

# Enhancing Child Development in Oman

## Applying global agenda into local context

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**T**HE EARLY YEARS OF LIFE ARE CONSIDERED the most critical time for neural and brain development, establishing the groundwork for long-term mental, social and educational achievements.<sup>1</sup> During this time, the child's growth, sense of security and sense of well-being are substantially influenced by good nutrition and the thoughtful care of the family and other early caregivers. Additionally, studies have shown that engaging, child-focused learning and promoting early childhood development (ECD) programmes showed their effectiveness in both formal and informal settings.<sup>2–7</sup> The economic impact of investing in ECD care programmes was estimated to be approximately 13% per annum return on investment for every dollar spent.<sup>8</sup>

### Evidence Basis of Early Developmental Care

The ability of the nervous system to adapt to experiences is one of the fundamental features of the human brain. Epigenetic, immunological, physiological and psychological adaptations to the environment start before conception, according to studies on early human development, and impact brain development throughout a child's life.<sup>9</sup> This is considered a direct function of the high degree of brain plasticity in early childhood.<sup>10</sup> This insight necessitates a strategy that targets caregivers and children with efficient treatments at critical points throughout the child's life; the 3–5-year window after conception is of particular significance. According to research on long-term effects from low- and middle-income countries, a programme in Jamaica designed to improve the cognitive development of stunted children 25 years ago led to a considerable rise in average adult wages.<sup>11</sup> On the other hand, growth failure in the first two years of life has negative repercussions on adult health and human capital, including chronic illness, reduced educational attainment and adult earnings.<sup>5,6</sup> Additionally, inadequacy and disadvantages continue into the next generation, creating a vicious

intergenerational cycle that results in the loss of human capital and the continuation of poverty. These results highlight the ECD programmes' revolutionary potential.<sup>12</sup>

### The Global Gap in Reaching Developmental Potential

In a global context, it was estimated that 43% of children under five years of age are not reaching their developmental potential; this gap was attributed to two main reasons: (1) the failure to apply evidence-based knowledge on ECD to shape young children's development and (2) the inability to integrate programmes utilising a multisectoral approach and scaling-up programmes during crucial stages in the early life course.<sup>10</sup> The impact of early caregiving on children's learning outcomes, cognitive functions and social behaviours is undeniable in the modern scientific era. The lack of knowledge dissemination regarding the relationship between early caregiving experience and its underpinning neurobiological process hampers the expansion of ECD programmes. Although these concepts originated in behavioural neuroscience, they have since found numerous applications and, as a result, have lost their connection to neurobiology. This is regrettable, but in many aspects, it illustrates how little is known about the brain's mechanisms that develop, maintain and limit sensitive periods in human development.<sup>13</sup>

### International Experiences of Early Childhood Development Programmes

The Jamaica Early Childhood Stimulation intervention project, which studied the effects of an early childhood home-visiting programme on education and labour market results at age 31, is one of the most renowned studies in early child development.<sup>11</sup> The Jamaica programme was a two-year home-based intervention meant to increase the quality of mother-child

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interactions in order to promote cognitive, linguistic and psychosocial abilities. The programme targeted children living in Kingston's underprivileged districts who were stunted and disadvantaged; a randomised trial, including stunted children between 9–24 months, assessed the therapy. The researchers discovered substantial and statistically significant effects on income and education. In a long term follow-up, the treatment group earned 43% more in wages and 37% more in earnings than the control group.<sup>14</sup>

Basic impact assessments comparing ECD to no ECD programmes have consistently demonstrated promising outcomes. Children who participate in ECD programmes have better developmental results than those who do not, according to rigorous studies conducted in high-income countries such as the US and the United Kingdom and in low- and middle-income countries such as Argentina, Bangladesh, Indonesia, Vietnam and Mozambique.<sup>6,15</sup> Positive effects of preschool exposure on cognitive skills, including language, numeracy and psychomotor development, are the most constant finding.<sup>15</sup>

In order to help children around the globe benefit from those scientific results and reach their full potential, the Lancet published a series titled “Advancing Early Childhood Development: from Science to Scale” that quantified the cost and demonstrated that children who are not adequately nurtured during their early years might lose a quarter of their adult earning potential. The series presents a road map for effective interventions in early life, as well as evidence that such programmes directly contribute to alleviating extreme poverty, improving shared prosperity, supporting healthy lives and learning, decreasing inequities and sustaining peaceful communities.<sup>16–19</sup>

