conducive to healthy eating behaviour. The Food and Agricultural Organization (FAO) defines the school food environment as "all the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed".<sup>7</sup>

The article by Hansen *et al.*<sup>8</sup> published in this issue of the SAJCN describes breakfast and school lunchboxes that caregivers provide to grade 1–3 children attending quintile 5 schools in Bloemfontein. The results showed that most caregivers provided their children with breakfast and a school lunchbox daily. However, despite caregivers' positive attitude towards providing healthy foods, these healthy foods were not part of the child's breakfast or included in the lunchbox. Also, most did not eat breakfast together as a family during the week. The authors concluded that there is "a need to educate caregivers on the provision of healthy breakfast and lunchbox foods". It should be noted that measuring "knowledge" is challenging, and knowledge only is not sufficient to change behaviour.<sup>9</sup> Hansen *et al.*<sup>8</sup> did not interrogate limiting factors affecting eating behaviour, which is a limitation of the study.

Providing nutrition knowledge to parents may not necessarily translate to healthy eating in children, as the parent needs to be able to act on the information that was provided. In the study by Hansen *et al.*,<sup>8</sup> for most children a fruit or vegetable was not included in the lunchbox every day, and most

caregivers were not aware of the recommended daily intake for fruit and vegetables. Considering that intake of fruit and vegetables in South Africa is generally low, with a per capita intake of approximately half the WHO recommendation, and cost being a major barrier for daily consumption,<sup>10</sup> increasing fruit and vegetable intake in children may be challenging.

Various strategies can be used to improve caregivers' knowledge and install healthy eating in children. The use of digital platforms such as web-based programmes and Smartphone Apps in nutrition education and promotion has gained momentum over the recent past. Although these websites and Apps should provide practical evidence-based and credible information, it needs to go beyond just providing information. These digital nutrition promotion Apps should be engaging and interactive as this would encourage sustained and ongoing engagement by the end-user, which would strengthen the potential to change eating behaviour. Digital nutrition promotion tools have the potential to reach a large number of people at relatively low cost, but effectiveness is often limited because engagement by the end-user is not sustained. Traditional methods (e.g. paper-based marketing) on the other hand reach fewer people but are more successful in targeting individuals. Using a combination of strategies can therefore be beneficial.<sup>4</sup>

Although it is important that caregivers have adequate knowledge on healthy eating, it is equally important that the environment is favourable towards enabling translation of knowledge into practice. For example, intake of fruit and vegetables has been shown to be consistently associated with the degree to which these foods are available (in the child's immediate environment) and accessible (in a place and form that facilitates consumption) to children.<sup>11</sup>

Various experiential learning activities can be used to encourage healthy eating in children. For example, educational learning using different strategies (digital game, storybook) was shown to be effective in increasing vegetable consumption in a preschool setting.<sup>12</sup> For primary school-aged children, food preparation/cooking, taste testing, playing games, role-playing, and gardening may be appropriate experiential learning activities.<sup>13</sup> Repeated taste exposure is a simple method that could be used in childcare settings and at home; a minimum of 8–10 exposures will be needed for novel and disliked vegetables.<sup>14</sup>

Furthermore, installing healthy eating in children should start during infancy and early childhood.<sup>15</sup> Fostering healthy eating in children goes beyond providing healthy foods. According

to the 'Nurturing Children's Healthy Eating' position statement, which is based mostly on studies conducted in high-income countries, healthy eating practices among children are supported by positive parenting, eating meals together as a family, a healthy home food environment, and the pleasure of eating nutritious foods.<sup>6</sup> Parents and caregivers therefore have an important role as they should be positive role models and create a positive food environment that supports the development of healthy eating behaviours in their children.<sup>15</sup> This is particularly important for younger children as they are more influenced by adults than older children.<sup>11</sup> Healthy eating fostered at home should be re-enforced at schools; the school food environment should therefore encourage and enable healthy eating behaviour.

