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Verma Tripti

Department of Food Nutrition
and Public Health
Ethelind College of Home
Science, SHUATS, Allahabad,
Uttar Pradesh, India

Gupta Alka

Department of Food Nutrition
and Public Health
Ethelind College of Home
Science, SHUATS, Allahabad,
Uttar Pradesh, India

Maternal health and malnutrition status during COVID-19 pandemic: A coherent critique

Verma Tripti and Gupta Alka

Abstract

The Covid-19 epidemic directly and indirectly impacts maternal health, as well as the direct and indirect consequences. We reviewed the wide subject in a quick-release style in order to offer a complete overview to deal with an impending pandemic. A study of the direct and indirect impact of the pandemic on maternal health has been undertaken to offer an insight into the most noteworthy results to date. Working documents and news stories together with peer-reviewed publications were deemed adequate proof for quickly developing upgrades. Literature published in English from 1 January to 11 September 2020 has covered the physical and emotional health, economic, and social well-being of pregnant Women as regards the direct or indirect impacts of COVID-19 on the health.

The danger of pregnant Womens has been shown to be higher than those who are not pregnant with serious signs. It was unlikely to transmit intrauterine, vertical, and Mid milk. For COVID-19 positive individuals, the working, delivery and nursing requirements vary. There have been reports of severe increases in maternal mental health problems, including clinical anxiety and depression. It looked that domestic violence was rising. Prenatal visits have reduced, health infrastructure has been stretched and possibly damaging practises with no proof have been introduced. Women were more likely than males to lose their income from the epidemic, and working moms faced with an increasing demand for childcare.

Major Findings: Pregnant women and mothers were not shown to be at higher risk than non-pregnant COVID-19, although pregnant individuals with symptomatic COVID-19 may be experiencing more unfavorable events in comparison with non-pregnant individuals and appear to have disproportionate socio-economic repercussions. Significant difficulties were experienced by both high and low- and medium-income countries. Additional resources should be spent at epidemiological quality research.

Keywords: COVID-19, child survival, employment, post lockdown, future trends post COVID-19

1. Introduction

At the end of 2019 ^[1] COVID-19, which was first reported in Wuhan, China, swiftly expanded throughout the world infecting tens of millions of people ^[2]. While sexually disintegrated statistics on serious coronavirus acute respiratory syndrome 2 (SARS-CoV-2) mortality show that males are more seriously administered to their human health than women ^[3], it has been voiced that the sickness might excessively affect the social and economic burdens of women. It is also very obvious if pregnant women will be more sensitive to SARS-CoV-2 infection or have more serious consequences for the sickness.

Besides direct infection, the effects on health infrastructure, communities and the world economy of the pandemic and pandemic control strategies may also influence on maternal health. Pregnant wives and new moms represent a distinct demographic, particularly susceptible in the field of mental and physical health, for example, domestic abuse. In conclusion, the impact of the COVID-19 pandemic is expected to be context-specific to a number of country-specific variables. An international pandemic will likely disclose only its repercussions after a considerable period, and not all relevant results may be captured in research published before or shortly after policy implementation. The objective of this scope review is to consolidate the present research, taking into consideration the numerous methods of preventing and controlling COVID-19 contracted during pregnancy and the indirect implications of the pandemic on women and pregnant women.

1.1 Situation of Maternal Malnutrition in India

Regardless of the scenario, our estimates show that the COVID-19 issue will have huge repercussions on maternal and child undernutrition and child mortality in the present generation, with massive long-term negative consequences on productivity.

Corresponding Author:

Verma Tripti

Department of Food Nutrition
and Public Health
Ethelind College of Home
Science, SHUATS, Allahabad,
Uttar Pradesh, India

It is probable that the effects of COVID-19 on health and food systems disruptions, and in particular the global economic crisis it has sparked, will last at least through the end of 2022 and put at risk the efforts of both LMICs and donors to meet global nutrition objectives and SDGs 2 and 3.

