
5. Unwinding Potential: Prioritizing Child and Adolescent Health in the New Decade

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**The child's name is Today
The child cannot wait.
Right now is the time the child's
bones are being formed,
blood is being made,
senses are being developed.
To the child we cannot answer
'tomorrow'
The child's name is Today.**

**Gabriela Mistral
Nobel Prize Winning Poet from Chile**

Worldwide more than 1.2 billion are adolescents: this indicates that roughly one in every six persons is an adolescent. About 21% of Indian population is adolescents (about 243 million). 40% of India's population is below the age of 18 years which at 400 million is the world's largest child population.

5.1 About Child and Adolescent Health:

It seems incredible that 40% of children <5 y of age in low- and middle-income countries, where stunted growth remains high, will not achieve their developmental potential because of extreme poverty. Nurturing care from parents and other caregivers is critical, the components of which are good health, adequate nutrition, responsive care-giving, security and safety and opportunities for early learning.

More than 1.1 million adolescents 10–19 y of age died in 2016, mostly from preventable or treatable causes. In this period, road traffic injuries are the leading cause of death, followed by suicide, interpersonal

violence, human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) and diarrhoeal disease. Half of all mental health disorders start by the age of 14 y, but most cases remain undetected or untreated. The number of obese children and adolescents rose from 11 million in 1975 to 124 million in 2016, with a further 216 million children who are overweight. With the right investments to promote their optimal well-being, our young population has the potential to transform our country and drive social and economic development.

Emerging evidence from across a range of disciplines has led to a greater appreciation of the way in which early life experiences – even pre-conception – determine the developmental origins and trajectories of health or disease across the life course. It is therefore most effective – and cost effective – to intervene early to protect children from adversity and promote optimal health, growth and development. These early investments in child and adolescent health have the potential to reap a triple dividend – for children today, for the adults they will become tomorrow, and for the next generation of children.

James Heckman, who won the Nobel Prize for economics, showed that investing in early childhood development is smart: it increases health, productivity and social cohesion along the life course and has intergenerational benefits. For every \$1 spent on early childhood development interventions, the return on investment can be as high as \$13.

Investments in adolescent health and well-being can bring a triple dividend of benefits now, into future adult life and for the next generation of children. Adolescence offers a ‘sensitive period’ for health promotion to tackle the roots of poor nutrition, lack of exercise, alcohol and tobacco use, mental ill-health, sexual health and relationships, domestic and gang violence and citizenship.

5.2 Need of Writing the Chapter:

It takes 21 years (or 8,000 days) for a child to develop into an adult. Throughout this period, there are sensitive phases that shape development. Age-appropriate and condition-specific support is required throughout the 8,000 days if a child is to achieve full potential as an adult.

The evidence shows a particular need to invest in the crucial development period from conception to age two (the first 1,000 days) and also during critical phases over the next 7,000 days. Just as babies are not merely small people—they need special and different types of care from the rest of us so growing children and adolescents are not merely short adults; they, too, have critical phases of development that need specific interventions. Investment in health during the first 1,000 days is widely recognized as a high priority, but there is historical neglect of investments in the next 7,000 days of middle childhood and adolescence. This neglect is also reflected in investment in research into these older age-groups. Ensuring that life's journey begins right is essential, we need support to guide our development up to our 21st birthday if everyone is to have the opportunity to realize their potential.

For example, early exposure to violence in the home helps drive an intergenerational cycle of violence, as it increases the risk of children becoming victims or perpetrators, and later using harsh physical punishment to discipline their own children.

Conversely, exclusive breastfeeding for the first six months of life not only provides infants with optimal nutrition, it reduces mortality from diarrhoea and pneumonia, improves IQ and reduces the risk of obesity and non-communicable diseases in adulthood. Young adolescents aged 10–14 years have the lowest risk of death of all age groups. Injuries (including road traffic injuries and drowning), violence, self-harm and maternal conditions are the leading causes of death among adolescents and young adults.

