**Title:** Why the health of women and children is central to post *COVID-19* recovery

**Standfirst:** *Neena Modi and Mark Hanson explain why COVID-19 provides the opportunity for a science-informed and rights-based approach to improving population health - on which sustained post-pandemic economic recovery ultimately depends - mediated by improving the lives of women and children.*

**Box 1**

* A healthy population is critical to long-term resilience, economic prosperity and sustained recovery post-COVID
* There is clear scientific evidence for the centrality of the health of women and children to life-long and trans-generational population wellbeing and prosperity
* Economic frameworks that acknowledge the importance of including unpaid work, conducted largely by women, in productivity metrics could drive a focus on maternal and child wellbeing
* A rights-based approach to a healthy population provides strong justification for addressing long-standing age and gender-based inequalities that COVID-19 has magnified
* The need to identify investment priorities for post-COVID recovery provides the opportunity to implement bold, new policies to improve the lives of women and children for national benefit

**Fault lines exposed**

The COVID-19 pandemic has exposed pre-existing economic, health and societal weaknesses, and widened inequalities. Women and children have lower mortality and morbidity from COVID-19 but experienced greater indirect adverse impact, largely because the pandemic has amplified long-standing gender and age inequities. Women have taken on disproportionately more childcare during the pandemic and suffered greater loss of employment and increased domestic violence. The pandemic has disrupted children’s education, safety and food security, and in some countries has led to an increase in under-age marriage. These effects will be long lasting, because the health of women and children is central to population health and resilience across generations.

As societies, governments and institutions move from emergency measures to combat COVID-19 towards recovery plans, we ask if they are learning from scientific knowledge and the wider pandemic experience to springboard a new conceptual framework for a sustainable future. We suggest there has been inadequate consideration of the drivers of healthy populations on which their sustained economic recovery ultimately depends. We point out that the economic models and societal attitudes of the past have persistently marginalized the health and wellbeing of women, infants and children. However, the pandemic has also forced new behaviours and ways of working, and a questioning of societal norms. The collapse of industries that previously seemed invincible, offers unique opportunity for radical change. Here, we provide an analysis of the biomedical, economic and rights-based rationale for multi-faceted actions to improve the health and wellbeing of women, infants and children as a cardinal component of new investment needed for post-pandemic recovery.

**Follow the science**

Prior to the onset of COVID-19, governments and societies around the world were waking up to the financial and humanitarian costs of worsening population health from non-communicable diseases (NCD), climate change, environmental degradation and armed conflict. Future generations will come to view this syndemic as a fundamental consequence of the Anthropocene [1]. These problems underscore the long-term damage caused by the extractive economic models, and associated market-driven policies of the 19th and 20th centuries.

Research over recent decades shows clearly that parental health, and the early life environment, particularly during the period from conception to age two years, play an important part in establishing risks for later NCD. Maternal and, as increasingly recognised, paternal nutritional, behavioural and social conditions and environmental exposures, alter the phenotype of the developing fetus and child. The mechanisms have their origins to promote survival in our evolutionary past, but are counterproductive in the face of the challenges of our contemporary world such as sedentary lifestyles and fast foods [2]. The effects are substantial: almost half of all babies are born preterm, growth restricted or to a mother who is underweight, overweight or diabetic; preterm birth rates range from 5-15% globally; approximately one in ten babies is growth-restricted; and in the UK half of all pregnant women today are overweight or obese [3]. These children are at substantially higher risk of developing NCD in adult life than those born full-term to a healthy mother [4].

Progress in reducing the global burden of NCD is not encouraging [5]. This is not surprising given that current national and global policies, including advocacy on behalf of the world’s poorest populations, focus on treatments rather than root causes [6]. The Global Action Plans for NCD sponsored by the World Health Organisation and the World Bank focused initially on four major categories (cardiovascular disease, diabetes, chronic respiratory disease, and cancers) and four groups of associated risk factors (unhealthy diets, physical inactivity, tobacco use, and harmful use of alcohol) [7]. In 2018, the United Nations added mental health to the conditions and air pollution to the risks [8]. Extraordinarily, apart from a clause (#26) in the 2011 Political Declaration, there has been little attention to the developmental origins of NCD and the crucial role of maternal and child health. There is a lack of appreciation of this causal chain to intergenerational physical and mental NCD, progressively reduced adult productivity, rising health costs and adverse economic impact.

These fundamental biological mechanisms during early development shape us all, initiating individual trajectories of health and resilience [9]. The processes operate in every fetus and infant, and not just in those exposed to extreme conditions such as maternal starvation or obesity. The substantial lacuna in understanding these relationships is harming peoples and nations by holding back the development of policies that target improvements in the health of infants, children, and young people contemplating parenthood, which lies at the heart of NCD reduction. Investment today will result in gains amplified over successive generations, another crucial consideration in post-COVID recovery prioritisation decisions.

**It's the economy….**

The current priority of most governments is to restore prosperity after the economic recession caused by COVID-19. Yet as we have described, the fundamental ways in which the health of women and children underpins economies is under-recognised. We recently drew attention to the evidence from previous economic shocks in the 20th century and the more recent global financial crisis of 2008, that detrimental effects on maternal and child health have both short- and longer-term consequences for population health [10].