In our studies, we selected a moderate scenario in which increases in GNI per capita caused by the COVID-19 issue would result in an extra 9.3 million wasted children between 2020 and 2022. This would be a significant increase above the 47 million wasted children recorded in 2019. Nutrition programmes are likely to be cut or eliminated, and family food insecurity will rise, which may lead to an additional 2.6 million stunted children by 2022, on top of the current 144 million. Stunting has been on the decline over the previous two decades, but this would undo the last year or two of improvement. Together, the rise in child malnutrition and the decline in access to basic nutrition services might result in an extra 168,000 child fatalities by 2022, according to estimates. US\$ 29.7 billion in lost productivity due to increasing child stunting and death will be borne by national economies in the future.

It's possible that our predictions for increasing stunting are overly pessimistic. Due to child stunting's progressive and cumulative nature; we only predicted it for the final year of our forecasts (2022). As a result, additional cases of stunting that occur in 2020-22 but are older than 5 years old in 2022 are not included in our estimations. Second, the projected increases in maternal anaemia (2.1 million cases by 2022) and children born to women with low BMI (3 million by 2022) suggest that our estimates for increased stunting may increase further beyond 2022 as poor maternal nutritional status is a major risk factor for adverse birth outcomes and subsequent child malnutrition.

1.2 Case studies over other countries

The globe has been out of the way to meet the SDG 2 to eliminate hunger and malnutrition by 2030 before COVID-19. 1 The pandemic in COVID-19 and its accompanying worldwide economic crisis constitute a serious setback to inadequate progress towards the global nutrition objectives of

stunting, waste, maternal anaemia and breastfeeding in 2025.

1. Disruptions of food and health systems and economic contractions linked to pandemics increasingly threaten to worsen maternal and child undernutrition in low to medium-income nations (LMIC).
2. Assessing the impacts of the COVID-19 disorders for important health and nutrition treatments has proven to be hard since in many nations previous to the crisis, resilient real-time information systems have not been effectively developed. In 90 percent of the 105 nations examined throughout six regions, the WHO Pulse Survey revealed health care problems between March and June 2020. More than half of the nations questioned recorded prenatal disorders, ill children's services and nutritional treatment disorders and 70 percent of them reported regular vaccination disorders.
3. Experience of previous pandemics show that recovery from health care might be lengthy; it takes more than one year for healthcare systems to completely recover following the 2014 Ebola outbreak in West Africa.

With this threefold burden, a stunting of past poverty and predicts future poverty, hidden hunger (for example iron deficiency) lowers child learning and children with overweight learning, type 2 diabetes, stigma, and adult obesity lowered (UNICEF, 2019). The repercussions of the COVID-19 problem will be broader than before as a worldwide epidemic. The crisis should lead to the first ever decrease in the global Human Development Index (UNDP) in 2020. It is estimated to fall below the US \$1.90-per day poverty level of another 100-420 million. COVID-19 should also be a significant driver of food insecurity, doubling worldwide figures of 135 million to 265 million people – among them seven million children – via loss of income and remittances (WFP, 2020a; World Bank, 2020d). Food-deficit countries (FAO, 2019), as well as those facing numerous crises, such as harsh weather or pests, are probably the most seriously impacted (e.g., rubbish-fed diseases) (World Bank, 2020d).