Half of all mental health disorders in adulthood start by age 14, but most cases are undetected and untreated. Early onset of substance use is associated with higher risks of developing dependence and other problems during adult life, and people of younger ages are disproportionately affected by substance use compared with people of older ages.

5.3 Critical Phases of Life:

These phases are critical to health and development during the next 7,000 days, each requiring a condition-specific and age-specific response:

- Early Childhood phase (age 0-5), The first 1000 days of a child’s life are a time of exquisite sensitivity for brain growth, nutrition and cognitive maturation and for setting a trajectory for an individual’s life and development.
- Middle Childhood Growth and Consolidation Phase (ages 5–9), when infection and malnutrition remain key constraints on development, and mortality rates are higher than previously realized
- Adolescent Growth Spurt (ages 10–14), when there is a major increase in body mass, and significant physiological and behavioral changes associated with puberty
- Adolescent Growth and Consolidation Phase (ages 15 to early 20s), bring further brain restructuring, linked with exploration and experimentation, and initiation of behaviors that are life-long determinants of health.

5.3.1 Importance of Adolescence Phase:

These young people are not only the leaders of tomorrow—as trendsetters, early adopters of technology, and voices of modern social movements, they are already shaping our world. Following are important facts we need to keep in mind about adolescents:

a. Adolescence Is a Time of Remarkable Opportunity:

Although our brains continue to change throughout our lives, the adolescent years are a period of profound cognitive as well as biological, social, and emotional transformation. At the beginning of puberty, neurons (brain cells) are gaining and losing up to 25 percent of their connections each week. By the time we reach adulthood that number drops to 10 percent.

This rapidly changing adolescent brain is especially sensitive to the social environment during this period of development. This makes the adolescent years an especially rich time for experiential learning about social respect, decision making, and dealing with emotions. It’s also a key period for building resilience, even after earlier hardship. Heightened emotions during these years make adolescence a rich time for developing interests, passions, and meaningful goals.

Positive investment in the systems, policies, and programs that support adolescents can help create trajectories that will shape the rest of their lives and the multi-generational communities they share.

b. Adolescent Brains Are Adapting to The Developmental Tasks of This Stage of Life:

Adolescents are uniquely motivated to try new things and to focus on earning the respect of their peers, efforts that provide the learning they need to thrive as adults. Adolescent brains are neither immature nor incomplete.

Instead, they are structured for the intense learning they need to propel them out of childhood and into the world. The transition to adulthood requires a tremendous amount of new knowledge, skills, and social competence to successfully take on adult roles and relationships. A lot of this learning occurs through real-life experiences, including trial and error.

To learn so much, so rapidly, in so many ways, requires keen attention to the people and social systems around you, as well as willingness to explore, try new things, and learn from mistakes along the way. A toddler learning to walk may fall down about 100 times a day, but their repeated attempts and stumbles are neither irrational nor a sign of a cognitive deficit.

Instead, their efforts are a sign that early childhood is an incredible opportunity to learn and adapt, and to master the skills they'll need to become a more independent older child. Adolescence is a similar period of rapid learning and brain development, particularly around social learning and identity development. Adolescents' focus on their peers and their attraction to novel experiences help them tackle the developmental tasks necessary to thrive as adults.

c. Adolescents Are Drawn to Novel Experiences:

During adolescence, the brain becomes more responsive to dopamine, a neurotransmitter that creates good feelings, or feelings of "reward." Adolescents are more likely than children or adults to be drawn to novel

and intense experiences. Hormonal changes also increase the appeal of these new experiences, particularly those that promise to increase social status. This desire for new experiences pushes young people to try out and develop their skills with new roles, relationships, and responsibilities, preparing them for the challenges of adulthood. It enables adolescents to become more independent from their parents, enhancing learning and curiosity, and helping them to develop their identity and agency.

To harness this drive in positive directions, adolescents need safe and satisfying opportunities for positive exploration, such as trying out for a school play or playing on a sports team. Making meaningful contributions to their families, friends, and communities also feed this desire for novel experiences. The same brain regions that are activated by rebellious, “risk-taking” behavior are those regions activated by prosocial behavior, such as kindness and doing for others.

d. Adolescents Are Highly Sensitive to Respect:

Adolescents have an increased sensitivity to respect and to their standing in social hierarchies. This intense focus on belonging and earning respect is developmentally important, encouraging young adolescents to become more attuned to social and cultural norms, ensuring that they learn the skills they’ll need to adapt to the more complex social demands of adulthood.