During the pandemic home working became the norm for much of the white-collar salaried workforce. They joined the great swathe of the populace who also work in the home, and thus support economies, but who are unremunerated. It exposed the paradox that the person sitting in their bedroom participating in a video conference is paid, but not the woman breast-feeding her baby or the father caring for a young child. The output of the first activity contributes to Gross Domestic Product (GDP) but not that of the latter, even though they are powerful determinants of long-term health and wellbeing [11]. We are not necessarily arguing for monetary recompense to those who perform important but hitherto unremunerated work. We are pointing out that assigning such work a monetary value would enable inclusion of these contributions in productivity metrics. This would make them visible and their worth to economies measurable. Ideas such as these are surfacing; for example, the Bureau of Economic Analysis has indicated they will publish additional measures of prosperity in recognition of the limitations of GDP [12]. An analysis by the Organisation for Economic Co-operation and Development suggests that the inclusion of unpaid household work alone would increase GDP from between 15% to 70% depending on the country and method of calculation [13]. Even before the pandemic, data assembled in the latest Global Burden of Disease study [14] emphasised the use of the Socio-Demographic Index rather than GDP to measure economic progress. The Socio-Demographic Index relates to healthy life expectancy and takes account of the positive effect of number of years of schooling and the negative effect of greater female fertility.

Adopting an economic model that incorporates contributions to maternal and child health could kick-start sustainable COVID-19 recovery [15]. The basis for such a new model already exists, for example in SDG 5 target 4, which calls on governments to “*recognise and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies*….” However, as has been pointed out [16] the added clause “*as nationally appropriate*” allows policy-makers to avoid such commitment, especially during times of financial constraint. We add that the phrase “*recognise and value*” is insufficient: it is necessary also to measure and compute the monetary value of these contributions. The upshot is that a policy vacuum has developed. Recovery from the pandemic offers the opportunity to avoid returning to the failed *status ante* by developing a new agenda that adequately recognises contributions to a healthy population and thus economic prosperity.

**The rights-based case**

Gender equity is part of the wider social justice issues raised by the pandemic, as we highlight in our opening paragraphs. Sars-Cov-2 infection has been higher in women but preventive directives have considered them a lower priority because of their lower hospitalisation and mortality rates, compounding pre-existing injustices. The pandemic has also affected the world’s children disproportionately, amplifying pre-pandemic concerns about threats to their future from factors including climate change and environmental degradation, armed conflict and migration, malnutrition and inadequate educational opportunities [17]. This led UNICEF to publish a six-point plan setting out government actions to avert a lost COVID generation through addressing these issues [18].

The broader impacts of widening gender-based inequities appear insufficiently recognised. Thus, the Lancet COVID-19 Commission Statement for the 75th session of the UN General Assembly [19] flags the gender dimension in terms of the need to protect vulnerable women rather than placing maternal and child health at the centre of policy. A particularly salutary refection is that despite longstanding recognition of the importance of including these groups in research [20] COVID-19 vaccine trials have to-date excluded women who are pregnant, or may become pregnant, and the inclusion of children remains very limited [21]. This means that the efficacy and safety of these new, rapidly developed, products are uncertain for a large proportion of the population. As women form the majority of the healthcare workforce, the failure to protect them may have multiple adverse downstream consequences.

Many commentators have likened the challenge of recovery after COVID-19 to the aftermath of the Second World War. The war led to the formation of the World Health Organisation and the International Covenant on Economic, Social and Cultural Rights that established the right to health as a universal principle. This right was also recognized in articles 11.1 (f) and 12 of the Convention on the Elimination of All Forms of Discrimination against Women (1979) and article 24 of the Convention on the Rights of the Child (1989). However, the ambition of “*the right of everyone to the enjoyment of the highest attainable standard of physical and mental health*” in the Covenant made unattainable demands on health providers. Allowing countries to adjust their commitment in relation to available resources was implicit in the later United Nations Economic, Social and Cultural Rights (UNESCR) Committee General Comment #14 (2000) [22], which stressed, “*The right to health is not to be understood as a right to be healthy*” (UNESCR emphasis). We emphasise that the pathway to being healthy starts in the early life of every individual and forms part of the transmission of opportunity, or disadvantage, across generations, particularly important in the post-COVID-19 era. The focus on health has allowed policy-makers to avoid investment in the wellbeing of women and children, and instead to prioritise the delivery of healthcare, a notion encapsulated in the call for “universal healthcare”. This leads to a damaging conceptualisation of health as primarily the product of healthcare, whereas being healthy involves many underlying factors of which healthcare is arguably the least important.

**A bold new vision**

We would like readers from diverse backgrounds to be aware of the life-long and intergenerational impacts of maternal and child health. The voices of the medical and scientific communities are crucial to making the case for replacing the destructive, gender-inequitable economic policies and societal frameworks, which have long undermined population health and will reduce resilience to future challenges.

Our analysis demonstrates that putting women and children first meets three important policy prerequisites. First, there is strong and undisputed scientific evidence showing the causal relationship of maternal and child health to population health. Second, the importance of population health to the economy is clear. Third, there are strong rights-based justifications to end gender and age-based inequities. The collapse of long-established businesses and industries caused by COVID offers opportunity to implement bold new policies and create investment opportunities predicated on an economic model fit for the 21st century.

Achieving the vision where governments see a healthy population as a moral responsibility and the cornerstone of economic prosperity requires thinking outside the box. The world requires an economic framework that assigns a value to actions such as breast-feeding and child rearing that initiate healthy life-course trajectories, and methods to assess progress. We therefore call on interested organisations and individuals to join us to build a movement to grow recognition of the centrality of maternal and child health to a sustainable future.

**Key messages box**

* There is strong scientific evidence for a causal effect of maternal and child health on population health, which is central to sustained economic recovery post-COVID
* There are strong rights-based justifications to end gender and age-based inequities
* The collapse of long-established businesses and industries caused by COVID offers opportunity to implement new policies predicated on an economic model which assigns measurable value to actions and policies that improve the health and wellbeing of women and children

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**Contributors and sources**

Both authors contributed equally to this paper, which arose out of discussions over several months. Both authors have been involved in research and policy initiatives relevant to mother and child health. NM is the guarantor of the paper.

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