



Deadly brew

A multi-pronged plan is needed to prevent the sale and consumption of toxic alcohol

The death of more than 100 people to toxic alcohol in Uttar Pradesh and Uttarakhand has exposed the thriving sale of illicit liquor in the region. India remains among the countries with a high number of alcohol-related deaths, with poor governance, corruption and distorted policies contributing to such periodic tragedies. The governments in U.P. and Uttarakhand cannot evade responsibility for the death of so many people, the majority of them in Saharanpur district of U.P. Preliminary investigation has confirmed the well-entrenched system of illicit liquor vends that are known to exist in the region; several factories producing hooch in U.P. were unearthed within a couple of days of the episode. Moreover, although several liquor-related deaths have been taking place, it took this staggering number of casualties for the authorities to acknowledge the presence of free-flowing illicit liquor. The Yogi Adityanath government prides itself on its law and order measures but its failure to crack down on these dens exposes the hollow claims. It has tried to put the blame for previous incidents on political opponents hatching conspiracies.

Several instances of toxic alcohol poisoning in India, including the Malvani hooch tragedy in Mumbai in 2015 that killed 106 people, have been attributed to the lack of affordable liquor for the poor. High taxes and excise raise prices, and cheap brews are peddled by criminal organisations, often in collusion with law enforcement personnel. In U.P., many communities have protested the sale of cheap liquor in pouches that are freely distributed during social events. What seems to have happened in Saharanpur follows the trend, with toxic alcohol originating in Haridwar in Uttarakhand being supplied at a family ritual. While it is no one's case that consumption of cheap liquor needs to be encouraged or promoted, severe bottlenecks are proving counter-productive. An enlightened policy is needed to strike a balance, curbing illicit flows with zero tolerance, discouraging consumption through social campaigns and reviewing levies on less harmful beverages. At the moment, it is essential to make an example of those who participated in the sale of the lethal brew, and investigate any nexus with the authorities. If it is true that the suspects had a history of dealing in hooch, the Special Investigation Team constituted by the U.P. government should find out how they continued to operate their trade. In parallel, it is vital that the capacities of the health system be upgraded to handle victims of toxic alcohol. Toxicity often comes from drinking methanol, which results in blindness, tissue damage or death. Timely treatment through haemodialysis, infusion of sodium bicarbonate and ethyl alcohol can save lives.

Ageing revolution

The Iranian regime must rethink its approach to dissent and personal freedoms

Iran has concluded the formal celebrations of the 40th anniversary of the Islamic revolution at a time when the regime is under serious global, regional and domestic pressure. The theocratic regime, established by Ayatollah Ruhollah Khomeini in 1979, struck a defiant note by mobilising a huge rally in Tehran and repeating its familiar anti-West rhetoric. But Iran's leaders are under pressure with a weak economy and social tensions rising at a time when U.S. President Donald Trump is becoming increasingly hostile towards Tehran. The fact that the Islamic Republic has survived four decades is telling. Over these years, Iran saw an eight-year-long war with Iraq, near-total isolation in West Asia, and economic hardships. The Iranian regime turned some of these challenges into opportunities – as in the case of the 1980-88 Iran-Iraq war – and made substantial changes in certain sectors. For example, the investments made in education and health care have seen positive results. As of 2015, the literacy rate among Iran's adult population was 93%. More than 60% of university students in Iran are women. Access to health care has also improved for large sections of society.

But even as the Islamic Republic holds strong, discontent has risen. When Iran signed the multilateral nuclear deal in 2015, the Tehran elite hoped it would allow the country to join the global economic and diplomatic mainstream. President Hassan Rouhani banked on increased investments to bolster the economy. But the détente between the U.S. and Iran ended as soon as Mr. Trump became U.S. President. The Trump administration pulled the U.S. out of the nuclear deal and reimposed sanctions on Tehran. The U.S. has also joined hands with Iran's rivals, such as Saudi Arabia, to scuttle the country's regional ambitions, while Israel is repeatedly bombing Iranian positions within Syria. Within Iran, the regime is facing repeated protests as economic hardships mount. After the 2009 Green Movement, which was suppressed brutally, there were widespread anti-government demonstrations in 2017-18. Women came out against the mandatory headscarf in recent months, challenging religious orthodoxy. The Iranian state responded typically – an Amnesty report says “a shameless campaign of repression” was unleashed in 2018, resulting in the arrest of more than 7,000 protesters. Tehran's criticism of foreign intervention has some merit. American sanctions will only multiply Iran's economic woes. Tehran will have to deal with the U.S.'s unilateral and hostile policies with help from other countries. But it should also fix its system, tackle corruption and hold government departments accountable for the decisions they take. It is also time for the government, which is celebrating the anniversary of the fall of a despotic monarch, to rethink its approach towards dissent and personal freedoms.