Adolescents, more than younger children or adults, are highly sensitive to the presence of their peers and to threats to their social standing. Even as peers become increasingly important, adolescents still seek approval from parents, teachers, and other adults in their lives. Research has shown that even small notes of respect from adults can lead to more positive trajectories for adolescents.

e. Adolescence Starts Earlier Than We Think and Lasts Longer Than It Used to:

Although many people use the terms “adolescent” and “teenager” interchangeably, adolescence covers a larger age range. Adolescence has a biological start, beginning at the onset of pubertal development,

approximately ages 10 to 12. This early adolescent period may be a particularly important time to promote positive adolescent development. The end of adolescence is sociological, ending with the adoption of the roles and responsibilities of adulthood, such as committed relationships, career, and financial independence, usually in the mid- to late-20s in western societies. Today, adolescence spans roughly 15 years in the United States and most western countries.

f. Adolescents Are a Force for Good:

Adolescents have long been the trendsetters for society—adopting and adapting new fashion, language, and technologies that shape culture. They are primed to contribute to the world around them, as they develop the cognitive maturity to consider the perspectives and needs of others and the social skills to provide emotional and practical support in meaningful ways. Prosocial behavior appears to peak in mid to late-adolescence.

The ability to help their families, friends, and communities, combined with their drive toward new roles and activities, position adolescents to be forces for positive change in the world. Adolescents have been actively influencing lives and communities as key actors in nearly every major social movement in modern history. Adolescents have been at the forefront of societal change. Today, adolescents are leading efforts to end gun violence, stop violence against women, support DREAMers and other immigrants, and address the climate crisis.

5.4 New Decade: Decade of Technology:

Modern technology has paved the way for multi-functional devices like the smartwatch and the smartphone. Computers are increasingly faster, more portable, and higher-powered than ever before. With all of these revolutions, technology has also made our lives easier, faster, better, and more fun.

Children born after 2008, so-called ‘digitods’, have patterns of digital engagement that differ significantly from those of children born a decade earlier.

The new cohort of ‘digitods’ have parents who tend to be experienced digital users themselves and who often adopt ‘new’ digital parental mediation strategies to promote children’s safe media use and digital literacy. Yet, younger children are increasingly exposed to a multitude of digital technologies at a very early age, which may lead to potential well-being problems associated with excessive screen-time or non-developmentally appropriate media use.

Compared with adults, adolescents are more open-minded, more social-oriented, less agreeable, and less conscientious; more impulsive and less capable of inhibiting behavior; more risk-taking and sensation seeking; and derive larger parts of their well-being and life satisfaction from other peers. During adolescence, general levels of life satisfaction and self-esteem drop and are often at their all-time lowest. At the same time, media use increases and reach a first peak in late adolescence.

In light of the generally decreased life satisfaction and the generally increased suggestibility, if digital technology is indeed harmful, it will affect people from all ages, but adolescents are potentially more vulnerable.

For high school students, in the face of great academic pressure and changes in adolescence, they would have higher feeling seeking, which would positively predict aggressive behavior through online game addiction.

Teens who considered the effects to be positive stated that social media help (i) connect with friend; (ii) obtain information; and (c) find like-minded people. Those who considered the effects to be negative explained that social media increase the risks of (i) bullying; (ii) neglecting face-to-face contacts; (iii) obtaining unrealistic impressions of other people’s lives. The use of Internet technology leads to an increased sense of connectedness to friend[s] and school, while at the same time increasing levels of anxiety and loneliness among adolescents.