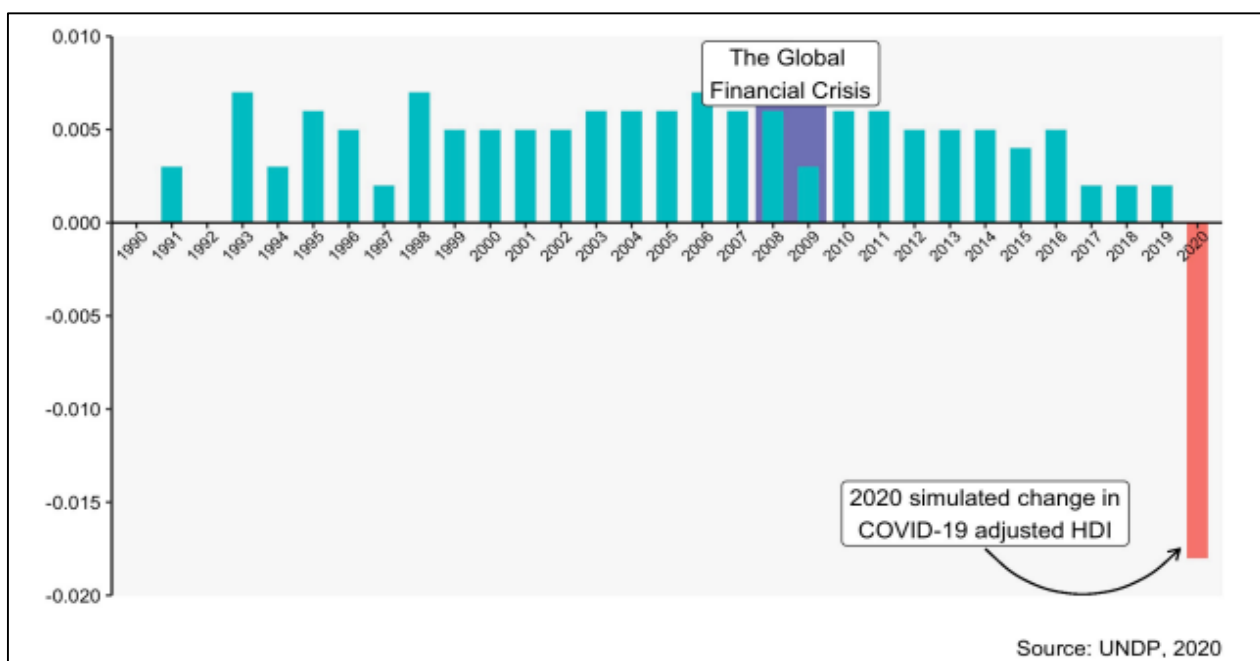


Fig 1: Change in Human Development Index, Annual

Pregnant women and mothers were not shown to be at higher risk than non-pregnant COVID-19, although pregnant individuals with symptomatic COVID-19 may be experiencing more unfavourable events in comparison with non-pregnant individuals and appear to have disproportionate socio-economic repercussions. Significant difficulties were experienced by both high and low- and medium-income countries. Additional resources should be spent at epidemiological quality research.

2. Literature Review

An overview of several past research is reviewed in this part and a study has been undertaken during CoVID-19 on maternal problems.

2.1 Direct Effects on Pregnancy

Patients experience substantial changes in the physiology and immunology throughout pregnancy to promote and safeguard the growing foetus. These alterations may raise the likelihood that pregnant people and foetus may be infected with respiratory infections. This can increase the risk of infections with SARS-CoV-2 among pregnant people and their offspring [2].

In general, pregnant people with COVID-19 do not appear to have more severe symptoms of illness than non-pregnant people. In many situations, it is asymptomatic and slightly symptomatic among pregnant people [6]. For the case of symptoms, fever, cough and dyspnea were the most prevalent clinical manifestations [7-11]. Consistently, in the laboratory results the C-reactive protein and transaminases have been found in lymphopenia, leukopenia, thrombocytopenia [7, 12, 13, 14]. Others observed a rise in D-dimer and neutrophil/lymphocyte ratio and a reduction in the number of white blood cells [8, 9]. CT tests indicate abnormal image characteristics in the lungs of pregnant patients with COVID-19 [7, 10, 15], particularly ground-glass opacity; however, the clinical meaning of these imaging findings and laboratory data is not apparent.

Adverse effects from motherly SARS-CoV-2 infection during pregnancy are rare. In the investigations conducted between January and September 2020, the majority of COVID-19 cases among pregnant persons reported during monitoring in the United States were not progressing into severe illness and mechanical ventilation ICU admission was uncommon [4]. Two studies of pregnant women hospitalised to hospitals in China showed comparable results [7, 16]. However, two investigations recently challenged these early findings. A retrospective case control study, published in November 2020 compared with pregnant women in Philadelphia who were admitted to ICU for serious or critical coronavirus conditions in non-pregnant women of reproductive age who were admitted to severe or critical coronaviral disease found that they were more likely to be admitted in ICU to intubation and mechanical ventilation. Similarly, research analysis published in Oct. 2020 for 400,000 women between the ages of 15 and 44 with symptomatic COVID-19 revealed that the chances for pregnant women are greater for ICU hospitalisation, intubation, mechanical ventilation and death [18].