## Early Childhood Development in International Agenda

ECD was included in United Nations Sustainable Development Goals (SDGs). In addition, the Global Strategy for Women's, Children's and Adolescents' Health (2016–2030) was issued by the World Health Organization (WHO) with a vision that women, children and adolescents in every setting achieve health and well-being and have social and economic opportunities and are able to participate fully in shaping prosperous societies. It aspires to keep women, children and adolescents at the centre of the SDG agenda. The vision of the Global Strategy is driven by the tremendous financial return on investment and the human rights of physical and mental health. A 60-indicator monitoring framework is included in

the Global Strategy. The progress of ECD is measured by indicator 4.2.1: “the proportion of children under 5 years of age who are developmentally on track in health, learning, and psychosocial well-being, by sex.”<sup>20</sup> Subsequently, the WHO, United Nations Children's Fund (UNICEF), the World Bank Group and other partners introduced the Nurturing Care Framework (NCF) in 2018. The NCF provided a plan of action consisting of five tactical components to enable a whole-of-society and whole-of-government approach to ensuring that every child receives loving care. The NCF is a series of practices that promote children's health, nutrition, security and safety, responsive caring and early learning opportunities. Nurturing children involves ensuring they are secure, healthy, well-nourished, paying attention to and reacting to their needs and interests, and encouraging them to explore their surroundings and engage with their caregivers and others.

Nurturing care is not just essential for the development of young children. In addition, it protects them from the most detrimental impacts of adversity by reducing their stress levels and fostering emotional and cognitive coping strategies. Nurturing care is particularly crucial for children with developmental challenges and impairments, as well as for preventing child abuse.<sup>21,22</sup> The NCF recommends multisectoral implementation policies and programmes that capitalise on the interdependencies across its components that extend from preconception through adolescence.<sup>22</sup> An integral component of the NCF is responsive care which encompasses Care for Child Development (CCD) programmes; these offer advice to assist caregivers in fostering closer bonds with young children and overcoming obstacles to delivering nurturing care.<sup>23</sup>

Given the high social and economic return on investing in developmental care programmes, the Development Working Group of the G-20 countries launched an initiative for ECD during their meeting in Argentina in September 2018. The initiative supported the notion that early infancy is crucial for laying the groundwork for future health and well-being, which is advantageous for global society. The initiative calls for a closer examination of governmental investments in child development and increases in the resources that provide advantages to families in vulnerable situations. The Working Group expressed concern that investment in ECD remains insufficient despite considerably high-returns outcomes. A budget-based method was suggested to ascertain a minimum investment benchmark supporting this call. The cost of delivering the package in various situations is stated as a percentage of gross domestic product

(GDP). For upper-middle-income countries, the price of a minimal package to improve human capital has been estimated to be 0.8% of the GDP. This package requires a minimum average annual expenditure per child younger than six years of \$390 in upper-middle-income countries.<sup>24</sup>

## The Situation in Oman

Oman has made significant social and economic progress over the last few years. As a cascading effect, Oman's ranking in the human development category is improving tremendously on the Global Human Development Index. That improvement is coupled with political relationships and ties with different nations, culminating in Oman's invitation to attend G-20 in New Delhi in 2023 as a guest country.<sup>25</sup> The World Bank's report on Oman projected improvement in financial status driven by oil and gas production, robust energy prices and wide-ranging structural reforms; the country was classified as high-income, with its GDP growth forecasted to reach 3.2% in 2023–24.<sup>26</sup> There is however still room for improvement, especially in integrating CCD and scaling it up into existing multisectoral programmes. According to the Oman Multiple Indicator Cluster Survey (MICS), only 29.2% of children between the ages of 3–4 years have access to early childhood education. Despite this, housing characteristics and personal assets revealed that the vast majority of the population lives in furnished houses with electricity and telecommunication facilities. Three or more children's books are in the homes of 24.3% of children under five years old. Although 74.7% of children under five years own at least two toys, 44.7% were left with inadequate care during the week before the survey interview. Interestingly, 68.3% of children between the ages of 3–6 years were found to be developing on-track.<sup>27</sup> Therefore, it could be argued that the situation of awareness about responsive caregiving in the country needs to be optimised. The CCD programme is well-positioned to fill that gap in responsive care, given its authentication from the WHO and global partners and the availability of scientific evidence, efficacy and cost-effectiveness of its applicability.