The shape of the jobs crisis

India has no industrial policy or employment strategy to ride the wave of its demographic dividend



SANTOSH MEHROTRA

Job creation has slowed since 2011-12, the year of the last published National Sample Survey Office (NSSO) labour force survey. I used Labour Bureau annual survey (2015-16) data and Centre for Monitoring Indian Economy Pvt. Ltd. (CMIE) data (post-2016), which has a sample size larger than the NSSO labour force surveys, to reach this conclusion. Both surveys cover rural and urban, and organised and unorganised sector employment; in other words, they capture both the Employees' Provident Fund Organisation/National Pension Scheme (organised) as well as such employment as might be generated by Micro Units Development & Refinance Agency Ltd (MUDRA) loans or platform economy jobs. The latter two job sources are precisely what the government claims were not being captured by jobs data available. We have repeatedly stated that government claims on absence of 'good' data on jobs are simply untenable.

My analysis prior to the leak of NSSO 2017-18 data had shown that the jobs situation has turned grim since 2012.

A jump now

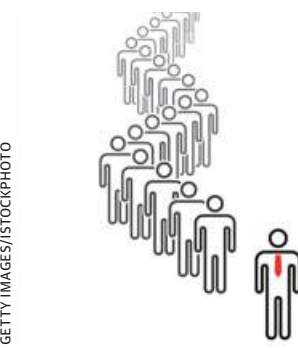
What the leaked NSSO 2017-18 data have shown is that while the open unemployment rate (which does not measure disguised unemployment and informal poor quality jobs that abound in the economy) by the usual status never went over 2.6% between 1977-78 and 2011-12, it has now jumped to 6.1% in

2017-18. This was expected. In the last 10-12 years, more young people have become educated. The tertiary education enrolment rate (for those in the 18-23 age group) rose from 11% in 2006 to 26% in 2016. The gross secondary (classes 9-10) enrolment rate for those in the 15-16 age group shot up from 58% in 2010 to 90% in 2016. The expectation of such youth is for an urban, regular job in either industry or services, not in agriculture. If they have the financial wherewithal to obtain education up to such levels, they can also “afford” to remain unemployed. Poor people, who are also much more poorly educated, have a much lower capacity to withstand open unemployment, and hence have lower open unemployment rates.

What NSSO 2017-18 also shows is that as open unemployment rates increased, more and more people got disheartened and fell out of the labour force; in other words, they stopped looking for work. The result is that labour force participation rates (LFPR, i.e. those looking for work) for all ages, fell sharply from 43% in 2004-5 to 39.5% in 2011-12, to 36.9% in 2017-18 (a reflection mainly though not only of the falling female LFPR). This shows up in the growing numbers of youth who are NEETs: not in education, employment or training. They are a potential source of both our demographic dividend but also what is looking to be a mounting demographic disaster.

Meanwhile, government economists have repeatedly told us that there is no jobs crisis.

Between 2004-05 and 2011-12, as many as 7.5 million new non-agricultural jobs were being created every year. The unemployment rate was only 2.2%. The volume of open unemployment was almost constant (at around 10 million) until 2011-12, but it increased to 16.5



million by 2015-16. Increased open unemployment, post 2011-12, suggests that those in education prior to 2011-12 would start searching for non-agricultural jobs but did not find them. The latest NSSO data suggest that this situation had worsened further by 2017-18.

Across education categories

A sharp increase in the unemployment rate of the educated (based on our estimates of the Annual Survey, Labour Bureau) should have worried the government. My estimate is that the unemployment rate rose over 2011-12 to 2016 from 0.6% to 2.4% for those with middle education (class 8); 1.3% to 3.2% for those who had passed class 10; 2% to 4.4% for those who had passed class 12; 4.1% to 8.4% for graduates; and 5.3% to 8.5% for post-graduates. Even more worrying, for those with technical education, the unemployment rate rose for graduates from 6.9% to 11%, for post-graduates from 5.7% to 7.7%, and for the vocationally trained from 4.9% to 7.9%.

While NSSO 2017-18 data show the share of regular wage jobs rising, especially in urban areas (and the share of self-employed and casual wage work falling), this rise in nowhere close to the number of educated youth entering the labour force.

