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Prof. Vibhuti Patel Gender & Climate Change Health Action August 2018.pdf

Professor Vibhuti Patel
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### Thought for the month

“Sooner or later, we will have to recognize that the Earth has rights, too, to live without pollution. What mankind must know is that human beings cannot live without Mother Earth, but the planet can live without humans.”

*Evo Morales*
“Climate Change is the most systemic threat to humankind”, says Antonio Guterres, UN Secretary-General. Guy McPferson, Professor, University of Arizona said, “the sixth mass extinction has already begun. By 2028, the temperature of the Planet will have far exceeded the 2 degrees C cap projected by Intergovernmental Panel on Climate Change as Earth will be the hottest it has been in 2 billion years”. However, what is more frightening is the prediction by professor Stephen Hawking, the legendary physicist, “by 2100 there would be no humans left on the Earth”.

Pope Francis’ Encyclical Laudato Si, seeks to enlighten us on Climate Change and the need to protect Mother Earth. The encyclical that was published on June 18, 2015, prior to the Climate Change Conference to be held the same year, has 6 chapters and 246 articles. The Pope expresses his great concern regarding the worsening global climate situation. He nudges everyone in his own gentle way, to introspect and to evolve concrete actions in order to protect and nurture Mother Earth. He highlights the consequences of unlimited greed, corruption and over-consumption. The encyclical also explores the relationship between care for creation, integral human development, and concern for the poor. A new entity, the ‘Dicastery for Promoting Integral Human Development’, under the care and leadership of Holy Father, has been established to express Holy See’s concern for issues of justice and peace, migration, climate change, care of creation and so on. It became effective from 1st January 2017.

As in other matters, the poorer countries and communities, due to their fragile coping options, will bear the brunt of Climate Change. Unchecked, it may dent India’s GDP by 2.8% and depress the living standards of nearly half the population by 2050, a recent World Bank study ‘South Asia’s Hot Spots’ says.

Numerous studies have been done about Climate Change and huge volumes of data collected about its consequences. There is no easy solution to combat this complex problem. The challenge demands an array of strategies and actions globally and at all levels. Substantive emission reduction is the immediate priority. Safe and sustainable options include putting a price on carbon, conserving energy, switching to renewables etc.

The Cover Story features include “Climate Change & Health”; “Climate Change, Sea-Level Rise & Health Implications” and “Gender, Health & Climate Change”.

Happy Reading!
During the last 130 years, the world has warmed by approximately 0.85°C. Each of the last 3 decades has been successively warmer than any preceding decade since 1850. Sea levels are rising, glaciers are melting and precipitation patterns are changing. Extreme weather events are becoming more intense and frequent, studies say.

**How climate change affects health**

Climate change can affect human health directly (e.g., impacts of thermal stress, death/injury in floods and storms) and indirectly through changes in the ranges of disease vectors (e.g., mosquitoes), water-borne pathogens, water and air quality, food availability and quality. Global climate change is, therefore, a newer challenge to ongoing efforts to protect human health.

**Observations of Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change (IPCC)**

- The global average surface temperature has increased by approximately 0.65°C over the last 50 years.
- Eleven of the last 12 years (1995–2006) rank among the 12 warmest years since records began in the 1850s.
- The rates of warming and of sea level rise have accelerated in recent decades.
- Many areas, particularly mid- to high-latitude countries, have experienced increases in precipitation and there has been a general increase in the frequency of extreme rainfall.
- In some regions, such as parts of Asia and Africa, the frequency and intensity of droughts have increased in recent decades.
- The frequency of the most intense tropical cyclones has increased in some areas, such as the North Atlantic, since the 1970s.
- Global mean surface temperature will rise by 1.1–6.4°C, depending partly on future trends in energy use. Warming will be greatest over land areas and at high latitudes.
- Heat waves, heavy precipitation events, and other extreme events will become more frequent and intense.

**Vulnerable Population**

- All populations will be affected by climate change, but some are more vulnerable than others. People living in small islands and other coastal regions, megacities, and mountainous and polar regions are particularly vulnerable.

The World Health Organization (WHO) estimates that climate change directly or indirectly contributes to about 77,000 deaths annually in Asia and the Pacific, about half of the world total attributed to climate change. Developing country populations, particularly in small island states, arid and high mountain zones, and in densely populated coastal areas, are considered to be particularly vulnerable.
Children – in particular, those living in poor countries – are among the most vulnerable to the resulting health risks and will be exposed longer to the health consequences. The health effects are also expected to be more severe for elderly people and people with infirmities or pre-existing medical conditions.

Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond.

Impact of climate change on health

Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress.

The World Health Organization (WHO) estimates that climate change directly or indirectly contributes to about 77,000 deaths annually in Asia and the Pacific, about half of the world total attributed to climate change. Developing-country-populations, particularly in small island states, arid and high mountain zones, and in densely populated coastal areas, are considered to be particularly vulnerable. Global warming caused winter deaths in temperate climates and increased food production in certain areas. Factors predisposing to health due to climate change include:

- Extreme heat
- Natural disasters and variable rainfall patterns
- Measuring the health effects
  - Rising sea levels
  - Retracting glaciers
  - Food insecurity
  - Vector-borne diseases
  - Other health effects

Weather conditions

Extreme weather events such as severe storms, floods, and drought adversely affected the lives of millions and damage to property.

- Recent climate emergencies in India included a heat wave in Orissa (2004), a cold wave in Uttarakhand and Uttar Pradesh (2004), a tsunami affecting Tamil Nadu, Andhra, Kerala, and the Andaman-Nicobar Islands (2004), floods in Madhya Pradesh and Gujarat (2005), rains and floods in Maharashtra (2005), and a cyclone in Andhra Pradesh (2005).
- Extreme high air temperatures contribute directly to deaths from cardiovascular and respiratory disease among elderly people.
- High temperatures also raise the levels of ozone and other pollutants in the air that exacerbate cardiovascular and respiratory disease.
- Pollen and other aeroallergen levels are also higher in extreme heat. These can trigger asthma, which affects around 300 million people. Ongoing temperature increases are expected to increase this burden.

Natural disasters and variable rainfall patterns

Globally, the number of reported weather-related natural disasters has more than tripled since the 1960s. Every year, these disasters result in over 60,000 deaths, mainly in developing countries.

- Rising sea levels and increasingly extreme weather events will destroy homes, medical facilities and other essential services. People may be forced to move, which in turn heightens the risk of a range of health effects, from mental disorders to communicable diseases.

Promoting the safe use of public transportation and active movement – such as cycling or walking as alternatives to using private vehicles – could reduce carbon emissions, and cut the burden of household air pollution, which causes some 4.3 million deaths per year, and ambient air pollution, which causes about 3 million deaths every year.
Increasingly variable rainfall patterns are likely to affect the supply of fresh water. A lack of safe water can compromise hygiene and increase the risk of diarrhoeal disease, which kills over 500 000 children aged under 5 years, every year.

Floods contaminate freshwater supplies, heighten the risk of water-borne diseases, and create breeding grounds for disease-carrying insects such as mosquitoes and cause drownings and physical injuries, damage homes and disrupt the supply of medical and health services.

The increase in the prevalence of malnutrition and under-nutrition, which currently cause 3.1 million deaths every year.

Water scarcity already affects four of every 10 people. A lack of water and poor water quality can compromise hygiene and health.

Vector-borne diseases

Climatic conditions strongly affect water-borne diseases and diseases transmitted through insects, snails or other cold blooded animals.

Malaria is strongly influenced by climate. Transmitted by Anopheles mosquitoes, malaria kills over 400 000 people every year.

Dengue is another important arboviral disease of humans, occurring in tropical and subtropical regions, particularly in urban settings.

Diarrhoea affects approximately 1.8 million people every year, as well as trachoma (an eye infection that can lead to blindness) and other illnesses.

Both floods and droughts increase the risk of diarrheal diseases. Major causes of diarrhea linked to heavy rainfall and contaminated water supplies are cholera, cryptosporidium, E. coli infection, giardia, shigella, typhoid, and viruses such as hepatitis A. In 2030, the estimated risk of diarrhea will be up to 10% higher in some regions than if no climate change occurred.

Rodents, which proliferate in temperate regions following mild wet winters, act as reservoirs for various diseases. Certain rodent-borne diseases are associated with flooding, including leptospirosis, tularemia, and viral hemorrhagic diseases. Other diseases associated with rodents and ticks, and which show associations with climatic variability, include Lyme disease, tick-borne encephalitis, and Hantavirus pulmonary syndrome.

Health effects of rising sea levels

Potential effects on health due to sea level rise include:

- Death and injury due to flooding
- Reduced availability of fresh water due to saltwater intrusion
- Contamination of water supply through pollutants from submerged waste dumps
Change in the distribution of disease-spreading insects
- Health effect on nutrition due to a loss in agriculture land and changes in fish catch
- Health impacts associated with population displacement
- India has a 7500 km long densely populated coast line, which is vulnerable to coastal floods, hurricanes, cyclones, and tsunami.

Health effects of retracting glaciers
- Glaciers are the source of drinking and irrigation water in the mountainous and Indo-Gangetic regions in India.
- Rising temperatures may cause the snow to melt earlier and faster in the spring, shifting the timing and distribution of run-off.
- Annual cycle is about 30 days and there is an increase in glacier melt run-off by 33–38%.
- Melting glaciers in the Himalayas may lead to glacier lake outburst floods, as occurred in Himachal Pradesh.

Health effects due to food insecurity
- Increasing temperatures and more variable rainfalls and loss of agricultural land due to flash floods are expected to reduce crop yields in many tropical developing regions, where food security is already a problem.
- Malnutrition causes millions of deaths each year, from both a lack of sufficient nutrients to sustain life and a resulting vulnerability to infectious diseases such as malaria, diarrhea, and respiratory illnesses.
- In India, almost half of the children under age five and more than one-third of the adults are undernourished. Anemia is another major nutritional health problem in India, especially among women and children.

Other health effects
- Increasing global temperatures affect levels and seasonal patterns of both man-made and natural air-borne particles, such as plant pollen, which can trigger asthma.
- About 6% of children suffer from respiratory tract infection and 2% of adults suffer from asthma. Asthma deaths are expected to increase by almost 20% in the next 10 years.
- Exposure to ultra violet radiation has been implicated as a cause of skin cancer (melanoma and other types) in fair-skinned human populations living at mid to high latitudes and also to induce immuno-suppression that could influence patterns of infectious disease.