The most widely documented harmful effect was pre-consuming [11-13, 19], as were results from a number of contexts and designs, and higher prevalence of low birthweight and caesarean section (C-section) were seen [10, 20]. Other obstetrical problems and effects, including mother death,

mortality, miscarriages, hypertension, limitation of foetal development, coagulopathy and early membrane disruption were rare but visible [8]. Epidemiological studies could not demonstrate that COVID-19 enhanced directly the risk for these outcomes even while, according to the London study [21], the pandemic's direct or indirect effect may become more prevalent in the case of dead babies. A prospective Mendoza and others cohort study has shown that those who are pregnant with a severe COVID-19 can develop a preeclampsia-like syndrome without the abnormal fms-like soluble tyrosine kinase 1 to the placental factor growth (sFlt-1/PlGF), and with a pulsatile uterine artery index (UtAPI) typical values for normal preeclampsia [22]. Placental viral infection occurred, although such patients were mainly asymptomatic or moderately symptomatic [23, 24]. In an examination of the cases, Golden and Simmons assumed that these placental anomalies were not the direct outcome of infection with COVID-19 [25].

2.2 Intrauterine Transmission

The SARS-CoV-2 literature is extremely speculative and calls for further proof to support the postulates of the transmission mechanism. Until yet, investigations have not provided the basis for intrauterine COVID-19 infection as a result of vertical transmission in pregnant persons with instances of virus clinically or microbiologically identified in the third trimester [14, 26-28]. Few instances of possibly neonatal infection have been recorded in pregnancy. For example, in samples of cord blood, throat and nasopharyngeal swabs, urine, faeces, amniotic fluid, and placental tissue [14, 29, 30], samples have been examined of the six pregnant women with COVID-19, and their neonates in Wuhan, China, with RNAS SARS-CoV-2 uncoverably. The credibility of these positive neonatal test findings has been questioned, however, as the tests were not carried out soon after delivery. In two hospitals in Wuhan, China, elevated IgM antibodies were detected in neonates with SARS-CoV-2 infection who were born to SARS-CoV-2-positive mother [31, 32]. Kimberlin and Stagno have, however, raised questions regarding intrauterine transmission since IgM antibodies are too big to traverse the placenta. Furthermore, IgM testing is typically inaccurate when it comes to diagnosis of congenital infections [33]. In blood samples taken from two large transcytosis, infected blood cell transport, viral or infected cell transmission in the cervicovaginal compartment, and that most women with COVID-19 were improbable routes of transmission. The transmission risk from mum-foetus is presumably very minimal, perhaps less than 1 percent after maternal infection with SARS-CoV-2 during pregnancy [36]. But more investigations including large population-based longitudinal studies are widely acknowledged as necessary to assess the plausibility of accidental maternal-foetal transfer.

2.3 Labor and Delivery

Some case series including a 108-born birth test in New York City show that the risk of neonate infection is not raised when birth takes place vaginally. Despite early reassurance that the risk of neonate infection does not rise when birth takes place vaginally [37], clinical guidelines varied in their mode of delivery recommendations [38, 39].

Estimates of rates of C-section among SARS-CoV-2 infected women varied but imply an increased level of operational delivery. Della Gatta *et al.* reported a systemic review of 90.2

percent of women diagnosed with COVID-19 through C-sections [40], respectively. Zaigham and Andersson have systematically reviewed 91% of the women delivered by C [41]. This is comparable to the early estimations from Wuhan, China; Chen *et al.* observed a 93% C-section [42]. While the reasons why the epidemic has started are unknown, it might be related to more aggressive labour and delivery management. However, a recent examination of the delivery of women to hospitals in New York City between 8 March and 2 April 2020 showed that the rates for C-sections were not more than usual (31.3% in women with a COVID-19 verified, compared with 33.9% in women who tested negatively) [43]. Some academics and healthcare practitioners have hypothesised that LMIC categories are lowered because of the indirect influence on healthcare [44] of the COVID-19 pandemic. There is no evidence to support this as of the completion of this work."