For an economy at India's stage of development, an increase of

workers in agriculture (of 20 million that took place over 1999-2004) is a structural retrogression, in a direction opposite to the desired one. Between 2004-5 and 2011-12, the number of workers in agriculture fell sharply, which is good, for the first time in India's economic history. Similarly, the number of youth (15-29 years) employed in agriculture fell from 86.8 million to 60.9 million (or at the rate of 3 million per annum) between 2004-5 and 2011-12. However, after 2012, as non-agricultural job growth slowed, the number of youth in agriculture actually increased to 84.8 million till 2015-16 and even more since then (as the CMIE data would attest). These youth were better educated than the earlier cohort, but were forced to be in agriculture.

Drop in manufacturing jobs

Even worse, manufacturing jobs actually fell in absolute terms, from 58.9 million in 2011-12 to 48.3 million in 2015-16, a whopping 10.6 million over a four-year period. This is consistent with slowing growth in the Index of Industrial Production (IIP), which consists of manufacturing, mining, and electricity. The IIP had sharply risen from 100 in 2004-5 to 172 by 2013-14 (in the 2004-5 series), but only rose from a base of 100 in 2011-12 in the later series to 107 in 2013-14, and to 125.3 in 2017-18. This is also consistent with exports first falling after 2013, then barely recovering to levels still lower than 2013. It is also consistent with investment-to-GDP ratio falling sharply since 2013, and still remaining well below 2013 levels. This holds for both private and public investment.

What is tragic is the growing number of educated youth (15-29 years) who are “NEET”. This number (70 million in 2004-5) in-

creased by 2 million per annum during 2004-5 and 2011-12, but grew by about 5 million per annum (2011-12 to 2015-16). If that latter trend continued (as there is evidence it has) we estimate it would have increased to 115.6 million in 2017-18. That is a 32 million increase in “NEETs” in our society over 2011-12 to 2017-18 – potential lumpen fodder.

These youth (“NEET” and unemployed) together constitute the potential labour force, which can be utilised to realise the demographic dividend in India. Will a new government at least recognise there is a crisis?

I estimate that the number of new entrants into the labour force (currently at least 5 million per annum), and especially educated entrants into the labour force will go on increasing until 2030. It will thereafter still increase, though at a decelerating pace. By 2040 our demographic dividend – which comes but once in the lifetime of a nation – will be over. China managed to reduce poverty sharply by designing an employment strategy (underpinned by an education and skills policy) aligned to its industrial strategy. That is why it rode the wave of its demographic dividend. Unfortunately, India has neither an industrial policy nor an employment strategy, let alone the two being aligned.

Is our political class listening? Or are our educated unemployed and NEETs meant to be merely used as political fodder? That is the trillion rupee question for the fastest growing large economy in the world, about to become the fifth largest in the world.

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A case for Commons sense

There needs to be a review of how biodiversity and natural resources are governed



BALAKRISHNA PISUPATI

When 196 countries met at Sharm el-Sheik, Egypt, last November for the 14th meeting of the Conference of Parties to the Convention on Biological Diversity (CBD), a key question on top of the agenda was how to govern biological resources (or biodiversity) at different levels for the world's sustainable future.

The meeting had come at a significant time: it was the CBD's 25th year of implementation, countries had approximately 350 days to meet global biodiversity targets, and there was the backdrop of a damning report that humans have mismanaged biodiversity so badly that we have lost 60% of resources (which can never be recouped). Finally, there was growing concern on how the Convention's objectives of conservation, sustainable use and equitable sharing of benefits were being compromised, including by the parties themselves.

For thousands of years, humans have considered natural resources and the environment as a global public good, with communities having diligently managed these resources using the principle of ‘Commons’.

In simple terms, these are a set of resources such as air, land, wa-

ter and biodiversity that do not belong to one community or individual, but to humanity. All developments we see in the establishment of civilisations across the world as well as agricultural development feeding the world today are a result of such ‘Commons’ being managed by communities for centuries.

Then came the urge of those with money and power to privatise these resources for individual prosperity in the form of property management principles, intellectual property rights and others. In one form the CBD – a multi-lateral environmental agreement that has provided legal certainty to countries through the principle of sovereign rights over biodiversity – also contributed to states now owning the resources, including their rights on use and management.

Today, states control and manage biodiversity with strict oversight of who can use what and how. The intent of the CBD and having sovereign rights was to manage resources better. But the results of such management have been questionable. A key reason cited is that ‘Commons’ and common property resource management principles and approaches are ignored and compromised.

Why ‘Commons’?