The studies indicated that children’s increased usage of digital technologies is associated with increased depressive symptoms, increased difficulties in psychosocial adjustment, reduced self-esteem/self-concept, and increased social isolation through displacement

of inperson socializing activities. Such studies reporting negative associations have tended to capture large amounts of public and political attention on children's media use. However, other studies find a positive relationship between child well-being and time spent on digital technologies. These studies tend to indicate that children's use of digital technologies foster increased social support, widened social networks, reduced social anxiety, and reduced social isolation. And still, many studies have found no significant association at all.

Whether and how much children benefit from digital experiences has much to do with their starting points in life. While those with strong social and familial relationships are likely to use the internet to bolster these relationships – leading to improved well-being – children experiencing loneliness, stress, depression or problems at home, for example, may find that the internet compounds some of these existing difficulties.

Conversely, children who struggle with their social lives offline can sometimes develop friendships and receive social support online that they are not receiving elsewhere.

To improve children's well-being, it is important to take a holistic approach and focus on other factors known to have a stronger impact than screen time, such as family functioning, social dynamics at school and socio-economic conditions, while also encouraging the moderate use of digital technology.

The State of the World's Children 2017 calls for the following actions to improve digital literacy and make better use of ICTs in education...

- Teach digital literacy in schools.
- Provide children with access to proven online education opportunities
- Develop opportunities to learn ICT skills in non-formal education
- Support the development of teachers own digital skills and literacies.
- Be good digital role models for children.
- Strengthen the teaching of online tolerance and empathy.
- Learn how to protect privacy and
- Personal data online

5.5 Impact of Digitalization on Physical Health and Nutritional Status:

Researches shows that children, preteens, and teenagers are using massive amounts of media and those with more screen time have been shown to have increased obesity, reduced physical activity, and decreased health.

5.6 Environmental Factors:

The WHO estimates that more than a third of child deaths arise from environmental causes. In the home, harmful exposures include air pollution, tainted water and inadequate sanitation, overcrowding, cold and heat, damp and mould, domestic accidents, environmental toxins and hazardous locations close to water bodies, dumping grounds, railway tracks or roads. Exposures related to the built environment outside the home include air pollution, vehicular and pedestrian accidents, crime and violence and urban heat islands. Worse, 40% of the world's children currently live in slums, with all their attendant risks.

Trends in climate change impacts, exposures and vulnerabilities show an unacceptably high level of risk for children across the world. A lack of progress in reducing emissions and building adaptive capacity could disrupt core public health infrastructure and overwhelm health services. Despite these delays, a low-carbon transition has begun, and the nature and scale of the response to climate change will be the determining factor in shaping the health of children for centuries to come.

5.7 Malnutrition:

The Sustainable Development Goals for nutrition include no adolescent-specific targets. WHO's global action plan for the prevention and control of non-communicable diseases similarly had no clearly specified targets for overweight and obesity in older children or adolescents. Donor investments in adolescent nutrition remain woefully inadequate. Adolescent underweight and micronutrient deficiencies persist in many places as the world faces increases in adolescent overweight and obesity.

Health and Well-Being of Children and Adolescent

In September 2015, United Nations' 193 member states signed up to the Sustainable Development Goals (SDGs) of the global development agenda 2030. Given the explosion in the prevalence of obesity throughout the world, SDG 3.4 aims to reduce premature mortality from non-communicable diseases (NCDs) with a focus on obesity-related pathologies such as diabetes mellitus type 2 and cardiovascular disease.

Healthy eating during adolescence is important as body changes during this time affect an individual's nutritional and dietary needs. Teens are becoming more independent and making many food decisions on their own. Many teens have a growth spurt and an increase in appetite and need healthy foods to meet their needs.

Some countries have high levels of child undernutrition while others grapple with the challenges of overweight and obesity among children and young people. These trends indicate that the child survival agenda and attention to equity, both within and across countries, cannot be forgotten if the world is to achieve the SDGs. Demographic projections suggest that children will increasingly be living in urban centres and in the context of humanitarian crises, with serious implications for health programming efforts to ensure that vulnerable children and adolescents do not slip through the cracks. This is especially so during sensitive periods such as the first 1,000 days of life (from conception until a child's second birthday) and adolescence, when the developing body and brain are particularly sensitive to environmental stressors.