WHO's response in Prevention of Adverse Events due to Reducing Emission of Green House Gases (GHGs)
- Emission of GHGs can be reduced by more efficient use of energy, reducing dependence on carbon energy and switching to low-carbon energy like solar, hydro, or wind energy.
- Steps to reduce GHG emissions or lessen the health impacts of climate change could have positive health effects.
- Adopting cleaner energy systems.
- Promoting the safe use of public transportation and active movement – such as cycling or walking as alternatives to using private vehicles – could reduce carbon emissions, and cut the burden of household air pollution, which causes some 4.3 million deaths per year, and ambient air pollution, which causes about 3 million deaths every year.

In 2015, the WHO Executive Board endorsed a new work plan on climate change and health. This includes:
- Partnerships: to coordinate with partner agencies within the UN system, and ensure that health is properly represented in the climate change agenda.
- Awareness raising: to provide and disseminate information on the threats that climate change presents to human health, and opportunities to promote health while cutting carbon emissions.
- Science and evidence: to coordinate reviews of the scientific evidence on the links between climate change and health, and develop a global research agenda.
- Support for implementation of the public health response to climate change to assist countries to build capacity to reduce health vulnerability to climate change, and promote health while reducing carbon emissions

Public health maintenance
The rebuilding and maintaining of public health infrastructure is often viewed as the “most important, cost-effective, and urgently needed” adaptation strategy.
- Public health training, more effective surveillance and emergency response systems, and sustainable prevention and control programs.
- Education, awareness-raising, and the creation of legal frameworks, institutions, and an environment that enables people to take well-informed, long-term, sustainable decisions are also of paramount importance.

(Lecturer & HOD, Dept. of Psychiatric Nursing, Kasturba Gandhi Nursing College (MGMC&RI), Puducherry. The author acknowledges various references which are available on request.)
Climate Change in the context of health impact is perhaps the least talked-about subject around. A simple exercise of Google search confirms this. Out of curiosity, we typed “Climate Change effects” in Google and let it auto-complete. Here is what we found:

Still not deterred and hoping to find something on the impact of climate change on human health, we pursued our investigation. We tried to search for images of Effects of Climate Change.

_Here are the results of how that went:_

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*Climate Change, Sea-Level Rise & Health Implications*

Shweta Narayan & Pooja Kumar
On a quick count, out of all images displayed – there are 8 images of Polar Bears, 4 of people affected by Climate Change and rest all of Environment.

While we understand that the increase in the greenhouse gas levels changes the global climate, the one connection we fail to make is that these changes in global climate have a very real and a varied level of impact on human health.

The environmental consequences of climate change, like the extreme weather events - flooding, saline intrusion of fresh water sources, droughts, air pollution, extreme heat waves, damage to agriculture and hence food shortage; affect human health – physical, mental and social, both directly and indirectly.

Here is a chart reflecting on the complexity of the impact of climate change on health.

**Climate Change and the Indian Coasts**

It is a well-known fact that the Indian subcontinent is most at risk due to impacts of Climate Change. With more than 7500 kilometers of coastline, we are also vulnerable to the sea level rise and its effects.

Space Application Centre, ISRO, Ahmedabad, in its report “Coastal Zones of India, 2012” mapped critical coastal areas prone to submergence for the state of Tamil Nadu, India, using multispectral satellite images from the time period 2004-2006. The report predicts that over 4,133 Sq kms of natural and physical resources including beaches, towns, villages, cropland, critical infrastructure like highways etc. in Tamil Nadu alone are prone to submergence in the event of a 1m sea level rise by 2100. That is to say, an area close to 9 times the size of Chennai city is at risk of going underwater by the turn of the century in one state alone. Tamil Nadu only accounts for 1076 KM of India’s 7500 KM long coastline. Instead of taking this information as a warning to strengthen coastal planning, the report was given a quiet burial and never used for policy intervention and coastal planning. On the contrary, coastal urbanization and industrialization is steadily growing, with the government seeing coastal areas as launch pads for economic growth in the next decade.

**What doctors might expect due to Climate Change and Sea-Level Rise**

Changing weather pattern and particularly extreme weather events bring in a host of diseases and challenges for the public health care systems. It’s not just the change in the disease occurrence but the timing and magnitude of such diseases would be a challenge.

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**Global Environmental Changes: paths, health risks**

- **Stratospheric ozone depletion**
  - Skin damage/cancer
  - Eyes (cataracts, etc.)
  - Immune suppression

- **Climate change**
  - Direct impacts
  - Stomach ulcers, floods, fires
  - Sea-level rise: physical hazards, displacement

- **Land cover (forest, etc.)**
  - Changes in host species, vectors (mosquitoes, etc.)

- **Land use**
  - Human predation
  - Human predation

- **Water-sheds, systems**
  - Biodiversity changes, ecosystems disruption
  - E.g. pollution

- **Food-production systems**
  - Infectious disease risks
  - Food yields: nutrition and health

- **Urbanisation; human settlements**
  - Poverty, starvation, hygiene; physical hazards; infectious disease risks (mobility, density)

**In general, the doctors should expect:**

- An overall increase in injury, death, and post-traumatic stress disorders from increases in storms, cyclones, more severe heat waves and floods. There will be an increase in the risks of water-borne diseases, too.

- As mentioned, there will be dramatic changes in the range, distribution, and incidence of outbreaks of vector-borne diseases (e.g. dengue, chikungunya, nipah). Rural health care systems will record adverse health effects of more severe drought and long-term drying conditions on rural and remote communities.

- Exposure to extremes of heat, dust, and smoke would lead to increase in respiratory illnesses, allergens etc.

- Saline intrusion in fresh water sources will increase water stress and will have consequences on availability of clean water for distribution. As a result, there will be severe adverse impacts on hygiene and sanitation.

- Change in weather pattern, droughts and rainfall would affect food production patterns and impact the availability of food; this will also result in malnutrition especially among the rural population.

- Adverse environmental impacts and scarce resources would negatively impact the social and psychological health of the communities and there will be increased numbers of cases of mental health problems like depression and suicide; some experts also predict increase in negative childhood emotional and developmental experiences among the young population.

- One of the most serious impacts in addition to all of the above would be an increase in environmental disasters and toxic exposure and contamination.
Why should we worry about Environmental Disasters and Toxic Contamination?

Sea-level rise and extreme weather events will make a majority of the coastal infrastructure vulnerable to damage and destruction. Apart from critical infrastructure, our coastline is dotted with chemical and petrochemical industries. Coast is the preferred choice for these industries as the marine transport is cheap and easy but now given the changing climatic scenarios, the coastline has increasingly become vulnerable and a threat to such industries.

Unfortunately, our policy-makers and planners have paid no heed to these indications. There is enough evidence from around the world on the scale of damage and destruction chemical plants have singlehandedly caused due to climatic events. During the onslaught of Hurricane Harvey in the United States, a coastal chemical plant in Arkema, Texas, blew up due to power failure caused by flooding at the plant.

Similarly, many houses were inundated with refinery oil and sludge in St Bernard Parish, New Orleans, during Hurricane Katrina in 2005. Residents till date have not been able to move back to their houses owing to risks of toxics exposure from the spill.

How prepared are our Health Care Systems?

While policy-makers and planners are turning a blind eye to climate risk indicators in city/industrial planning, it is pertinent to note that even the health care systems and institutions seem to be at a disadvantage when it comes to their ability to deal with a climate-induced disaster. Examples of Srinagar flood of 2013; Chennai floods of 2015 or the Mumbai rains of 2017 come to mind. One thing common in all these images is that the rains and floods left the hospitals and health systems in tatters resulting in loss of lives and higher risks to infections.

How should the Health Care Systems be prepared?

Here are some useful tips for our doctors and hospital administration to think and act up to keep their systems prepared.

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<td>• Develop and implement an early warning system and emergency response plan.</td>
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<td>• Engage in mapping vulnerable regions and training first responders from the communities; a strong community support will help provide relief faster and better in an event of a disaster.</td>
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<td>• Contingency plans for alternative methods of energy generation during electricity blackouts, particularly during the summer months, or during floods/cyclones, will facilitate preparedness.</td>
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<td>• To reduce waste: recycle and buy recycled products, collect and recycle nitrous oxide and anesthetic gases, prevent waste, and dispose of waste locally.</td>
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<td>• Using native vegetation and planting trees on site can mitigate the heat-island effect.</td>
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<tr>
<td>• Invest in Early Warning and Emergency Response Systems.</td>
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<th>Infectious Diseases</th>
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<tr>
<td>• Engage in regular monitoring of the spread of infectious diseases and develop early warning systems.</td>
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<tr>
<td>• Invest in an efficient system of emergency medicine services.</td>
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<tr>
<td>• Conduct expanded surveillance activities in collaboration with communities in order to detect shifting patterns of disease distribution so that emergency department personnel would be aware of emerging threats.</td>
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<td>• Develop better coordination between various specializations of medicine e.g. family practice, internal medicine, pediatrics, geriatrics, and psychiatry etc.</td>
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Hospitals and health care systems are not just places to cure diseases but their responsibility lies in preventing the occurrences of such diseases. Their responsibility is to be the community anchor in healing. Hence it is imperative that our health care systems gear up for the challenges that Climate Change is throwing at us and lead in combating it and building resilience.

(1. Healthy Energy Initiative, India. 2. Coastal Resource Centre, Chennai. The authors acknowledge various references which are available on request.)
Economics of Gender and Development sees a connection between exploitation and degradation of the natural world and the subordination and oppression of women. Ecofeminism emerged in the mid-1970s alongside second-wave feminism and the green movement. Ecofeminism brings together elements of the feminist and green movements, while offering a challenge to both. It takes from the green movement concern about the impact of human activities on the non-human world, and from feminism the view of humanity as gendered in ways that subordinate, exploit and oppress women. It is both an activist and academic movement which sees critical connections between the domination of nature and the exploitation of women. Ecofeminist activism grew during the 1980s and 1990s among women from the anti-nuclear, environmental and women’s rights movements.