According to estimates, a third of the global population depends on ‘Commons’ for their survival; 65% of global land area is under ‘Commons’, in different forms. At least



293,061 million metric tonnes of carbon (MtC) are stored in the collective forestlands of indigenous peoples and local communities. This is 33 times the global energy emissions in 2017. The significance of ‘Commons’ in supporting pollination (the cost estimated to be worth \$224 billion annually at global levels) cannot be overlooked.

In India, the extent of ‘Common’ land ranges between 48.69 million and 84.2 million hectares, constituting 15-25% of its total geographical area. ‘Common’-pool resources contribute \$5 billion a year to the incomes of poor Indian households. Around 77% of India's livestock is kept in grazing-based or extensive systems and dependent on ‘Commons’ pool resources. And 53% of India's milk and 74% of its meat requirements are met from livestock kept in extensive ‘Common’ systems.

Despite their significance, ‘Commons’ in India have suffered continued decline and degradation. National Sample Survey Office data show a 1.9% quinquennial rate of decline in the area of ‘Common’ lands, though microstudies

show a much more rapid decline of 31-55% over 50 years, jeopardising the health of systemic drivers such as soil, moisture, nutrient, biomass and biodiversity, in turn aggravating food, fodder and water crises. As of 2013, India's annual cost of environmental degradation has been estimated to be ₹3.75 trillion per year, i.e. 5.7% of GDP according to the World Bank.

Why the concern?

‘Commons’ becoming uncommon is a major socio-political, economic and environmental problem. While the state can have oversight over resource management, keeping people away from using and managing ‘Commons’ is against effective governance of ‘Commons’.

The sovereign rights provided for, legally, under the CBD should not be misunderstood by the state as a handle to do away with ‘Commons’-based approaches to managing biodiversity, land, water and other resources.

Current discussions under the United Nations should focus on how and why ‘Commons’ have been negatively impacted by progressive pronouncements to save the earth and people.

Another key concern is the changing socio-political impact of migration. Gone are the days when we can consider ‘Commons’ as resources relevant only for rural communities. ‘Commons’ are now a major provider of livelihood options for both urban and peri-urban populations. The relevance of ‘Commons’ impacting urban

dwellers cannot be overlooked with more urbanisation happening.

Approaches for the future

There needs to be a review of current governance of biodiversity and natural resources. After 18 years of action to reduce the rate of loss of biodiversity, it is very likely that the same 196 countries will meet in 2020 to apologise to the world for having failed to meet the objectives of the convention.

In addition to seeking more money, time and capacities to deal with biodiversity and natural resource management, we need to focus on three specific approaches: one, to re-introduce more strongly, the management and governance principles of ‘Commons’ approaches into decision-making and implementation of conservation, use and benefit sharing action; two, to use Joseph Schumpeter's approach of creative destruction to put resource management in the hands of the people; and three, to re-look at Elinor Ostrom's Nobel Prize winning principles of dealing with ‘Commons’.

The time for corrective approaches and action is now.

Balakrishna Pisupati, currently working on the promise of ‘Commons’, is Chairperson, Forum for Law, Environment, Development and Governance (FLEDGE) and former Chief of Biodiversity, Land Law and Governance at the United Nations Environment Programme

LETTERS TO THE EDITOR

Letters emailed to letters@thehindu.co.in must carry the full postal address and the full name or the name with initials.

Post-retirement posts

It is not clear how the writer's suggestion that a committee made up of retired judges decide the question of who among retired judges should be chosen for post-retirement government appointments, which in turn would secure the independence of the judiciary, will work (Editorial page, “Time to raise the bar”, February 12). In such a scenario, the discretion of the government and the discretion of the retired judge would be substituted for the discretion of the committee which could be equally faulty. The best way would be to marginally increase the retirement age of judges and see that there are no post-retirement appointments. When the

seniority of Supreme Court judges was overlooked in the appointment of the Chief Justice of India, Nani Palkhivala had said, “Hereafter we will have only looking forward judges and not forward looking judges.” That will equally apply when retired judges seek office or are appointed to office after retirement.

N.G.R. PRASAD,
K.K. RAM SIDDHARTHA,
Chennai

■ If judges are offered gainful employment post-retirement, they are bound to bend before the government. A way out could be to fashion a panel of experienced judges who shall render advice to the government whenever needed and be paid for their services. This methodology

would harness their valuable experience and insights. This is the era of the gig economy.

DEEPAK SINGHAL,
Noida

■ While post-retirement jobs must neither be offered nor sought by retired judges of all grades, the accompanying question is whether retired judges can aspire for high positions. Two very respected judges of the Supreme Court of India, contested, after retirement, for the post of President of India, and both lost. Though one may argue that they deserved the post, they could have been more judicious in turning down the offer. Judges must remain aloof, both during and after their tenure.