Hospitals have developed rules for support personnel and postpartum isolates of women throughout their work and delivery particularly at the start of the pandemic. Here a detailed examination of the guidelines for international perinatal societies and institutes, most of which were not recommended for visitors or a symptom help or quick discharge, was recommended by the American College of Obstetrics and Gynecology, the Catalog Health Service and Mother and Fetal Medicine Society [45]. Because of the known benefits of work assistance [46], restricting access might enhance the impact of the delivery of the C-section and reduce mother satisfaction with work and childcare. In addition, speedy discharges might decrease healthcare professionals' capacity to recognise and manage problems beyond age.

2.4 Breastfeeding and infant contact

It is unknown if new coronavirus may be transmitted by breast dairy. The data reported regarding SARS-CoV-2 presence in breast milk consisted of the cases of postpartum mothers who tested the coronavirus positive throughout their pregnancy. The bulk of the milk samples obtained were negative for SARS-CoV-2 from 37 women [26, 32, 39, 47, 48], except for Zhu *et al.* and Wu *et al.*, which reported a positive sample of 5 samples from 5 women [49], respectively, and three from 3 women [37]. These early studies showed that SARS-CoV-2 was not likely to be transmitted via breast milk. Dong *et al.* reports IgG and IgA SARS-CoV-2 anti-samples from a woman with a positive throat swab test for COVID-19 [50] in breast milk samples. This showed that breast milk might protect against COVID-19 infections, however further study is needed for confirmation.

The recommendations on breastfeeding for moms with confirmed SARS-CoV-2 infection who have evaluated the risk of infection with the recognised and recorded advantages of nursing and early bonding have been published. The WHO and UNICEF advised continuous breastfeeding, skin-to-skin rooming and clothing via infection-control procedures. In particular, "WHO advises encouraging moms with COVID-19 suspects and confirmed persons to start or keep breastfeeding. Moms should be advised to overlook the possible hazards of transmission with the advantage of nursing." In contrast, while encouraging the continuation of breastfeeding in general, the Disease Control and Prevention Centers have stated that "temporary separation between a newborn child with a confirmed or suspected mother with COVID-19 should be taken into consideration, so as to reduce the risk of neonate transmission." [51].

Table 1: Demographic and health indicators of India and states.

Indicator	India	Tamil Nadu	Gujarat	Rajasthan	Andhra Pradesh
Population (million) (Census 2001)	1,028	62	51	57	76
Decadal growth rate (1991-2001)	21	12	23	28	15
Population density per sq km (2001)	324	478	258	165	275
Birth rate (2005)	24	16	24	29	19
Death rate (2005)	7.5	7.4	6.9	7.0	7.3
Total fertility rate	3.2	1.7	2.9	3.7	2.0
Mean age (years) of effective marriage (2005)	20	22	20	20	19
Literacy rate: total (2001)	65.3	73.4	69.1	60.4	60.4
Male	75.3	82.4	79.9	75.7	70.3
Female	54.1	64.4	57.8	43.8	53.7
Sex ratio (no. of females per 1,000 males)	933	987	920	921	978
Life expectancy at birth—females (2005)	66	69	69	67	68
Infant mortality rate (2006)	58	37	54	68	57
Child mortality rate (2005)	17	9	16	20	15
Maternal mortality ratio as per SRS (2003)	301	134	172	445	195

SRS=Sample Registration System

Maternal health in India and national safe motherhood programmes were described and their effects were analysed, as part of the case study's aims. The country's maternal health might be improved with the help of these ideas.

3. Conclusion

Early data from this scope review suggests that many of the social and economic repercussions of the COVID-19 problem are expected to affect women more than males although formal research have been not yet undertaken. The low risk of mom-to-child transmission is widely proven either in-utero or by breast milk. Pregnancy seems to be particularly susceptible to COVID-19, but well-designed and carried out study still require additional validation. An increased likelihood is probable, but high-quality data is also missing, of distress and mental disorders during pregnancy and afternoon during this pandemic. In addition, there is a likely increase in the prevalence of domestic violence substantiated by a number of research, although more representative data are necessary. There is also a dearth of study of maternal morbidity and death. The health effect of SARS-CoV-2 infection, as well as changes to the healthcare and accessible services and their influence on maternal health should be documented in rigorous epidemiological research. This research offers nonetheless solid evidence that moms with children are more likely than men and women without children to experience employment losses and financial losses during the epidemic. Especially single moms are probably affected by food insecurity. In many high and low-income nations, these socio-economic implications for women are comparable.

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