To scale-up the CCD package and ensure its sustainability, the programme needs to be integrated, institutionalised and supported by governmental policies. The health system can provide an excellent opportunity to integrate CCD into its services, as it spans from conception through pregnancy, childbirth and early childhood.<sup>28</sup>

The health system in Oman is a governmental-based service in which healthcare is provided for all nationals and governmental employees with almost negligible out-of-pockets charges. Private enterprises are required to provide health insurance for their employees. The government's primary source of money is the oil market; hence health expenditures are financed by oil-related earnings. As a fast-expanding area, the Omani health system is racing to incorporate new services to meet performance criteria. As a result of the country's rising urbanisation and industrialisation, the healthcare burden is moving from communicable to non-communicable diseases. Lifestyle-related illnesses dominate the cost of healthcare; recent research anticipated that the percentage of Oman's mortality attributable to non-communicable diseases would surpass 70% per cent.<sup>29,30</sup>

Sultan Qaboos University (SQU) is a national leader in patient care, research and training related to developmental care and disorders and is well-equipped to train future medical leaders in this field. The SQU Hospital appeared as a potential entry point for the health system to scale-up the CCD in Oman with the collaboration of the WHO-Oman team. Hence, SQU signed a memorandum of understanding with the WHO-Oman office on the 7<sup>th</sup> of July, 2022. The agreement aims to enhance ECD through capacity building, research and training utilising evidence-based integrative care regarding developmental care and neurodevelopmental disabilities. The collaboration between both entities was supported by the WHO Regional Office for the Eastern Mediterranean, culminating in the inauguration of the CCD programme in Oman by conducting the first national training of healthcare workers from different regions of the country. The trainees were involved in a 5-day programme that utilised theoretical and practical training curricula to offer caregivers of young children age-appropriate direction for fostering cognitive, physical, communicative and social-emotional development via play and interaction. The training involved 22 candidates from different regions of Oman who were carefully chosen to carry out training of trainers and subsequent adaptation into Omani culture. The trainees were first-line healthcare professionals, health administrators, speech & language therapists, social workers and teachers representing multiple sectors in preparation to upscale the programme in different sectors through an integrated model. The project is considered a milestone in Oman's developmental care to promote young children's psychosocial development.

## Future Directions in the Local Context

The WHO/UNICEF programme on Care for Child Development has a unique monitoring and evaluation system. The approach presupposes that, prior to the execution of the intervention, a situational analysis will be conducted to recognise the need to enhance child development and family care practices. For instance, a situation analysis will identify children with low performance on developmental assessments, stunted growth or inadequate school readiness. MICS conducted in Oman can best represent the proposed situation analysis and monitoring framework because it includes proxy indicators of family practices and other conditions in the home that support learning and development, in addition to other indicators of child health, nutrition, protection and education.<sup>27</sup> In addition, caregivers who are the focus of the Care for Child Development intervention can be surveyed using the MICS items that are most closely associated with the intervention. In general, the key performance indicators serve two functions: monitoring implementation and evaluating their impact.<sup>31</sup>

A future plan for the current programme was set to scale-up the CCD programme at the national level in Oman, researching its feasibility and applicability and training more trainers. It is crucial to cross-culturally adapt CCD to be used on a large scale in Oman, given the characteristics of the CCD programme and the dearth of validated, culturally appropriate, accessible and practicable programmes for promoting child development in the Middle Eastern population in general and Oman in particular. This editorial aimed to document this vital step as a point of differentiation to monitor progress in United Nations SDGs pre- and post-era. Monitoring SDG indicators regarding developmental care will be followed to evaluate the programme's progress in Oman and provide lessons for neighbouring countries.

### AUTHORS' CONTRIBUTION

Editorial conception and design were done by WM and AI. The initial drafting of the manuscript was completed by AI, KS, KA, FF and NR. The manuscript was revised by all authors. All authors reviewed and approved the final version of the manuscript.