V. LAKSHMANAN,
Tirupur, Tamil Nadu

Checking radicalisation

The writer has highlighted how rising nationalism can result in the radicalisation of a community (Editorial page, “Caught between two extremisms”, February 11). But I fail to understand what the threat was in the 1970s when an organisation such as the Students' Islamic Movement of India made an appearance. All fundamentalists try to usurp power, engage in destabilising established institutions and try to impose their own ideology using fear. But it is to our great advantage that the social fabric in India is secular by nature, which is why any seed of fundamentalism may find it hard to germinate and take root. Intellectuals need to play a major role in

encouraging secular thoughts.

GAURAV CHANDRA,
New Delhi

An ideal medium

By its very nature, radio shapes our lives, informing and even uniting us. By bringing together people and communities it can help usher in positive change. World Radio Day falls on February 13 and the theme this year is “Dialogue, tolerance and peace”. One hopes that in a world with alternative mediums of

communication, radio can still find the valuable space to help serve as a platform for dialogue and democratic debate and encourage listeners to think of forward-looking action. Perhaps All India Radio, which has been serving the masses in the fields of education, information and entertainment with distinction, can take the lead in this.

T.S. KARTHIK,
Chennai

MORE LETTERS ONLINE:
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CORRECTIONS & CLARIFICATIONS:

The report headlined “Commemorative volume on Sri Raghavendra Swamy” (Feb 11, 2019) erroneously mentioned Sri Sujayendra Theertha as the previous Peethathipathi of the Sri Raghavendra Swamy Math and as the architect of the modern Mantarayam which was devastated by the floods in 2009. Sri Sujayendra Theertha had passed away much earlier.

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THE WEDNESDAY INTERVIEW | HELEN HOBBS

'Cholesterol-lowering interventions, whether diet or statins, should start early'

The geneticist on her work on coronary heart disease, and why studying different races is critical

PRIYANKA PULLA

Geneticist Helen Hobbs' work on coronary heart disease (CAD) led to the development of PCSK9 inhibitors - the most powerful cholesterol-lowering drugs to hit the market since statins. These drugs fight the PCSK9 protein, which prevents "bad" low density lipoprotein (LDL) cholesterol from being removed from blood. In the mid-2000s, Dr. Hobbs, director of the Eugene McDermott Center for Human Growth and Development at Dallas' UT Southwestern Medical Center, found that a mutation in the PCSK9 gene, present mainly in African Americans, suppressed LDL levels. Consequently, it protected carriers from CAD. Importantly, people with two copies of this mutation had no side-effects of very low LDL, such as loss of adrenal function. A key innovation in Dr. Hobbs' approach was to look for a rare gene variation with a large impact on cholesterol. Most scientists then were carrying out genome-wide association studies (GWAS), which look for common gene variants. Unfortunately, this strategy had mainly identified gene variants with a small impact on CAD risk. Dr. Hobbs' approach bore fruit. Through research on the 3500-strong Dallas Heart Study cohort, she and colleague Jonathan Cohen discovered rare mutations in the PCSK9 gene. Eventually, drugmakers Amgen and Regeneron developed the PCSK9 inhibitors Evolocumab and Alirocumab, respectively, which mimic this mutation's effects. In an interview in Hyderabad, where she spoke at the TNQ Distinguished Lectures in the Life Sciences, Dr. Hobbs discussed the way ahead. Excerpts:

How did the Dallas Heart Study begin?

The question we were trying to answer was if elevated LDL is necessary for heart disease. You can't ask that question by looking at Mendelian disorders (in which defects in a single gene trigger heart disease), because everyone who has these disorders is sick. We were looking for mutations that would protect people from heart disease. Such healthy people wouldn't be in the clinic. So, we developed the Dallas Heart Study. One of the premises was that there were going to be low-frequency or rare variations associated with major changes in lipids.

Our population was designed to maximise the probability of finding such rare variations. It was a multi-ethnic cohort, in which half the individuals were of African descent, while 15% were Hispanic, and the rest were of European ancestry. Africans, being the most ancient popu-

lation, are the most genetically diverse. Our approach of looking for rare variations was really key to our findings. As a scientist, you are always looking for things that have large effects, since they are easier to study.

If looking for rare gene variants with large effects could be such a powerful approach, why was everyone else doing the opposite at that time?