Several intra-individual and environmental factors affect dietary behaviour. Multiple factors across different contexts may limit the role of parents and caregivers in fostering healthy eating in children, despite having adequate knowledge.<sup>15</sup> The latter, for example, may be particularly challenging for working parents, single-parents, low-income families, and food-insecure households.<sup>6</sup> For low-income families, access to healthy foods is often limited, because of the relatively higher cost and lack of adequate facilities to prepare and store food.<sup>15</sup>

According to the ecological framework, eating behaviours are affected by multiple interconnected factors at four broad levels, i.e. individual-level, social environment (interactions with family, friends, peers, and others in the community), physical environment (settings where people eat or procure food), and macrolevel environment (e.g. marketing, policies, programmes).<sup>16</sup> The need for a multi-sectoral multi-disciplinary approach to install healthy eating is widely recognised.<sup>5,6,15,16</sup> Action aimed at establishing healthy eating habits in children should therefore involve families, schools, governments, and the food industry.

*Disclosure statement* – No potential conflict of interest was reported by the author(s).

## ORCID

Mieke Faber  <http://orcid.org/0000-0002-8878-254X>

## References

- Best C, Neufingerl N, van Geel L, et al. The nutritional status of school-aged children: why should we care? *Food Nutr Bull.* 2010;31:400–17. <https://doi.org/10.1177/156482651003100303>.
- Adolphus K, Lawton CL, Dye L. The effects of breakfast on behavior and academic performance in children and adolescents. *Front Hum Neurosci.* 2013;7:425. <https://doi.org/10.3389/fnhum.2013.00425>.
- Ma X, Chen Q, Pu Y, et al. Skipping breakfast is associated with overweight and obesity: a systematic review and meta-analysis. *Obes Res Clin Pract.* 2020;14:1–8. <https://doi.org/10.1016/j.orcp.2019.12.002>.
- Zarnowiecki D, Mauch CE, Middleton G, et al. A systematic evaluation of digital nutrition promotion websites and apps for supporting parents to influence children's nutrition. *Int J Behav Nutr Phys Act.* 2020;10:17. <https://doi.org/10.1186/s12966-020-0915-1>.
- South African Department of Health. Strategy for the prevention and control of obesity in South Africa 2015–2020. Pretoria: Department of Health; 2015.
- Haines J, Haycraft E, Lytle L, et al. Nurturing Children's Healthy Eating: position statement. *Appetite.* 2019;137:124–33. <https://doi.org/10.1016/j.appet.2019.02.007>.
- FAO. Healthy food environment and school food. [cited 2022 May 20]. Available from: <https://www.fao.org/school-food/areas-work/food-environment/en/>
- Hansen T, du Toit E, van Rooyen C, et al. Breakfast and lunchboxes provided to foundation phase learners: do caregivers' knowledge and attitude reflect their practices? *S Afr J Clin Nutr.* 2022;35. <https://doi.org/10.1080/16070658.2021.1946247>.
- Worsley A. Nutrition knowledge and food consumption: can nutrition knowledge change food behaviour? *Asia Pacific J Clin Nutr.* 2002;11(Supp 3):S579–S585.
- Naude CE. "Eat plenty of vegetables and fruit every day": a food-based dietary guideline for South Africa. *S Afr J Clin Nutr.* 2013;26 (Supplement3):S46–S56.
- DeCosta P, Møller P, Frøst MB, et al. Changing children's eating behaviour – a review of experimental research. *Appetite.* 2017;113:327–57.
- Braga-Pontes C, Simões-Dias S, Lages M, et al. Nutrition education strategies to promote vegetable consumption in preschool children: the Veggies4myHeart project. *Public Health Nutr.* 2022;25:1061–70. <https://doi.org/10.1017/S1368980021004456>.
- Varman SD, Cliff DP, Jones RA, et al. Experiential learning interventions and healthy eating outcomes in children: a systematic literature review. *Int J Environ Res Public Health.* 2021;18:10824. <https://doi.org/10.3390/ijerph182010824>.
- Nekitsing C, Blundell-Birtill P, Cockcroft JE, et al. Systematic review and meta-analysis of strategies to increase vegetable consumption in preschool children aged 2–5 years. *Appetite.* 2018;127:138–54.
- Wood AC, Blissett JM, Brunstrom JM, et al. Caregiver influences on eating behaviors in young children. A scientific statement from the American Heart Association. *J Am Heart Assoc.* 2020;9:e014520. <https://doi.org/10.1161/JAHA.119.014520>.
- Story M, Kaphingst KM, Robinson-O'Brien R, et al. Creating healthy food and eating environments: policy and environmental approaches. *Annu Rev Public Health.* 2008;29:253–72. <https://doi.org/10.1146/annurev.publhealth.29.020907.090926>.

Received: 22-05-2022 Accepted: 22-05-2022