## References

1. Shonkoff JP, Garner AS; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics* 2012; 129:e232-46. <https://doi.org/10.1542/peds.2011-2663>.

2. Rao N, Sun J, Chen EE, Ip P. Effectiveness of early childhood interventions in promoting cognitive development in developing countries: A systematic review and meta-analysis. *HK J Paediatr* 2017; 22:14-25.
3. Blewitt C, O'Connor A, Morris H, May T, Mousa A, Bergmeier H, et al. A systematic review of targeted social and emotional learning interventions in early childhood education and care settings. *Early Child Dev* 2019; 191:2159-87. <https://doi.org/10.1080/03004430.2019.1702037>.
4. Emmers D, Jiang Q, Xue H, Zhang Y, Zhang Y, Zhao Y, et al. Early childhood development and parental training interventions in rural China: A systematic review and meta-analysis. *BMJ Glob Health* 2021; 6:e005578. <https://doi.org/10.1136/bmjgh-2021-005578>.
5. Blewitt C, O'Connor A, Morris H, Mousa A, Bergmeier H, Nolan A, et al. Do curriculum-based social and emotional learning programs in early childhood education and care strengthen teacher outcomes? A systematic literature review. *Int J Environ Res Public Health* 2020; 17:1049. <https://doi.org/10.3390/ijerph17031049>.
6. Anderson LM, Shinn C, Fullilove MT, Scrimshaw SC, Fielding JE, Normand J, et al. The effectiveness of early childhood development programs: A systematic review. *Am J Prev Med* 2003; 24:32-46. [https://doi.org/10.1016/s0749-3797\(02\)00655-4](https://doi.org/10.1016/s0749-3797(02)00655-4).
7. Holmes M. *Do Parents Matter? Curriculum Inquiry*. Malden, Massachusetts, USA: Blackwell Publishers, 1998. pp. 113-22.
8. Heckman J. *There's more to gain by taking a comprehensive approach to early childhood development*. The Heckman Equation. 2017.
9. Kolb B, Gibb R. Searching for the principles of brain plasticity and behavior. *Cortex* 2014; 58:251-60. <https://doi.org/10.1016/j.cortex.2013.11.012>.
10. Britto PR, Lye SJ, Proulx K, Yousafzai AK, Matthews SG, Vaivada T, et al. Nurturing care: Promoting early childhood development. *Lancet* 2017; 389:91-102. [https://doi.org/10.1016/S0140-6736\(16\)31390-3](https://doi.org/10.1016/S0140-6736(16)31390-3).
11. Gertler P, Heckman J, Pinto R, Zanolini A, Vermeersch C, Walker S, et al. Labor Market returns to early childhood stimulation: A 20-year Followup to an experimental intervention in Jamaica. From: <https://www.nber.org/papers/w19185> Accessed: Jan 2023.
12. Walker SP, Chang SM, Wright A, Osmond C, Grantham-McGregor SM. Early childhood stunting is associated with lower developmental levels in the subsequent generation of children. *J Nutr* 2015; 145:823-8. <https://doi.org/10.3945/jn.114.200261>.
13. Hertzman C, Wiens M. Child development and long-term outcomes: A population health perspective and summary of successful interventions. *Soc Sci Med* 1996; 43:1083-95. [https://doi.org/10.1016/0277-9536\(96\)00028-7](https://doi.org/10.1016/0277-9536(96)00028-7).
14. Gertler PJ, Heckman JJ, Pinto R, Chang SM, Grantham-McGregor S, Vermeersch C, et al. Effect of the Jamaica Early Childhood Stimulation Intervention on Labor Market Outcomes at Age 31. *Nat Bureau Econ Res* 2021. <https://doi.org/10.3386/w29292>.
15. Yoshikawa H, Kabay S. Education for All 2000-2015: achievements and challenges. From: <https://unesdoc.unesco.org/ark:/48223/pf0000232456> Accessed: Jan 23.
16. Richter LM, Darmstadt GL, Daelmans B, Britto PR, Black MM, Lombardi J, et al. Advancing Early Childhood Development: from Science to Scale. An Executive Summary for the Lancet's Series. From: <https://www.thelancet.com/series/ECD2016> Accessed: Jan 23.
17. Richter LM, Daelmans B, Lombardi J, Heymann J, Lopez Boo F, Behrman JR, et al. Series Advancing Early Childhood Development: from Science to Scale 3 Investing in the foundation of sustainable development: pathways to scale up for early childhood development. *The Lancet* 2017; 389.