“Ecofeminists say ‘no more waiting’... We are in a state of emergency and must do something about it now... around the world economies, cultures and natural resources are plundered, so that 20 percent of the world’s population (privileged North Americans and Europeans) can continue to consume 80 percent of its resources in the name of progress.” Our aim is to go beyond this narrow perspective and to express our diversity and, in different ways, address the inherent inequalities in world structures which permit the North to dominate the South, men to dominate women, and the frenetic plunder of ever more resources for ever more unequally distributed economic gain to dominate nature... Everywhere, women were the first to protest against environmental destruction.
It became clear to us, activists in the ecology movements, that science and technology were not gender-neutral. As with many other women, we began to see that the relationship of exploitative dominance between man and nature (shaped by reductionist modern science since the 16th century) and the exploitative and oppressive relationship between men and women which prevails in most patriarchal societies, even modern industrial ones, were closely connected.”

Male Domination in the Discourse on Climate Change

The impacts of climate change on women are not a mainstream focus in the key international agreements on climate change such as the Kyoto Protocol and the UNFCCC (United Nations Framework Convention for Climate Change). All key decision-making institutions related to climate change have a male-dominated hierarchical structure.

The report, Facing a Changing World: Women, Population and Climate, released on 9-11-2009 by the UN, highlights “With the possibility of a climate catastrophe on the horizon, we cannot afford to relegate the world's 3.4 billion women and girls to the role of victim,” United Nations Population Fund chief Thoraya Ahmed Obaid said. “Wouldn’t it make more sense to have 3.4 billion agents for change?”

Gender as a Factor of Vulnerability to Climate Change

The UNFPA study reveals that the poorest populations while having contributed the least to climate change are the most vulnerable to the crisis. Women are the poorest of the poor. It is estimated that women produce over 50% of all food grown worldwide. Climate disaster is perhaps the most inequitable threat of our time. Worst sufferers are women because they constitute the major share of agricultural workforce and also because they tend to have access to fewer income-earning opportunities.

The impact of climate change on women is of particular significance in Pacific Island Nations. Climatic conditions and extreme events – droughts, floods, sea-level rise and coastal erosion, rising temperatures - will hurt food security and the well-being of Pacific Islanders, with women bearing the brunt of the impact due to the responsibility held by women with Pacific communities in relation to food security and the well-being of a household.

Plight of Asian women has been aggravated by climate change. Noting that about 2.2 billion Asians rely on agriculture for their livelihood, the sector is now threatened by falling crop yields caused by floods, droughts, erratic rainfall and other climate change impacts. The UNFPA Report avers, “Current climate models indicate food prices may increase sharply, rice prices by 29-37 per cent, maize prices by 58-97 per cent and wheat prices by 81-102 per cent by 2050”. In this context, women are forced to shoulder the heaviest burden of food inflation as provider of food in the family.

Indian Experience

In India, more than 84% of women are involved in agricultural activities, and as a result they become the greatest victims of climate change’s impact. In addition, gender inequality makes them disproportionately vulnerable to environmental alterations.

Indian women are extremely vulnerable to climate change. As women are often responsible for providing daily essentials such as food and water, when climate-related disasters strike the poorest families, the workload of women and girls increases and they tend to miss out on opportunities. Studies have shown that Indian women born during a drought or a flood in the 1970s were 19% less likely to ever attend primary school. As climate change intensifies, India’s poorest women and girls are at risk of losing opportunities to participate equally in development. At the same time, many poor women are involved in “climate sensitive” activities such as paddy cultivation or fishing. Climate change has affected their livelihoods.

Gender-Differential Impact of Climatic Threats to Life

It is predicted that climate change will lead to increasing frequency and intensity of extreme weather conditions, precipitating the occurrence of natural disasters around the globe. A London School of Economics study in 2007 examined natural disasters that had occurred in 141 countries from 1981-2002. The study found that natural disasters lower the life-expectancy of women, and as the disaster intensifies, so too does this effect.

Women, even in rural India, now understand better the larger issues like climate change that affect them directly, as is evident in this declaration adopted at a training programme on Gender, Climate Change and Food Security on November 16, 2011, at Saharanpur in UP: ‘…. Women hold the key to food security, and it is important that women’s contributions to agriculture and food security be documented, recognised and celebrated.’
Higher Health Risks during Disasters

Women and children are 14 times more likely to die than men during natural disasters and are otherwise disproportionately adversely affected and 85% of people who die from disasters are women. (http://www.wedo.org/category/learn/campaigns/climatechange).

It was reported that 70-80% of casualties in the 2004 Asian tsunami were women and 90% of the casualties in the 1991 cyclone in Bangladesh were women. It was found that 83% of low-income, single mothers were displaced in the wake of Hurricane Katrina.

Increased Workload/Household/Energy Expenditure Burdens

Because of women’s role in the household, women have to cope with swift environmental changes for centuries. However, climate change is lessening women’s capacity to cope with these changes. And when women are not able to adapt to their environment, entire communities suffer. (Source: WEDO)

Climate change exacerbates issues of scarcity and lack of accessibility to primary natural resources, forest resources, and arable land, thereby contributing to increased workload and stresses on women and girls as well as increased conflict and instability which often leads to increased violence against women and girls.

Limited Ownership and Entitlements

Women possess a unique capacity and knowledge to promote and provide for adaptation to and mitigation of climate change, but often have insufficient resources to undertake such initiatives.

Women are constrained by a lack of economic freedoms, property and inheritance rights, as well as access to financial resources, education, and new tools, equipment, and technology. Women are underrepresented in the development and formulation of policy and decision-making in regard to adaptations and mitigation of climate change.

Political Inequality

Compounding this reality is the widespread gender inequalities existing throughout the policy- and decision-making spheres, leaving women to struggle against restricted access to information and education, restricted mobility, and in many cases laws restricting or prohibiting land ownership. Women are producing 60% of food in Asia and 80% in Africa, yet women have access to 1% of agricultural credit worldwide. (Source: WEDO)

Martina Longom, Village Woman, Karamuja, Uganda, states, “we travel further and further for firewood every year, and it takes us to less safe places...”. Deforestation in Uganda amplifies already dire conditions. The local women’s group in Caicaoaan addresses this problem by planting evergreen and mango trees to replace ones cut down for fuel and charcoal reducing erosion and helping people earn a living. Martina Lungom is a strong advocate of the role education can play in the fight against climate change. States Blogger Pricilla Stuckey, in This Lively Earth, “Discrimination against women also plays an enormous role in how women experience the effects of climate change. In India, for example, where women have seen their crop yields cut in half and the quality of grain diminishes because of climate changes, women’s health is impaired from the double whammy of inferior crops and inequality.

Acute Survival Struggle

Climate Change has made the search for livelihoods tougher, created greater food insecurity, caused sharp declines in the quality of life, and triggered mass migrations. Food insecurity due to disasters affect women the most as they eat last, least and left over food.

The HDR also highlighted micro-level studies which had revealed that Indian women born during floods in the 1970s were 19 per cent less likely to have attended primary school. So clearly the vagaries of climate change have the potential to make life a high-risk venture for those whose capacity to manage these risks, in terms of both personal choice and personal income is minimal.

Lessons of Chipko and Appiko

The women of Reni village in Chamoli District who took on the forest mafia through their Chipko movement in the mid-70s, or the Bhil tribal women of Madhya Pradesh’s Sondwa Block, who are today patrolling their forests to defeat the designs of those intent on denuding them. With able-bodied men searching for livelihood opportunities in the cities, more women than ever are left to do low paying agricultural jobs, including activity earlier prohibited to them, like ploughing.

Testimonies at Public Hearing

Gouri Bai belongs to a small hamlet in Bundelkhand. Being a part of the farming community, her life and livelihood depend on agriculture. But changing weather and decreasing water for irrigation are threatening her survival. The vagaries of nature have left her steeped in debt and poverty.

Shyamali Das from the Sunderbans in West Bengal has been witness to many cyclones that have struck the area in recent times. Cyclonic storms flooded vast tracts of farm land which remained inundated for a long time. As a member of a fishing community, she has suffered losses of 20 fish species. “Accept us and our knowledge as a base to adapt and mitigate climatic changes.”
Global Success-Stories

Wangarai Maathai, Winner of the 2004 Nobel Peace Prize, successfully implemented The Greenbelt Movement in Kenya, one of the leading worldwide climate change projects. Sahena Begum spearheads community efforts in her village in Bangladesh and focuses on preparing women for disasters, giving them tools and basic skills to survive and prepare for the floods and cyclones that frequent her village and that are getting increasingly worse and more unpredictable.

Women are pivotal to the efforts to control erosion due to land degradation in the rural community of Keur Moussa, Senegal, under the framework of the Agrobio Niayes Program by ENDA Pronat.

Women are also involved in building vegetation fascines, infiltration ditches, and open trenches to slow water speed. This has not only helped to save the agriculture but also reduced the time women spend getting water and women have been able to trade herbal plants. Adaptation programs like these that specifically target and involve women allow women to develop capacity as well as increase the capacity of the communities these women support.

Respect Collective Wisdom of Women

Gender economists firmly believe in aggregating local knowledge and recent breakthroughs in agricultural and environmental R&D, and using the insights so gained for better management of natural resources. The sharing of information as efficiently as possible emerged as an urgent and pressing requirement, whether it was in the form of advance bulletins on weather patterns or timely data on market trends. Farmer Sita Debi says in blog Find Your Feet, “When there is no rain, we women have to work really hard in the fields to try and grow crops. Our nutrition also suffers because we are the last to eat at the family table. A lot of us are anemic as a result. Women have to walk long distances for potable water, fodder becomes scarce and fuel wood cannot be availed.”

Increased Burden of Care-Giving

As primary caregivers, women may see their responsibilities increase as family members suffer increased illness due to exposure to vector-borne diseases such as malaria, water-borne diseases such as cholera and increase in heart stress mortality. Increased malnutrition and stressful life enhance morbidity levels among women.

Women Farmers’ Response to the Corporate World

Food is a human right and not a corporate commodity for speculation. Mother Nature does not operate on a boardroom profit. Corporate profit will merely lead to more food crisis.