Honestly, I couldn't figure it out. Maybe my approach had something to do with my medical background. Maybe it was because I had worked on Mendelian disorders. In some ways, I benefited from being in Texas, away from the epicentre where everyone was doing the same thing. With our approach, everywhere we went, we found things. PCSK9 is the biggest story. But that's not the only one. We also found variants in a gene called ANGPTL4, which lowered



plasma triglycerides. Mutations in ANGPTL3 were found to lower levels of both cholesterol and triglycerides, and antibodies to this protein are now being developed into a drug as well. What people hadn't known until then was how riddled healthy individuals are with rare mutations that have major effects. What we did then has now become routine. Companies do it all the time today.

One of the problems in genetics is "missing heritability". GWAS that look for common gene variants to explain disease risk have only been able to explain a small part of disease inheritance. Do you think rare-gene variants explain this gap in heritability?

There are definitely many more common variants than there are rare. But for an individual who has a rare variant, the rare variant can mean everything. That's the problem.

In our first experiment, we found that people with low HDL ("good" chole-

Statins are not a cure; it's not like giving antibiotics for an infection. You have to start young.

rol) have a major gene defect which is contributing to it.

While this was going on, a woman in France had identified families that had very high cholesterol due to a new gene PCSK9. She found two missense mutations in this gene (missense mutations alter the make-up of a protein coded for by a gene; in contrast, nonsense mutations stop the production of the protein). Individuals with the missense mutations had high plasma levels of LDL. To figure out what the PCSK9 mutations did, three groups over-expressed the mutant forms of the PCSK9 gene in the livers of mice. And in those mice, the LDL receptor, which removes LDL from the blood, disappeared. The mice became hypercholesterolemic (developed high cholesterol). We thought, if you didn't have PCSK9, you would have a lot of LDL receptors on the cell's surface, and low LDL. So, we went to

the blacks and the whites in the Dallas Heart Study, and we sequenced the individuals who had LDL less than the 5th percentile. We found three sequence variations. One missense mutation was in whites, associated with a modest reduction in LDL. But there were two nonsense mutations, which introduced stop codons in individuals of African descent. Those stop codons are a gift to geneticists, because they are almost invariably a loss-of-function mutation. This means that they kill the (PCSK9) protein.

These two nonsense mutations were only seen in black people. And they were associated with about a 40% reduction in LDL cholesterol. We wanted to know what it meant to be born with such a mutation, and to have low LDL throughout one's life. If LDL is an important factor in heart disease, this mutation should really change one's risk of developing heart disease. So, we went to the only biracial study in the world - the ARIC (Atherosclerosis Risk in Communities) Study - and asked a simple question. Did people who hadn't

had a heart attack and were not on lipid-lowering agents have the mutations we found? Among black people in this study, we found that the mutation lowered the risk of heart disease by almost 90% - higher than what we had found in the Dallas Heart Study.

We knew that we had made a significant observation. If you have low LDL for years, you are not going to get heart disease. Atherosclerosis starts early and develops gradually.

You have talked previously about the need to lower cholesterol earlier in life. Should people start taking statins earlier then?

The best way to lower cholesterol is through diet, but it must start at an early age.

In 2015, the U.S.'s Dietary Guidelines Advisory Committee said dietary cholesterol may not be a "nutrient of concern for overconsumption", given that there wasn't enough evidence to show its impact on LDL. What did you think of this?

I don't believe it. Of course, cholesterol is a nutrient of concern, and its effects are compounded by saturated fat. The benefits of lowering your cholesterol are indisputable now. We have so many studies. But the problem is that you cannot take 50-year-olds, who have had high cholesterol their whole life, lower it, and eliminate risk of heart disease. Atherosclerosis is already in their arteries.

If you look at the statin trials, a large percentage of those who get treated still have a cardiac event. Statins are not a cure; it's not like giving antibiotics for an infection. You have to start young. Either you have to consume a different diet,

which gets you on a different trajectory, or you have to start statins at a younger age. What age that should be is still disputed, because there haven't been clinical trials. It's hard to start people on a drug and follow them for 30-40 years.

PCSK9 inhibitors are very promising, but their use is greatly limited by their high cost. Do you think the cost will come down in the future?

It can only come down. It already has. When they first came out in the market, they were priced too high at \$14,000 per year. It really was a mistake. Then they did a cost benefit analysis, and brought the price down to about \$5,000 a year. Now, a lot more people are getting the drugs. The hope is that competition will eventually bring down the price even further.

One reason for the high cost of Evolocumab and Alirocumab is that they are monoclonal antibodies. Are there any alternative strategies that target the PCSK9 protein, but are less expensive or easier to use?

