

Investment in early childhood development

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The building blocks of adult health and productivity begin before conception and take shape very early in life.¹ The notion of the first 1000 days (conception through to 24 months of age) has attracted attention as the blueprint for lifespan trajectories. When threats such as undernutrition and environmental stress occur, lifespan trajectories can be disrupted, resulting in poor school performance, reduced economic opportunities, and chronic health problems.² As these conditions extend into the reproductive years and adulthood, they affect subsequent generations, perpetuating a negative cycle of economic and health disparities. The first 1000 days provide sensitive opportunities for interventions that can prevent early threats and protect children from lifelong negative consequences.³⁻⁶

In *The Lancet*, Aisha Yousafzai and colleagues⁷ discuss the beneficial effects of early intervention on children's development in a low-income country characterised by high rates of childhood undernutrition. In Yousafzai and colleagues' factorial cluster randomised trial, Lady Health Workers (LHWs), who are part of Pakistan's National Programme for Family Planning and Primary Healthcare, were able to deliver a responsive caregiving intervention effectively, based on UNICEF and WHO's care of child development package and a multiple micronutrient powder, to families of children up to 24 months of age in rural Sindh, Pakistan. Children randomly allocated to receive the care of the child development package (responsive stimulation) had

better scores on child development assessments at 12 months of age (on the cognitive, language, motor, and social-emotional scales) and at 24 months of age (on the cognitive, language, and motor scales), and a lower frequency of diarrhoea and acute respiratory infections than did children randomised to a control situation. Through play and communication activities delivered by home visits and community groups, LHWs coached caregivers in sensitive and responsive interactions. It is likely that the beneficial effects of the responsive stimulation intervention on children's development and health were probably mediated through responsive caregiving behaviours.

Findings from the responsive stimulation intervention are consistent with those from a previous intervention study undertaken in pregnant women with depression in rural Pakistan.⁸ LHWs effectively implemented an intervention based on cognitive-behavioural therapy that led to reduced rates of maternal depression and increased maternal self-care and caregiving behaviours, along with benefits to infant health. Together, these findings show that psychosocial interventions introduced during pregnancy or early in life can be delivered by existing community health workers using curriculum-based psychosocial interventions aimed at promoting maternal wellbeing and positive caregiving behaviour; can produce beneficial effects on maternal and child health and development; and can be effectively incorporated into a national health programme. The incremental costs of the responsive stimulation intervention, integrated into the existing programme, have been estimated at US\$4 per month per child.⁹ When we also consider the lifespan costs of the loss of developmental potential, coupled with negative health consequences, the effect is striking.⁴ Moreover, once the intergenerational consequences are taken into account, the effect of early psychosocial intervention could be exponential.

The enhanced nutrition intervention (nutrition intervention plus multiple micronutrient powder) implemented in Yousafzai and colleagues' trial⁷ resulted in better scores on child development assessments at 12 and 24 months, small but significant benefits to height-for-age Z scores at 6 months and 18 months, and marginally fewer



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reports of acute respiratory infections than in those children who did not receive enhanced nutrition. These results lend support to previous findings linking improved nutritional status in undernourished children with improved developmental performance.² The absence of effects of the enhanced nutrition intervention on weight-for-age Z score and blood haemoglobin concentration (ie, anaemia status) might be related to the inconsistencies in delivery and caregiver acceptance of the micronutrient powder. Future interventions might benefit from formative research that informs effective delivery strategies and addresses existing caregiver beliefs and behaviours.

40 years ago when the Abecedarian programme was initiated in children from low-income families in North Carolina, USA, the intervention included a curriculum-based preschool programme up to 5 years of age, daily nutrition (two meals and a snack), and primary health care. Assessments during adulthood (in people 30–35 years of age) have shown significant educational benefits (4.6-times increased likelihood of college graduation), some economic benefits, and clear health benefits.^{3,6} Health disparities, manifested by excessive weight gain, began to emerge by 5 years of age—sometimes earlier—and persisted to affect adult weight status. The promotion of responsive caregiving and healthy nutrition beginning in the first 1000 days, by preventing infants from becoming either underweight or overweight, are essential elements in fostering adult health and wellbeing.¹⁰

Recent recommendations for the first 1000 days of life advocate the synergistic effects of integrated nutrition and responsive caregiving interventions.^{10,11} In Yousafzai and colleagues' study, the effect on children's development was greater in the children who received responsive stimulation without enhanced nutrition than in those who received both interventions combined. This finding could possibly be because the LHWs or the caregivers attempted to deliver too many messages. Diluted effects related to integrated interventions have been reported elsewhere,¹¹ which emphasises the need to develop approaches that enable health workers to weave together several messages and strategies.¹² Examples from responsive feeding show how nutrition and responsiveness messages can be integrated seamlessly.¹³

Finally, the effectiveness of interventions often varies by family or community characteristics, with the

strongest effects in the poorest or most disempowered groups.^{14,15} Through present and future trials, policy makers are likely to recognise that the beneficial effects of early childhood development are essential for good health and sustainable development, as heralded by Margaret Chan, Director-General of WHO.¹⁶

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