An inspiring experience of Indian women to mitigate the effects of Climate Change merits attention. In Zaheerabad, dalit (the suppressed) women forming the lowest rung of India’s stratified society, now demonstrate adaptation to climate change by following a system of interspersing crops that do not need extra water, chemical inputs or pesticides for production. They grow 19 types of indigenous crops to an acre, on arid, degraded lands that they have been regenerated. A collective of 5,000 women spread across 75 villages in Poor women, without access to modern energy fuels are faced with problems relating to indoor air pollution and bear huge health burdens as a result – there is a high incidence of bronchitis, asthma and other health problems. While women should not be denied the use of fossil fuels like LPG or Kerosene, yet at the same time appropriate technologies that take into account the specific socio-economic realities of different rural areas reduce women’s workload, free-up time and enable them to pursue income-generating or other activities that need to be developed.
this arid, interior part of Southern India is now offering a chemical-free, non-irrigated, organic agriculture as one method of combating global warming.

Vast Renewable Energy Potential could help in responding to this scenario, provided “policy and finance measures quickly scale up proven technologies for the poor, including small hydro and solar power”. Promotion of rain water harvesting, decentralised water bodies, recycling and reusing resources must become our way of life. Efforts such as Green Belt movement in Africa and Bhooogyan in South Asia need to be universalized. Bhooogyan as an Integrated Knowledge System on Climate Change Adaptation by Oneworld.org is designed to cater to the needs of communities vulnerable to the dangerous impacts of climate change. This web-based technology solution provides contextual knowledge on local and indigenous coping strategies to grassroots communities through multiple delivery channels, including the mobile, internet and radio. Communities in turn access on-demand knowledge through mobiles, based on geographical specifics and in local language, on crucial adaptation and risk reduction measures.

Mainstreaming of Gender Concerns in Discourse on Climate Change

As women bear a disproportionate burden of climate change consequences, women’s groups working with rural and tribal organizations are lobbying for gender mainstreaming of women’s concerns in discourse on climate change. Women’s groups in India are seriously concerned about impact of climate change on women’s survival struggles in rural and urban areas. Women scientists such as Dr. Jyoti Parikh and Dr. Vandana Shiva played a crucial role in engendering the discourses by coming out with World Peoples’ Conference on Climate Change and The Rights of Mother Earth Indigenous Peoples’ Declaration on Wednesday, April 28, 2010. This declaration has been the rallying point for highlighting gender concerns in Climate Change debate advocated by United Nations Population Fund (UNFPA).

Practical Gender Needs are those that Women identify in their socially accepted roles in society. Practical gender needs do not challenge the gender divisions of labour or women’s subordinate position in society, although rising out of them. Practical gender needs are a response to immediate perceived necessity, identified within a specific context. (Moser, 1993, p40)

Strategic Gender Needs are the needs women identify because of their subordinate position to men in their society... They relate to gender divisions of labour, power and control and may include such issues as legal rights, domestic violence, equal wages and women’s control over their bodies. Meeting strategic gender needs helps women to achieve greater equality. (Moser, 1993, p39).

The distinction between these two types of needs can provide a useful tool to aid us in analyzing how gender is being addressed in proposed policy or project interventions when faced with challenges arising due to Climate change.

Decreased Food Security: With changes in climate, traditional food sources become more unpredictable and scarce. This exposes women to loss of harvests, often their sole source of food and income.

Impact on Livelihoods: Women are more dependent for their livelihood on natural resources that are threatened by climate change. For instance, climate change causes a rise in the sea level, affecting the fishing community (both men and women) not only in terms of fish-catch but also with regard to water scarcity, as seawater gets into fresh water. Besides, when the land is inundated, infrastructure (roads and houses) are damaged. Large scale migration from inundated areas is expected and much of the burden of migration falls on women.

Water Resources - Shortage and Access: Climate change may exacerbate existing shortages of water. Women are largely responsible for water collection in their communities and, therefore, are more affected when the quantity of water and/or its accessibility changes.

Increased Burden of Care-Giving: As primary caregivers, women may see their responsibilities increase as family members suffer increased illness due to exposure to vector-borne diseases such as malaria, water-borne diseases such as cholera, and increase in heart stress mortality.

Women are particularly vulnerable because they are more prone to the adverse impacts of climate change.
change. Their limited adaptive capacities arise from prevailing social inequalities and ascribed social and economic roles that manifest in differences in property rights, access to information, lack of employment and unequal access to resources. Further, changes in the climate usually impact on sectors that are traditionally associated with women, such as paddy cultivation, cotton and tea plantations and fishing. This means increased hardship for women. For example, studies show that climate change has an adverse impact on fishing, as the sea level rises and saline water enters into freshwater systems, making fishing difficult. Further, in extreme events more women deaths are observed for women’s inability to swim or run or lack of strength to withstand physically demanding situations such as storms, floods, typhoons, etc. From a long-term perspective, this will have serious implications for gender relations, as women may end up spending more time on tasks that reinforce stereotypical gender roles. Thus, women are faced by a situation where their ability to adapt is low but the share of the adaptation burden falling disproportionately on them. This makes the consideration of the impact of climate change on gender most imperative.

Adaptation

The fundamental goal of adaptation strategies is the reduction of the vulnerabilities to climate-induced change in order to protect and enhance the livelihoods of poor people. Experience shows that vulnerability is differentiated by gender. Adaptation to climate change or indeed climate variability is dependent on issues such as wealth, technological power, access to information, all of which are major problem areas for women. However, women can be key agents of adaptation and mitigation to climate change. Their responsibilities in households, communities and as stewards of natural resources position them well to develop strategies for adapting to changing environmental realities.

Mitigation

Women also have a role deriving from their own strength. Women are engaged in a number of activities such as brick-making, charcoal-making, waste management and agro-processing where energy efficiency can lead to Carbon Dioxide (CO2) mitigation and their role in mitigation in these areas can be vital. The development of Clean Development Mechanisms (CDM), through carbon sequestration from afforestation and reforestation can also be done by poor rural women. Women in urban areas can implement energy efficiency programmes at the household level – lighting, use of appliances, etc., while women in rural areas may be encouraged to use biomass and biogas (for fuel generation), and switch to solar energy. Poor women, without access to modern energy fuels are faced with problems relating to indoor air pollution and bear huge health burdens as a result – there is a high incidence of bronchitis, asthma and other health problems. While women should not be denied the use of fossil fuels like LPG or Kerosene, yet at the same time appropriate technologies that take into account the specific socio-economic realities of different rural areas reduce women’s workload, free-up time and enable them to pursue income generating or other activities that need to be developed.

What is the Way Forward?

It is clear that gender differences must be taken into account to understand the impact of climate change. Gender-differentiated strategies for responses and capacity-building are needed due to differences in gender-specific roles and responsibilities created by society. These findings should feed into the climate negotiations as well as national debates to enable decision-makers to have a better understanding of how different groups of people are affected and what kind of capacity and support are needed. More specifically the following actions are required:

- Recognise that women are more vulnerable in climate change-driven scenarios:
  Government should analyze and identify gender-specific impacts and protection measures related to floods, droughts, diseases, and other environmental changes and disasters. An inter-ministerial task force could be set up towards this end.

- Understand and address gender-specific natural resource use pattern:
  Government should develop strategies to enhance women’s access to and control over natural resources.
resources, in order to reduce poverty, protect environmental resources, and ensure that women and poor communities can better cope with climate change.

Identify women’s particular skills and capacities that lend themselves to mitigation and adaptation:

Given that women’s knowledge and participation has been critical to the survival of entire communities in disaster situations, government should take cognizance of women’s specialized skills in different aspects of their livelihood and natural resource management strategies and utilize those that lend themselves to mitigation and adaptation. Increase women’s participation in decision-making at all levels in climate change mitigation and adaptation.

Conclusion

The women’s studies acknowledge the contribution of rural and urban women as “Guardians and Promoters of Life-Centered Cultures”, seed savers, leaders of resistance movements (Chipko in Himalayas, Appiko in South India) & Alternative farming/market/etc. models (Green-belt Movement in Africa). Women’s full humanity becomes the healing force that can break the vicious cycle of violence based on treating the inhumanity of man as the measure of being human, of greed as the organizing principle of the economy. What has changed is greater awareness. Women, even in rural India, now understand better the larger issues like climate change that affect them directly, as is evident in this declaration adopted at a training programme on Gender, Climate Change and Food Security on November 16, 2011, at Saharanpur in UP: ‘... Women hold the key to food security, and it is important that women’s contributions to agriculture and food security be documented, recognised and celebrated.’

Women are refusing to be part of the culture of hate and violence. Women, in and through their lives, are showing that love and compassion, sharing and giving are not just possible human qualities; they are necessary qualities for us to be human. Living cultures are cultures of life, based on reverence for all life - women and men, rich and poor, white and black, human and non-human. In India women are involved in 11 types of environmentalism: wildlife management, conservation, preservation, reform environmentalism, deep ecology, environmental justice, environmental health, ecofeminism, ecospiritualism, animal rights and green movements.

For promoting gender-responsive and inclusive state climate change plans in India, women as economists will have to seek answers to questions like (a) is there gender disaggregated data on impacts of climate change? (b) Are the gender differential impacts of adaptation measures understood and addressed? (b) Do the adaptation programmes reach poor women? (c) Are there ‘additional’ financial resources for women and men? (d) Are women present in the decision-making structures in climate-sensitive areas? (e) Is there recognition of rights/entitlements for poor women and men in adaptation programmes?

Crucial mandate for us is to initiate an interdisciplinary public debate involving pure scientists, social scientists, practitioners, planners and policy-makers on gender and climate change, including catalysing more research on the subject and wide dissemination of the outputs of these researches through niche scientific journals and popular media, including the new media.

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Taking care of your teeth isn’t just about having a nice smile and shiny breath. Recent research has found a number of links between oral health and overall health. While in many cases, the nature of this link still isn’t clear, researchers have yet to conclude whether the connections are causal or correlative. What is certain is that the condition of your mouth is closely tied to your overall physical health.

Oral Health and Diabetes

Doctors have known for years that type 2 diabetics have an increased incidence of periodontitis, or gum disease. In July 2008, the connection was further highlighted: Researchers at Columbia University’s Mailman School of Public Health followed 9,296 nondiabetic participants, measuring their level of periodontic bacteria over the course of 20 years. “We found that people who had higher levels of periodontal disease had a twofold risk of developing type 2 diabetes over that time period compared to people with low levels or no gum disease,” explains Ryan Demmer, PhD, associate researcher at the department of epidemiology at the Mailman School and the lead author.