There is Inclisiran, a small interfering RNA, which is being tested in humans. Because PCSK9 is made in the liver, you can inhibit it at the level of messenger RNA. Inclisiran, which does this, requires an injection every six months. This is terrific because one of the major problems with statins is compliance; people stop taking them. An injection every six months is much easier to adhere to. People are also thinking about CRISPR-Cas9 strategies, but as everyone knows, that's not going to happen tomorrow.

In your ongoing work, you

have identified genetic mutations (in PNPLA3 and TM6SF2) for fatty liver disease (FLD). Is there scope for therapeutics here?

I think it's pretty clear that there is.

Again, this disease is burgeoning in frequency, and is huge in India. When we started, almost nothing was known about its pathogenesis, except that when people are obese or have diabetes, they have a higher incidence of fatty liver disease.

However, we saw in the Dallas Heart Study that 50% of people who were obese did not have FLD. This suggests that there might be genes involved in the propensity to deposit fat in liver. In this case, we did a GWAS, and found that the Hispanics had a common sequence variation associated with high triglyceride content.

How big a problem is the under-representation of certain ethnicities in genetic research? Most genome-wide association studies have involved Europeans. What opportunities are we missing because of this?

I think the opportunities are huge. We need to study more groups, especially Indians. It is an incredibly genetically diverse population, which has poorly understood susceptibilities to coronary heart disease and to diabetes at a lower body mass index.

Studying different races is very critical. In PCSK9's case, if we had not had blacks in our population, we would never have discovered the gene mutations that led to new cholesterol-lowering therapy. In the FLD study, if we didn't have Hispanics, we would never have discovered PNPLA3, which is currently the most important risk factor for fatty liver disease.

SINGLE FILE

Lessons of 1979

Post the revolution, Iran's staying power as a state in the face of a very hostile international milieu has been remarkable

MOHAMMED AYOOB



This month marks the 40th anniversary of the Iranian revolution. It is time, therefore, to evaluate the fundamental lessons of the revolution. It is true that the takeover of the broad-based revolution against Mohammad Reza Shah Pahlavi by hard-line mullahs distorted the original trajectory of the revolution and stifled the democratic aspirations of the people. At the same time, one should not overlook the fact that the anti-Western thrust of the revolution that played into the hands of the hard-line clergy was in large part a delayed reaction to the British and American role in the coup that overthrew Iran's first elected government in 1953.

The American support to Saddam Hussein's invasion of Iran in 1980 augmented anti-Western sentiments and further helped the clergy-dominated regime to consolidate its power in the country. The bankrolling of Hussein's war to the tune of billions of dollars by Saudi Arabia and allied Gulf regimes solidified the antagonism between revolutionary Iran and the Arab monarchies of the Gulf. It also hardened the division between Shias and Sunnis in West Asia. The Iranian-Saudi rivalry is being played out to this day in Yemen, Syria, Lebanon and other parts of West Asia.

However, the most important lesson of the revolution and its aftermath is the demonstration of Iran's remarkable staying power as a state and a nation in the face of a very hostile international milieu. Iran has confronted unprecedented economic sanctions since the revolution, a process that intensified in the past decade and a half to force Tehran to give up its presumed nuclear aspirations. The Iranian people put up with grave hardship for four decades but did not surrender their national sovereignty. This is because the state of Iran/Persia has been in existence since time immemorial, and in its present contours from the early 16th century, its citizens have developed a sense of innate pride and confidence in the state's staying power against the heaviest odds. The development of Persian nationalism has been a gradual process that, one can argue, culminated in the underlying thrust of the revolution.

Persian nationalism draws upon its glorious pre-Islamic heritage, as described in the *Shahnameh*, Iran's epic par excellence. It is also engendered by the twin marks of distinction that Iranians are very proud of: their ability to preserve their Persian character and language despite their acceptance of Islam, a religion of Arab origin; and the distinctive character of Persian Islam embodied in Shia doctrines that distinguishes it from its predominantly Sunni neighbours. Regardless of the nature of a particular regime, longevity of national memories and people's pride in them can work great miracles when faced by hostile forces bent on emasculating the nation's sovereignty.