18. Britto PR, Lye SJ, Proulx K, Yousafzai AK, Matthews SG, Vaivada T, et al. Nurturing care: Promoting early childhood development. *Lancet* 2017; 389:91–102. [https://doi.org/10.1016/S0140-6736\(16\)31390-3](https://doi.org/10.1016/S0140-6736(16)31390-3).
19. Black MM, Walker SP, Fernald LCH, Andersen CT, DiGirolamo AM, Lu C, et al. Early childhood development coming of age: Science through the life course. *Lancet* 2017; 389:77–90. [https://doi.org/10.1016/S0140-6736\(16\)31389-7](https://doi.org/10.1016/S0140-6736(16)31389-7).
20. World Health Organization. The Global Strategy for Women's, Children's and Adolescents' Health (2016-2030). From: <https://www.who.int/data/maternal-newborn-child-adolescent-ageing/global-strategy-data> Accessed: Jan 23.
21. WHO, UNICEF, The World Bank. Nurturing care for early childhood development: A framework for helping children survive and thrive to transform health and human potential. From: <https://apps.who.int/iris/bitstream/handle/10665/272603/9789241514064-eng.pdf> Accessed: Jan 23.
22. Black MM, Behrman JR, Daelmans B, Prado EL, Richter L, Tomlinson M, et al. The principles of Nurturing Care promote human capital and mitigate adversities from preconception through adolescence. *BMJ Global Health* 2021; 6:e004436. <https://doi.org/10.1136/bmjgh-2020-004436>.
23. Wertlieb D. Nurturing care framework for inclusive early childhood development: Opportunities and challenges. *Dev Med Child Neurol* 2019; 61:1275–80. <https://doi.org/10.1111/dmcn.14234>.
24. Richter LM, Desmond C, Behrman J, Britto P, Daelmans B, Devercelli AE, et al. G20's Initiative for Early Childhood Development. *Lancet* 2018; 392:2695–6. [https://doi.org/10.1016/S0140-6736\(18\)33058-7](https://doi.org/10.1016/S0140-6736(18)33058-7).
25. Oman Observer. Invitation to the Sultanate of Oman to participate in the G-20 Summit and meetings as a Guest country. From: <https://www.omanoobserver.com/article/1125266/oman-community/oman-invited-to-attend-g20-as-a-guest-country> Accessed: Jan 23.
26. The World Bank. Gulf Economic Update - Green Growth Opportunities in the GCC. From: <https://www.worldbank.org/en/country/gcc/publication/gulf-economic-update-october-2022> Accessed: Jan 23.
27. National Center for Statistics and Information, UNICEF. Sultanate of Oman Multiple Indicator Cluster Survey 2014 Final Report. From: <https://www.unicef.org/oman/media/391/file/MICS%202014%20Report.pdf> Accessed: Jan 23.
28. Lake A, Chan M. Putting science into practice for early child development. *Lancet* 2015; 385:1816–17. [https://doi.org/10.1016/S0140-6736\(14\)61680-9](https://doi.org/10.1016/S0140-6736(14)61680-9).
29. Al-Mawali A. Non-Communicable Diseases: Shining a Light on Cardiovascular Disease, Oman's Biggest Killer. *Oman Med J* 2015; 30:227–8. <https://doi.org/10.5001/omj.2015.47>.
30. Al Mawali AHN, Al Qasbi AM, Al Sabahi SMS, Idikula J, Elaty MAA, Morsi M, et al. Oman Vision 2050 for Health Research: A Strategic Plan for the Future Based on the Past and Present Experience. *Oman Med J* 2017; 32:86–96. <https://doi.org/10.5001/omj.2017.18>.
31. UNICEF, World Health Organization, Pan American Health Organization. A Framework for Monitoring and Evaluating the WHO/UNICEF Intervention. From: <https://www.unicef.org/lac/media/8586/file/Framework%20for%20M&E%20Intervention.pdf> Accessed: Jan 23.