Oral Health and Heart Disease

In a 2005 NIH study, 1,056 randomly selected participants with no prior heart attacks or strokes were evaluated for levels of periodontal bacteria. After removing the effects of the other risk factors of age, gender, and smoking, it was found that there was an independent relationship between gum disease and heart disease, says Moise Desvarieux, MD, PhD, associate professor of epidemiology at the Mailman School and lead author of the study. One theory about why this may occur, says Dr. Desvarieux, is that small amounts of bacteria enter your bloodstream while you’re chewing. “Bad” bacteria from an infected mouth may lodge themself inside blood vessels, ultimately causing dangerous blockages.

Pregnancy Complications and Gum Disease

Scientists believe that gum disease or inflammation in the mouth possibly triggers an increase in a chemical compound called prostaglandin, which induces early labor. While this theory has not yet been confirmed, a 2001 study found that pregnant women who develop gum disease between weeks 21 and 24 are four to seven times more likely to give birth before week 37. There is evidence that poor gum health in the extreme can lead to low birth weight as well. A number of studies — including a 2007 study of 3,567 Turkish women and a 2007 study of 1,305 Brazilian women — found a relationship between periodontal disease, preterm birth, and low birth weight.

Many areas of the body and your mouth are teeming with bacteria — most of them harmless. Normally the body’s natural defenses and good oral health care, such as daily brushing and flossing, can keep these bacteria under control. However, without proper oral hygiene, bacteria can reach levels that might lead to oral infections, such as tooth decay and gum disease.

In addition, certain medications — such as decongestants, antihistamines, painkillers, diuretics and antidepressants — can reduce saliva flow. Saliva washes away food and neutralizes acids produced by bacteria in the mouth, helping to protect you from microbial invasion or overgrowth that might lead to disease.
Conditions Linked to Oral Health

- **Endocarditis.**
  Endocarditis is an infection of the inner lining of your heart (endocardium). Endocarditis typically occurs when bacteria or other germs from another part of your body, such as your mouth, spread through your bloodstream and attach to damaged areas in your heart.
- **Cardiovascular disease.**
  Research suggests that heart disease, clogged arteries and stroke might be linked to the inflammation and infections that oral bacteria can cause.
- **Pregnancy and birth.**
  Periodontitis has been linked to premature birth and low birth weight.

Certain conditions also might affect your oral health, including:

- **Diabetes.**
  Diabetes reduces the body’s resistance to infection — putting the gums at risk. Gum disease appears to be more frequent and severe among people who have diabetes. Research shows that people who have gum disease have a harder time controlling their blood sugar levels, and that regular periodontal care can improve diabetes control.
- **HIV/AIDS.**
  Oral problems, such as painful mucosal lesions, are common in people who have HIV/AIDS.
- **Osteoporosis.**
  Osteoporosis — which causes bones to become weak and brittle — might be linked with periodontal bone loss and tooth loss. Drugs used to treat osteoporosis carry a small risk of damage to the bones of the jaw.
- **Alzheimer’s disease.**
  Worsening oral health is seen as Alzheimer’s disease progresses.
  Other conditions that might be linked to oral health include eating disorders, rheumatoid arthritis, head and neck cancers, and Sjogren’s syndrome — an immune system disorder that causes dry mouth.

Recommendations

- **Brush your teeth,** not only with fluoride-based toothpaste, but also baking soda-based toothpaste. The baking soda will raise the pH in your mouth, making it more alkaline and therefore decreasing risk of cavities.
- **Avoid smoking.**
  Smoking can wreak havoc on gum and tooth health.
- **Drink green tea.**
  Drinking green tea improves the health of your teeth and gums, as it decreases inflammation, makes your mouth more alkaline, inhibits the growth of cavity-causing bacteria, prevents tooth loss, may slow progression of oral cancer, and freshens breath by killing odor-causing bacteria. Wow! All this, and it can help you to lose fat, too.
- **Chew xylitol gum after meals.**
  Xylitol increases saliva production and prevents the bacteria in your mouth from producing the acids that cause cavities. But don’t go overboard as it may cause gas and bloating.
- **Eat mostly whole, nutrient-dense foods that provide plenty of calcium, phosphorus, magnesium, vitamin K (especially K2) and vitamin D.**
  Foods like leafy green vegetables, nuts, seeds, hard aged cheeses, plain yogurt, meats, beans, mushrooms, fish, eggs, and organ meats all work here. Make sure you get some sunlight.
- **Eat some raw, crunchy fruits and vegetables every day.**
  Raw veggies clean your teeth to a degree (apples, carrots, bell peppers, etc). Eating an apple as dessert after lunch will help to remove material that has adhered to the surface of your teeth. Plus, apples contain naturally occurring xylitol.
- **Limit added sugars from both foods and beverages.**
  This includes soda, fruit juice, energy drinks, candies, etc. Energy drinks are particularly damaging as they combine a high sugar load with an incredibly acidic pH. If your diet is built around energy bars and energy drinks, you probably won’t have any teeth remaining on your 45th birthday.
- **Maintain a lean/healthy body composition.**
  Excess body fat can promote poor systemic health, including poor oral health.
- **Increase the amount of arginine in your diet.**
  Eat more spinach, lentils, nuts, eggs, whole grains, meat, seafood, and soy.
- **Get regular exercise.**
  Exercise protects against periodontal disease.

(Assoicate Professor, Kasturba Nursing College, Sevagram, Wardha, Maharashtra – 442 102.)
Severe anemia has adverse effects on both mother and the fetus. The outcome of pregnancy is directly related to anemia. However, it depends on its severity. Anemia with hemoglobin level below 6 gm/dl is considered severe.
Causes of Anemia in Pregnancy

There is physiological as well as pathological anemia. 75% of all anemias diagnosed during pregnancy are due to iron-deficiency. During pregnancy there is disproportionate increase in plasma volume. Moreover, there is demand for extra iron during pregnancy. Physiological anemia occurs because of a combination of both these factors.

Usual symptoms are:

- Exhaustion, fatigue
- Polar, edema of legs

The confirmatory test is to check the hemoglobin levels. Before declaring it, physiological causes should be ruled out. Complete blood test and peripheral blood fluid examination help in arriving at a diagnosis.

Pathological Anemia

- Deficiency anemia – Iron, folic acid deficiency
- Hemorrhagic anemia – Hemorrhage during pregnancy

Once the diagnosis is made, treatment becomes easy.

Effects on Mother

Severe anemia has adverse effects on both mother and the fetus. The outcome of pregnancy is directly related to anemia. However, it depends on its severity. Anemia with hemoglobin level below 6 gm/dl is considered severe.

It can cause symptoms like headache, tachycardia, pallor, glossitis and stomatitis. It may also lead to congestive heart failures. During normal delivery also there is blood loss. However, it is more during caesarian operation, in cases of placenta previa etc. During pregnancy there can be recurrent infection, preterm labour and APH due to anemia. During labour, there can be postpartum hemorrhage, uterine inertia, cardiac arrest & shock, puerperal sepsis, hypotension and shock. In severe cases, the prognosis is very poor both for mother and fetus. A large number of maternal deaths occur due to this.

Effect on the Fetus

In severe anemia, there can be spontaneous abortion, low birth weight babies, intrauterine death of fetus, and premature birth of babies. It may not be the sole cause of complications in fetus but it is definitely a contributing factor for the bad outcome. Infant mortality rate in such babies is also higher.

Treatment of Anemia in Pregnancy

The most common cause of anemia in pregnancy is iron deficiency. It usually occurs as the expectant mother does not have adequate iron stores prior to pregnancy. The dietary intake during pregnancy is not sufficient. Hence the growing fetus depletes whatever iron is left in the pregnant woman. Another common cause is folic acid deficiency along congenital defects in the fetus.

The line of treatment depends upon the cause and severity of anemia. In severe anemia, patient needs to be hospitalized. Thereafter, along with iron supplements, dietary intake can boost the iron store and treat anemia. In folic acid deficiency, folic acid supplements (1-5 mg once daily) are given till the deficiency is corrected.

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With giant strides in medicine and technology, women dying of something as natural as childbirth should be an extremely rare event. It is therefore shocking to read that nearly 3,00,000 maternal deaths occur in the world each year, translating to one woman dying of childbirth every 2 minutes. 1 in every 16 women die of childbirth in Sub-Saharan Africa, as compared to 1 in every 4000 women in developed nations. A sixth of all maternal deaths in the world occur in India alone. In the age of widespread digital and social media, it is unfortunate that the news of 130 mothers who die in childbirth every single day in India, escapes public attention. This article aims to bring focus to this fact, while understanding the changing trends in maternal mortality and causes of maternal deaths.

**Defining Maternal Death**

A maternal death is termed as the death of a woman while pregnant or within 42 days of termination of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Maternal deaths are expressed as Maternal Mortality Ratio (MMR), that is, the number of maternal deaths per one lakh live births in a given population, over a given time period, usually a year. MMR measures the risk of women dying due to pregnancy, delivery or in the postpartum period.

**MMR Trends in India**

Sample Registration System of India is a source of robust data for maternal mortality in the country. At the turn of the millennium, MMR in India was 327 per 1,00,000 live births (1999-2001). This halved to 167 by 2011-13. This dramatic reduction has been attributed to effective national level public health programs by the Indian government, like the Reproductive and Child Health program (1997) and National Rural Health Mission with key components like the ASHA worker and Janani Suraksha Yojana scheme which promoted hospital deliveries (2005). Newer programs initiated by the government, like the Janani Shishu Suraksha Karyakram (2011) and fully functional referral hospitals under RMNCH+A - Reproductive, Maternal, Newborn, Child and Adolescent Health programme (2013), have resulted in further improvement in MMR to 130 per 1,00,000 (SRS 2014-16).

India, however, continues to be off the mark where its Millennium Development Goals (MDG) are concerned. Only 4 states were able to achieve the MDG goal of
reducing MMR to <100 per 1,00,000 live births – Kerala, Tamil Nadu, Andhra Pradesh and Maharashtra. Some states like Rajasthan, Uttar Pradesh and Assam continue to have MMR levels that rival sub-Saharan Africa. Even within states that have progressed well in regard to maternal survival, there are a few districts which are performing poorly. For example, in the state of Karnataka, the districts of Yadgir, Gulbarga, Bijapur, Koppal and Bellary still have unacceptably high maternal deaths. In a similar manner, nearly all states who report satisfactory reductions in maternal mortality, have pockets of poor performance, where mothers continue to die in childbirth. It is these “high priority” states and districts that need extra focus and concerted efforts, in order for India to achieve the Sustainable Development Goal (SDG) of reducing MMR to < 70 per 1,00,000 live births by 2030.