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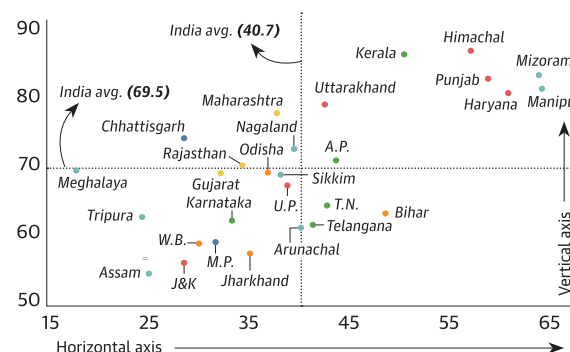


DATA POINT

Abysmal standards

In as many as 443 of 586 rural districts, less than 50% of students in Grades VI-VIII knew how to carry out basic division, ASER-2018* revealed. Learning levels measured by knowledge of division and the ability to read simple texts remained low across India. **By Vignesh R.**

State-wise comparison | The scatter diagram shows the wide gulf between the top six States and others in learning levels. On the horizontal axis, the % of VI-VIII students who could carry out simple division is plotted. On the vertical axis, the % of VI-VIII students who could read Grade II-level text is plotted. States are coloured based on their geographical location



- Students in Manipur & Mizoram had good learning levels while Meghalaya, Tripura & Assam had the worst
- Students in Bihar fared badly in reading, but had better maths skills. This trend was also seen to an extent in T.N.
- Haryana, Punjab and Himachal were among the best in both aspects. J&K, M.P. and W.B. were among the worst
- In Punjab, none of the districts had worse reading levels or maths skills than the national average (see Table)

*Source: Annual Status of Education Report, 2018

Levels across districts | Table shows rural districts in each State with poor reading skills (the reading levels of students in these districts was lower than the national avg.) and poor math skills (lower than the national avg.)

State	Districts with poor reading skills	Districts with poor maths skills	Total districts
M.P.	39	42	50
U.P.	38	36	70
Bihar	29	4	38
Karnataka	22	23	30
Jharkhand	21	17	24
Assam	18	23	26
T.N.	18	13	31
Rajasthan	17	19	33
Odisha	15	17	30
Gujarat	13	22	26
W.B.	13	13	17
J&K	10	10	14
Telangana	7	5	9
Maharashtra	6	20	33
Chhattisgarh	6	14	16
A.P.	6	6	13
Nagaland	4	7	11
Arunachal	4	2	6
Tripura	3	4	4
Sikkim	3	2	4
Meghalaya	2	7	7
Haryana	1	1	21
Manipur	1	1	8
Mizoram	1	0	8
Uttarakhand	0	5	13
Himachal	0	1	12
Kerala	0	1	12
Punjab	0	0	20

FROM THE HINDU ARCHIVES

FIFTY YEARS AGO FEBRUARY 13, 1969

United Front swept back to power in West Bengal

The United Front was swept into power in the mid-term poll in West Bengal to-day [February 12]. The 12-party combination registered a series of successes and won an absolute majority in the 280-member Assembly. No single party has been able to win an absolute majority in the 425-member U.P. Assembly. The Congress obtained 208 out of 420 seats for which results have been declared. The picture emerging from the results of 260 seats declared so far to the 318-member Bihar Assembly does not hold out easy prospect for any single party to secure absolute majority though the Congress emerged as the largest single party with 100 seats. With 241 results announced in Bengal the U.F. bagged 181 seats and the Congress 50 seats, the other 10 being shared by other splinter parties and independents.

A HUNDRED YEARS AGO FEBRUARY 13, 1919

Reform Committees.

"The Times" [of London on January 31] says that the Committee appointed to enquire into the organisation of the India Office is strong and representative. Lord Crewe gained intimate experience of the questions at hand when he was Secretary of State for India. It is perhaps a little unfortunate that he has already fathered one scheme for India Office reform, which threatened to undermine the Secretary of State's Council and came to untimely end. Sweeping constitutional changes in India, however, were not then contemplated, and "The Times" expresses its conviction that the Committee will approach the new conditions with an entirely open mind. The principle involved is really very simple. We cannot offer India self-government progressively and simultaneously keep her bound hand and foot to the India Office. The Montagu-Chelmsford Report recognised this very frankly.

CONCEPTUAL

Ancient astronaut hypothesis

ARCHAEOLOGY

This refers to the proposition that human civilisation is the product of an intelligent alien visiting the earth during prehistoric times and establishing contact with human beings. The origin of various religious beliefs, for instance, has been attributed to alien gods establishing contact with people prior to the age of recorded history. The ancient astronaut hypothesis was first proposed by Swiss writer Erich von Däniken in his 1969 book *Chariots of the Gods?* It has been rejected overwhelmingly by scientists who consider the idea to be pseudoscientific due to the lack of any credible scientific evidence.

MORE ON THE WEB

Nelson Mandela exhibition, with several unseen artifacts, opens in London

<http://bit.ly/2X0L8UD>