Causes of Maternal Deaths

Though maternal deaths have drastically reduced in number, most of the maternal deaths that occurred last year, are still due to preventable causes. More than a quarter of maternal deaths in India are due to haemorrhage, mostly during or after the delivery (27%). Pregnancy –induced hypertension or PIH (14%), puerperal sepsis (11%) and obstructed labour (9%) are preventable causes of maternal deaths. Complications from pre-existing conditions like diabetes, malaria and HIV are also contributors to maternal deaths (28%). It is important to note that two-thirds of all maternal deaths happen within the first 24 hours of delivery. It is therefore evident that institutional deliveries with skilled birth-attendants is of prime importance in reducing maternal mortality, with facility for transport to a referral hospital should the need arise.

An analysis of the causes of maternal mortality over the last 15 years, indicates that the proportion of maternal deaths due to puerperal sepsis and unsafe abortions has reduced (due to promotion of clean and hygienic delivery practices) while that due to haemorrhage, obstructed labour, pregnancy-induced hypertension and eclampsia has remained mostly unchanged. The proportion of maternal deaths due to indirect causes from pre-existing or co-existing conditions like anaemia, diabetes, malaria, HIV has increased from 20% to 28%. These are all preventable and treatable causes of maternal deaths.

It is important though, to keep in mind that maternal mortality, like most public health issues, is multifactorial. Social factors that continue to play an important role are: Women’s empowerment, gender equality, child marriage and teenage pregnancy, high parity with too close and frequent pregnancies, lack of awareness, lack of women’s education, poverty, unemployment, poor status of women in society and social class/caste system heavily biased against the poor and marginalized. The role of social factors is highlighted by the fact that the states in India reporting highest maternal deaths, are also the states where literacy levels, status of women in society and gender equality are the lowest in the country. Health Care factors include poor availability and accessibility of quality health care, shortage of trained health personnel, lack of infrastructure, equipment, medical supplies, corruption and lack of accountability.

The trends in maternal mortality data in India indicate a need for continual thrust on institutional deliveries with skilled birth-attendants and access to fully functional referral hospitals. There is a need for screening and treatment of preventable causes of maternal deaths during routine antenatal care at the community level, for which capacity building of grass-root level workers is a must. Maternal Death Reviews which are conducted at the district level, should not be about playing the “blame-game”, but instead be an opportunity to identify gaps in the health system and institute remedial measures to strengthen maternal health.

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Garcinia indica commonly known as Kokum belongs to the genus *Garcinia and Clusiaceae* family. It is an indigenous evergreen plant grown in Western Ghats of India, lower slopes of Nilgiris and in North Eastern states of Manipur and Assam. The trees yield fruits annually in the summer season during the months of March to May. The fruits are generally globular or spherical in appearance, which are green when raw and become red to dark purple when fully ripe with unique flavour weighing about 15-20 grams, enclosing 5 to 8 large seeds.

Dried fruit rinds have been used extensively for centuries throughout Southeast Asia for culinary purposes as a condiment and flavouring agent in place of tamarind or lemon. Additional culinary uses include the flavouring of curries, meat and seafood. The fruit extract has been used as a flavouring agent for beverages and gourmet spices. The herb is considered beneficial for overall health in the traditional Ayurvedic medical system. Rheumatism and bowel complaints are treated with a decoction of the fruit rind.

**Nutritional value of Kokum**

In the whole fruit, seed portion consists of 20 to 23% fruit weight. Kernel accounts for 61% of the seed weight. The kernel has 33 to 44% oil and 17% protein. The Garcinia oil or butter has 60-65% saturated fatty acids, which is solid at room temperature. The triglyceride composition is balanced with 2.0 to 8.0% palmitic acid, 55 to 65% stearic acid, 30 to 44% oleic acid, 1 to 8% linoleic acid. The fruit also contains substantial amount of malic acid. Malic acid is acidic, reddish coloured and gives the pungent sour taste to fruits. The rind of Garcinia contains nutrients such as protein, tannin, pectin, sugars, fat, organic acids like hydroxy citric acid, lactone, citric acid and anthocyanin’s, cyanidin-3-glucoside, cyanidin-3-sambubioside, poly-iso-prenylated phenolics, garcinol and isogarcinol.

Kokum exhibits various phytochemical properties like anti-ulcerogenic, cardio-protective, anticancer, chemo-preventive, free radical scavenging and anti-obesity effects. It is also useful in curing piles, dysentery, tumor pains and cardiac problems. The kernels of Garcinia seed contain about 33 to 44 per cent oil, which is commercially known as “Kokum butter”. It is considered as nutritive, demulcent, astringent and emollient.
Health-promoting nutrients in Kokum

Hydroxy citric acid (HCA) and Para hydroxyl citric acid (PCA) are the super ingredients present in Garcinia and are used as an anti-obesity agent for keeping fatty acid symbiosis at lower level. The suggested mechanism of action involves HCA and PCA inhibiting lipogenesis, increasing lipid oxidation, and reducing food intake. The fruit also contains xanthones, which inhibit pre-neoplastic lesions in mammary and colon cancer. The xanthones also induce apoptosis in mouth, leukemia, breast, gastric, and lung cancer cell lines in vitro.

Medicinal uses

Kokum exhibits various phytochemical properties like anti-ulcerogenic, cardio-protective, anticancer, chemo-preventive, free radical scavenging and anti-obesity effects. It is also useful in curing piles, dysentery, tumor pains and cardiac problems. The kernels of Garcinia seed contain about 33 to 44 per cent oil, which is commercially known as “Kokum butter”. It is considered as nutritive, demulcent, astringent and emollient. Due to high content of di-saturated and mono-saturated glycerides, it is in great demand as a substitute for cocoa, an extender in chocolate and confectionery products preparations. Kokum butter is easily absorbed into the skin and also contains vitamin E. It exhibits excellent emollient and functional / nutraceutical properties. Hence it has good demand in cosmetic industry as well apart from confectionary industry.

Traditional uses

The outer rind of the fruit is dried and ground into powder, which is to impart an acid flavour to curries instead of tamarind. The fresh fruit also is consumed directly to avail lots of health benefits. The pulp of the fruit is used to prepare sherbet which is commonly available in markets. The soft drink and derivative of Garcinia, popularly known as Kokum syrup is consumed as a natural soft drink to quench thirst during summer.

Wine industry

Garcinia fruit and seed are used in the manufacture of wine, champagne and liquor. Garcinia can be used as an ideal substitute for grapes in the wine industry. As Garcinia reduces fat, cools body, fights cholesterol, wine and liquors made from Garcinia will attract health conscious people.

Dried fruit rinds have been used extensively for centuries throughout Southeast Asia for culinary purposes as a condiment and flavouring agent in place of tamarind or lemon. Additional culinary uses include the flavouring of curries, meat and seafood.

In spite of having very good nutritional profile, the availability of processing technologies for Garcinia is limited. Hence there is a need for development of value-added and processed Garcinia products, which can ensure demand and fetch more income through the sale of such products. The resultant of this activity creates employment opportunities at rural areas apart from increasing the earnings. India is the only country enjoying the monopoly with respect to Garcinia production in the world. With a market driven encouragement to the Garcinia crop, establishment of large number of processing units at Garcinia-growing belt can help in earning good income through supply of nutritional value-added products.

(MFPI - Quality Control Laboratory, PJTS Agricultural University, Rajendranagar, Hyderabad 2Division of Horticulture, ICAR Research Complex for NEH Region, Imphal, Manipur)
Nutritional anemia comprises the second most common group of deficiency disorders after protein-energy malnutrition. It is defined as anemia which occurs when there is a deficiency of one or more of the nutrients like iron, folic acid and vitamin B12, proteins, amino acids, vitamins A, C, and other vitamins of B-complex group i.e., niacin and pantothenic acid which required for the synthesis of haemoglobin and the production of erythrocytes. WHO defines anemia as a condition in which the haemoglobin content of blood is lower than normal.

Iron is an essential component of haemoglobin and a large proportion of nutritional anemia in the world is caused by its deficiency. It is the condition when red blood cells do not carry enough oxygen to the tissues of the body. Iron deficiency tends to be most common when the intake is not enough to meet the demands of growth, e.g. in pregnancy, during infancy and at adolescence.

Prevalence of anemia

Two billion people over 30 per cent of the world’s population are anemic (WHO, 2011). The prevalence of anemia in India is 53.0 per cent. In Himachal Pradesh, the situation is on the troublesome front, wherein 53.5 per cent women, 20.1 per cent men and 53.7 per cent children were recorded to be suffering from anemia (NLHS-IV 2015-16). According to DLHS-IV (2012-13) report on Himachal Pradesh, 43 per cent women, 19 per cent men and 55 per cent children were recorded to be suffering from anemia.
Types of anemia

Anemia caused by dietary deficiencies or physiological or pathological cause
- Anemia due to inadequate production of erythropoietin
- Anemia due to deficiencies of folic acid and vitamin B12 (Megaloblastic anemias)
- Iron deficiency anemia.
- Anemia due to deficiencies of vitamin C pyridoxine and certain hormones

Anaemia due to genetic defects (Hemolytic Anemia)
- Defective formation of haem.
- Defective formation for globin (Haemogloviapathies and Thalassemias)
- Defective formation of red blood cells
- Defects due to deficiency of some enzymes in red blood cells

Anemia due to other causes
Drugs, toxic chemicals, infection, antibodies and non availability of iron stored in tissues (Sideroblastic anemia)

Symptoms of anemia
Symptoms may include malaise, fatigue, skin pallor, shortness of breath, light-headedness, dizziness or a fast heartbeat, palpitations and brittle nails.

Causes of nutritional anemia
- Low dietary intake, poor iron (less than 20 mg /day) and folic acid intake (less than 70 micrograms/day)
- Poor bio-availability of iron (3-4 percent only) in phytate fibre-rich Indian diet; and
- Chronic blood loss due to infection such as malaria and hookworm infestations

Iron deficiency
Iron plays an important role in body’s physiology because of its unique ability to give up or accept electrons and oxygen. All food iron is present in two main forms:
- Inorganic or non-haem iron, which occurs as ferric hydroxide complexes loosely bound with proteins, amino acids or organic acids. Prior to absorption, this form of iron must be split from its combination with organic molecules and reduced to the ferrous state. It must then be converted to soluble complexes (chelates) by combining with amino acids polypeptides or sugars. This happens during acid-pepsin digestion in the stomach. Hydrochloric acid in the stomach as well as organic acids in food are both important for this purpose. Reducing substances like vitamin C helps in the conversion of ferric iron to the reduced (ferrous) state. In this form iron is more soluble and more readily absorbed. On the other hand, presence of phytates can result in the formation of insoluble salts and prevent absorption.
- Haem iron- which is bound to porphyrin in haemoglobin and myoglobin. Its absorption is not affected by phytate or phosphate or ascorbic acid. Haem iron is absorbed intact into the intestinal epithelial cells and the iron is split off from the haem moiety within the epithelial cell.

Iron inhibitors and promoters
Factors influencing absorption of iron are largely those contained in foodstuffs. Inhibitors like phytates, phosphates and tannins are more common in foods of vegetable origin. It has been shown that tannin in tea forms insoluble tannate complexes with non-haem iron which cannot be absorbed. On the other hand, ascorbic acid and animal protein, especially meat, help the absorption of iron.

A large proportion of iron is absorbed in the duodenum and the efficiency of absorption decreases from the proximal to the distal parts of the duodenum. Absorption can also occur in the jejunum and proximal ileum. Colonic absorption of soluble ferrous iron has been demonstrated but it is doubtful whether the colon is a significant site of absorption. All ferric iron in the food must be converted to the soluble ferrous form before it can be absorbed.

Interventions to Prevent and Correct Anemia

Dietary diversification
Dietary diversification is encouraging the consumption of micronutrient rich foods – dark green leafy vegetables, lentils and vitamin C rich fruits – which may be available but are underutilized by the deficient population. Tea and coffee inhibit iron absorption when consumed with a meal or shortly after a meal. Vitamin C (ascorbic acid) is also a powerful enhancer of iron absorption from nonmeat foods when consumed with a meal. The size of the vitamin C
effect on iron absorption increases with the quantity of vitamin C in the meal. Germination and fermentation of cereals and legumes improve the bioavailability of iron by reducing the content of phytate, a substance in food that inhibits iron absorption. Promote and support exclusive breastfeeding for about 6 months followed by breastfeeding with appropriate complementary foods, including iron-rich through the second year of life.

Food fortification

Food fortification refers to the addition of micro-nutrients to processed foods. In many situations, this strategy can lead to relatively rapid improvements in the micro-nutrient status of a population, and at a very reasonable cost, especially if advantage can be taken of existing technology and local distribution networks.

Supplementation

Food supplements are highly concentrated vitamins and minerals produced by pharmaceutical manufacturers in the form of capsules, tablets or injections and administered as part of health care or specific nutrition campaigns. Oral iron salts—ferrous forms are better absorbed than ferric (ferrous sulfate, ferrous lactate, ferrous fumarate). Best absorbed on an empty stomach but if irritation occurs, give with meals. Dosage 50-200 mg of elemental iron for adults; 6 mg/kg body weight for children. Generally supplement for 3 months (4-5 months if taken with meals).

National programmes for prevention and management of anemia

- National Nutritional Anemia Prophylaxis Programme (1973)
- Weekly Iron and Folic Acid Supplementation (WIFS)
- Kishori Shakti Yojana

Conclusion

Regular hemoglobin check and good care of pregnant women i.e, by giving iron supplements to them will prevent nutritional anemia in pregnancy.

Anemia impairs individual growth and development, as well as family, community, and national socioeconomic development. The Government of India has initiated several supplementary nutrition programmes at the central and state level, to improve the nutritional status of the people and eradicate anemia. By the end of twelfth plan, the Government is committed to reduce anemia among women, girls and children by 50 percent. ■

(Department of Food Science, Nutrition and Technology CSK Himachal Pradesh Agricultural University, Palampur- 176 062 Email: preeticboudhary0070@gmail.com)
Almost everyone will be temporarily or permanently impaired at some point in life, and those who survive to old age will experience increasing difficulties in functioning.

**Incidence**
- Overall, a billion people are estimated to live with some form of disability. This is about 15% of the world population.
- Between 110 million and 190 million adults have significant difficulties in functioning. (WHO, 2017)

**What is Community based rehabilitation (CBR)**

Community based rehabilitation is a systematized approach within the general community development whereby persons with disabilities are enabled to live fulfilling lives within their own community.

CBR emphasizes the use of mainstream, existing resources, such as health facilities, educational institutions, community services, and non-governmental organizations.

**Defining Community-Based Rehabilitation**

**Aim of CBR**

Community-based rehabilitation (CBR) is to help people with disabilities, by establishing community-based programs for social integration, equalization of opportunities, and physical therapy rehabilitation programs for the disabled.

**Objectives of community-based rehabilitation**
- Ensure possibility of work for persons with disabilities and enhance their mental and physical abilities and get equal opportunities and contribute positively to the development of their communities.
- Enable communities to promote the rights of disabled persons and protect them by changing the communities themselves to remove obstacles that disrupt participation.

**Seven different components**
- Creation of a positive attitude towards people with disabilities
- Provision of rehabilitation services
- Provision of education and training opportunities
- Creation of micro and macro income – generation opportunities
- Provision of long-term care facilities
- Prevention of causes of disabilities
- Monitoring & evaluation.

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Ramyasree. CH
**Steps in implementation of CBR**

- Identification of person requiring rehabilitation services.
- Assessment of disabilities and various needs for rehabilitation of identified person.
- Provide the basic services through PHC, such as drugs, dressing materials, protective footwear, counselling and training in self-care.
- Introduce / escort the person to ‘Village Health & Sanitation Committee’ along with his/her problems or issues.
- Refer him/her to secondary or tertiary care centre for physical rehabilitation services, like ulcer care, physiotherapy, surgical treatment, treatment of eye complications, prostheses and so on. Follow up of referral services is also an essential task.
- Facilitating accessibility to ‘socio-economic rehabilitation services’ through social welfare department by a ‘CBR worker’.
- A health supervisor, MPW, ANM, AWW, ASHA, or even a volunteer can play the role of CBR – worker. Joint efforts by ‘Village health & sanitation committee’ will be often required.
- Review meetings by all stakeholders, to discuss the progress of CBR project or individual’s problems will help in expediting the rehabilitation.
- District Nucleus steers the rehabilitation activities and provides support to CBR workers in facilitating the accessibility to different services.
- Coordination with social welfare department and working jointly.
- Education of people, behavioural change communication and all effort to reduce stigma need to be carried out simultaneously and jointly so that rehabilitation activities can be carried out smoothly.
- Participatory Evaluation of CBR services/projects at definite intervals will open the avenues of effective and sustainable rehabilitation.

**Responsibilities of CBR workers**

- Act as local advocates on behalf of people with disabilities and their families with the health services personnel.
- Provide liaison and continuity of care in the community on behalf of professionals eg. Continued supervision of home programs.
- Act as directors of community initiatives to remove social and physical barriers that affect exclusion.
- Provide a positive role model for service users if they themselves have a disability.

**Advantages of CBR**

- Home-based
- Less expensive
- Existing community responses and resources
- Focus on quality rather than quantity
- Multiple approaches based on community needs

**Limitations of CBR**

- Survival needs have more priority than solving problems of disabled. CBR programme should therefore be focusing on essential needs.
- Complex organization
- Educated workers rarely go to field and also find it hard to communicate with less educated disabled people.
- Frontline CBR is a low profile job, so less educated workers may influence quality of services provided.

CBR is a practical strategy for implementation. CBR activities are designed to meet the basic needs of people with disabilities, reduce poverty, and enable access to health, education, livelihood and social opportunities – all these activities fulfill the aims of the Convention.

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(Asst. Professor, Apollo College of Nursing, Jubilee hills. Email: ramyasree_c@apolloinsr.edu.in. The author acknowledges various references which are available on request)
I sit down next to Nilofer as we both eat lunch in the office. “I’m so sorry to hear that your father passed away. How is your mother doing after this loss? Tell me about it all.” Nilofer is a young community health trainer with a daring splash of bleached blonde hair that peaks out from the head scarf she usually wears. Last week her father passed away and today is her first day back at work since her bereavement. I’m working for a couple of weeks with her NGO in Afghanistan conducting an evaluation.

“My father was nearly eighty years old and he had been in bed most of the time in his last three years with ‘pressure and sugar’ (hypertension and diabetes). But you see my mother was only nine years old when they got married and my older brother was born when she’d just turned 13. Marriage of young girls was quite normal in those days and now it seems so terrible to me that a nine-year-old girl was married to my father who was nearly 40 years old then. So, all five of us children were born by the time Mum was 18 years old… now she is a widow at the age of 39 years. She is feeling very lonely.”

I am thrown off guard. I know that child marriage which is still far too prevalent across India and other countries in South Asia but talking to Nilofer makes the impact of this oppressive practice personal and present. Nilofer’s mother is younger than me yet she missed out on a childhood, missed out on the unfettered life of young adulthood that I enjoyed, missed out on education and now faces many decades of widowhood in a society where a ‘man-less’ woman is marginalised in so many ways.

Nilofer and I talk more about her Mum, her own childhood and her own life. She herself got married at 20 years. Women who marry young have reduced ability to make their own decisions, reduced opportunities for higher education and reduced freedom of movement. We talk about actions that Nilofer and her team have taken to encourage young women and their families to delay marriage. Then the two of us go back to our work stations; me plugging away at a report after evaluating a community mental health programme, and she, at writing the text for a radio show about seeking treatment for epilepsy.

A week later, I am home in Dehradun district, with my teenage daughters who are stressing about whether to wear leggings or shorts in the interschool cross country. They have their own informed opinions about Sonya Gandhi, Naomi Klein and Dipa Karmakar, and expect to be studying until at least their early 20’s. Do my daughters really share the same planet as the one where Nilofer’s mother lives? The very different trajectories available to women based on which family and which country they were born to, is a harsh reminder of the massive global inequalities that persist and even increase. The medical journal, the Lancet in May this year showed that 230,000 girls under five years die each year in India due to gender discrimination. As well as the evils of pre-natal sex selection there are many structures that support and perpetuate gender inequality active in India, early marriage of young women is one of them. The situation that encourages and enforces early marriage in South Asia requires action from each of us. Time for all of us to speak out for the right of young women to marry at an age when they can practise greater self-determination. Time to speak with our friends, relatives and neighbour, one family at a time. Enough of writing, I’m off to go and have chai with our neighbours who have a 19-year-old daughter.

(The author works in community health and development with the Emmanuel Hospital Association and is based in Uttarakhand)
Germs on your towel

Family size, type of diet and multi-usage of towels, among other factors, impact the growth of pathogens on kitchen towels, potentially causing food-poisoning, says a study. Moreover, diet, type of use and moist kitchen towels could be very important in promoting the growth of potential pathogens responsible for food poisoning. In kitchen towels collected in the study, 49% had bacterial growth which increased in number with factors such as extended family, presence of children and increasing family size. The towels for multipurpose usage (wiping utensils, drying hands, holding hot utensils, wiping/cleaning surfaces) had a higher bacterial count than single-use towels. Humid towels showed a higher bacterial count than the dry ones. Out of the 49 samples which were positive for bacterial growth, 36.7% grew coliforms, 36.7 Enterococcus spp and 14.3% S. aureus. A total of 100 kitchen towels were collected after one month of use. The researchers cultured the bacteria and identified them by standard biochemical tests. The findings were presented at ASM Microbe, the annual meeting of the American Society for Microbiology. The Hindu, June 10, 2018

Brisk walking could add years to your life

Speeding up your walking pace could extend your life, say scientists who have found that a brisk or fast gait significantly reduced the risk of early death. Walking at an average pace was found to be associated with a 20% risk reduction for all-cause mortality compared with walking at a slow pace, while walking at a brisk or fast pace was associated with a risk reduction of 24%. A similar result was found for risk of cardiovascular disease mortality, with a reduction of 24% walking at an average pace and 21% walking at a brisk or fast pace, compared to walking at a slow pace. The protective effects of walking pace were also found to be more pronounced in older age-groups. Average pace-walkers aged 60 years or over experienced a 46% reduction in risk of death from cardiovascular causes. The Times of India, June 4, 2018

Cucumber nutrition

Crunchy and cooling cucumber is an essential part of our summer diet—be it the sandwiches or the salads. But not many of us know that cucumber is a powerhouse of minerals, vitamins and electrolytes. Packed with nutrients such as Vitamin K, Vitamin C, Magnesium, Phosphorus, Riboflavin, B-6, Folate, and iron, cucumber aids weight loss, has detox properties and is good for gut. As it is made of up to 95% water, it keeps your body hydrated and is good for heart. Apart from this, it helps regulate cholesterol, and is a good source of silica—the beauty mineral. So make it a part of your daily diet and reap its benefits. The New Indian Express, June 10, 2018

Artificial sweeteners linked to diabetes and obesity

People switch to zero-calorie artificial sweeteners such as aspartame and acesulfame potassium to limit their sugar intake. These are among the most common food additives worldwide, and is found in diet and zero-calorie sodas and other products. But, a US study presented at the Experimental Biology 2018 meeting have linked artificial sweeteners to obesity.
and an increased risk of diabetes. The researchers looked at biochemical changes in the body after consumption of sugar or sugar substitutes, as well as their impact on vascular health by examining how they affected the lining of blood vessels.

The studies, which were done in rats and cell cultures, showed that artificial sweeteners change how the body processes fat and gets its energy. Also, acesulfame potassium seemed to accrue in the blood, and higher concentrations had a more harmful effect on the cells that line blood vessels.

“In our studies, both sugar and artificial sweeteners seem to exhibit negative effects linked to obesity and diabetes, albeit through very different mechanisms from each other. We also observed that replacing these sugars with non-caloric artificial sweeteners leads to negative changes in fat and energy metabolism,” cautioned the lead researcher.

The Week, June 3, 2018

Weight loss may harm bone health

While losing excess weight can be considered healthy, researchers claim that it may reduce bone density, bone architecture and bone strength in older adults.

According to the study, the magnitude of changes to the skeleton were clinically significant and translated into an almost three-fold increase in the risk of fracture for those who lost five per cent or more weight over 40 years.

Long-term and recent weight loss were found to be associated with lower cortical density and thickness, higher cortical porosity, and lower trabecular density and number in the elderly.

The New Indian Express, June 4, 2018

Five healthy habits could add a decade to your life

Following -- five healthy habits -- exercising regularly, not smoking and drinking only in moderation—during adulthood can reduce your risk of dying from cardiovascular diseases and cancer by 82 per cent and 65 per cent respectively. The Harvard study published in the journal Circulation, looked at 34 years of data from 44,354 men examining how five lifestyle factors—not smoking, low body mass index, at least 30 minutes of exercise daily, moderate alcohol intake (not more than five ounces of wine per day for women, or up to ten ounces for men), and a healthy diet—could affect mortality.

For participants who did not follow any of the five low-risk habits, the estimated life expectancy at age 50 was 29 years for women and 25.5 years for men. But for those who followed all five, the estimated life expectancy at age 50 was 43.1 years for women and 37.6 years for men. There was a direct relationship between each healthy behaviour and reduced risk of early death. “Our findings have significant public health implications, because they demonstrate the great potential of diet and lifestyle changes in improving the expectancy,” said a senior researcher.

The Week, June 3, 2018

Red meat link to colon cancer

A study has found that those regularly eating red meat, compared to a red meat-free diet, had higher rates of distal colon cancer or cancer found on the descending section of the colon, where faeces is stored. The study compared the effects of red meat, poultry, fish or vegetarian diets to cancer development in specific sub-sites of the colon. The impact of different types of red meat and dietary patterns on cancer locations is one of the biggest challenges in the study of diet and colorectal cancer. More than 2.2 million new cases of colorectal cancer, also
known as bowel cancer, are expected worldwide by 2030. Previous studies have suggested that eating lots of red and processed meat increases the risk of colorectal cancer. The study, published in The International Journal of Cancer Research, used data from the United Kingdom Women’s Cohort Study.

The Hindu, April 15, 2018

Eggs are not bad for heart

A new Australian study published in the American Journal of Clinical Nutrition has concluded that eating up to 12 eggs a week does not increase cardiovascular risk factors like cholesterol in people with pre-diabetes or type 2 diabetes.

For the study, 140 people with pre-diabetes or type 2 diabetes (which put them at risk of cardiovascular diseases) were randomised to a high egg diet (12 eggs per week) or a low egg diet (less than 2 eggs per week), along with a heathy diet that included whole grains, low glycemic index carbohydrate foods, and replacing saturated fats with monounsaturated and polyunsaturated fats like olive oil. They followed this diet for 12 months.

There were no significant differences between the two groups in a wide range of cardiovascular risk factors including cholesterol, blood sugar and blood pressure. People on both diets lost an equivalent amount of weight, too.

“While eggs themselves are high in dietary cholesterol and people with type 2 diabetes tend to have higher levels of the ‘bad’ low density lipoprotein (LDL) cholesterol, this study supports existing research that shows consumption of eggs has little effect on the levels of cholesterol in the blood of the people eating them,” said the study author.

The Week, June 3, 2018

Low iron, Vitamin B12 levels may up anxiety

Iron deficiency and low blood levels of Vitamin B12 in small boys may be associated with behaviour problems, such as anxiety and aggression, when they get in middle school, according to a new study.

The findings showed that iron deficiency, anaemia and low plasma vitamin B12 levels in boys at around age 8 were associated with 10 per cent higher mean scores on externalising behaviours such as aggression and breaking of rules.

Iron deficiency was related to an adjusted 12 per cent higher mean on internalising problem scores like anxiety and depression. “Some parts of the brain develop throughout childhood.” Said Eduardo Villamor, Professor at the University of Michigan in the US. He explained that “structural changes in the basal ganglia, hippocampus, amygdala and prefrontal cortex of the brain may be involved in the development of behaviour problems as these brain regions respond to environmental conditions at different life stages”.

For the study, appearing in the Journal of Nutrition, the team examined 3,200 children aged 5-12. “Interventions to curb these deficiencies must be informed by knowledge of their causes in each specific setting,” Villamor said.

The New Indian Express, April 26, 2018

Did you know?

A woman’s diet can influence the timing of menopause. Menopause tends to start earlier for women whose diets are high in refined carbohydrates such as pasta and rice, whereas it starts later for those who consume a lot of fish and fresh legumes such as peas and green beans according to Journal of Epidemiology of Community Health.

The Week, June 3, 2018

A woman’s diet can influence the timing of menopause. Menopause tends to start earlier for women whose diets are high in refined carbohydrates such as pasta and rice, whereas it starts later for those who consume a lot of fish and fresh legumes such as peas and green beans according to Journal of Epidemiology of Community Health.
**READERS SPEAK**

**Eagerly wait for the issue**

Every month we eagerly wait to receive the copy of the magazine. Each issue brings us a lot of useful information on a particular health topic.

**R Krishnan**  
Bengaluru, Karnataka

**Excellent content and good quality**

The magazine has excellent content and is very good in quality.

**Rev. J Jones Britto**  
Rev. J Jones Britto

**A great job!**

Under your able guidance, enthusiastic approach and tireless work attitude, *Health Action* has reached a high level. Congratulations to the editorial team for doing a great job! Keep it up!

**Nahomi Clement**  
Changanassery, Kerala

**Issue is quite informative**

The issue “Caring for the Elderly” is very informative and thought-provoking. The problems faced by the elderly are described clearly and in detail.

**Vinod Kumar**  
Madurai, Tamil Nadu

**Forthcoming Themes**  
(The order is subject to change)

- Impact of internal migration on TB control and tactical changes needed in the national effort
- Arogyasree Scheme
- Health Insurance
- School Health
- Kudumbasree and Health
- Media and Health
- Impact on Health Planning
- Fats in the Diet
- Common lab tests and interpretations (diagnostic procedures)
- Air Pollution
- Corporate Social Responsibility
- Physiotherapy
- Role of Private Health Care Institutions in India
- Role of Alternative Systems of Medicine
- Telemedicine
- Homeopathy
- Swachh Bharat
- Vaccines/Immunization Practices

*Readers are invited to write on the themes of their choice*
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