

OUR OPINION, THEIR OPINION

You don't choose your family. They are God's gift to you, as you are to them.
- Desmond Tutu

WHEN MARRIAGE TURNS INTO PENALTY

A recent World Bank report highlights the persistent inequities faced by women in marriage, coining the term "marriage penalty" to describe the social, economic, and health-related disadvantages they endure. This concept captures the idea that while marriage is traditionally viewed as a source of security and support, it often disproportionately burdens women. The marriage penalty is not just a theoretical issue; it manifests in various forms globally. Women frequently bear the brunt of unpaid domestic work, childcare, and elder care, often leading to career stagnation or complete withdrawal from the workforce. Even in dual-income households, research shows that women are more likely to compromise on their careers for family responsibilities. This perpetuates the gender wage gap, further limiting their financial independence and long-term security. Coupled with this is the child penalty which also negatively affects women's participation in the job market. The report phenomenon is prevalent in South Asia, barring Afghanistan. The impact on health is equally concerning. The report highlights that women in marriages often face higher risks of mental health challenges, such as anxiety and depression, largely due to the dual pressures of managing household responsibilities and paid work. Domestic violence, unequal decision-making power, and limited access to healthcare also exacerbate their vulnerabilities. Addressing this issue requires systemic change, including equitable distribution of household responsibilities, policies supporting women's career growth, and stronger legal protections against domestic violence. Without these interventions, marriage will continue to be a space where women disproportionately lose, facing penalties instead of partnerships that foster equality and well-being. There is an urgent need to tap women's full potential.

Why SMRs Are Crucial for India's Energy

Early adoption of SMRs, supported by clear policy frameworks, can deliver scalable, low-carbon energy solutions, crucial for meeting rising AI-driven demand while advancing India's clean energy goals

Artificial Intelligence (AI) is emerging as a major energy guzzler, with data centres at the core of this trend. Data centres, which power much of the digital economy, are already heavy electricity consumers, with energy accounting for 46 per cent of total operating costs in enterprise data centres and up to 60 per cent in service provider data centres.

As the demand for AI-driven workloads increases, these facilities are expected to consume even more energy. International Data Corporation (IDC) report forecasts that AI data centre energy consumption will grow at a staggering compound annual growth rate (CAGR) of 44.7 per cent, reaching 146.2 Terawatt hours by 2027. This growth is driven by the intensifying computational requirements of AI, leading to a dramatic rise in energy consumption and carbon emissions, positioning AI as a major factor in the escalating operational costs and environmental impact of data centres.

In India's case, the data centre sector is poised for exponential growth, with a forecasted compound annual growth rate (CAGR) of over 50 per cent, according to financial service firm Jefferies. This rapid expansion is expected to significantly impact India's power consumption, with data centres projected to account for 6 per cent of the country's total power demand by 2030, up from less than 1 per cent today. The surge in AI workloads, which are highly energy-intensive, will be a key driver of this rising demand. This challenges India's energy infrastructure, requiring substantial investment in both capacity and renewable energy sources to balance the country's digital ambitions with its climate goals.

Nuclear energy should become increasingly important for this sector in India, mirroring its growing global role. Shares in nuclear energy companies have soared to record highs last week following landmark power supply deals between Amazon, Google, and small modular reactor (SMR) developers. Oklo Inc and NuScale Power, both US-listed SMR developers, saw their shares rise by 99 per cent and 37 per cent, respectively, after financing agreements involving

X-energy and Kairos Power. These deals aim to deploy up to a dozen next-generation reactors to provide low-carbon electricity for Amazon and Google's AI-driven data centres, signalling a potential nuclear energy resurgence, especially as the growing power demand from data centres threatens decarbonisation efforts.

The renewed interest in nuclear power, especially in SMRs, marks a shift from investor hesitance due to past challenges such as delays, budget overruns, and high interest rates. While companies like X-Energy and NuScale previously faced setbacks in securing utility interest, Amazon and Google's investments reflect a broader recognition that renewable energy alone may not meet the tech industry's growing need for stable and cost-effective power.

In her latest budget speech, Finance Minister Nirmala Sitharaman highlighted nuclear energy as a crucial element in India's energy strategy for achieving "Viksit Bharat" by 2047, aiming to make India a fully developed nation. She announced that the government would collaborate with the private sector to establish Bharat Small Reactors and advance research and development (R&D) of Bharat Small Modular Reactors (SMRs), positioning them as key contributors to India's future energy mix.

India is planning to deploy 40-50 SMRs as part of its strategy to achieve net-zero emissions by 2070. These reactors are intended to replace captive thermal power plants, especially in industries like steel and cement. The initiative involves redesigning the 220-MWe Pressurised Heavy Water Reactors (PHWRs) for standardization and modularity, making them easier to deploy.

SMRs are distinct from conventional large-scale nuclear reactors in both design and operational characteristics, with several technical innovations that enhance their flexibility and safety. SMRs are generally defined as reactors with an electrical output below 300 MW, compared to conventional reactors that often exceed 1,000 MW in capacity. One of the key technical differences lies in their

modular construction. Unlike traditional reactors, built entirely on-site over long construction periods, SMRs are designed to be manufactured in a factory environment and transported to the site in pre-fabricated modules. This approach, known as "modularisation," allows for greater control over construction quality and reduces on-site labour, leading to shorter construction timelines.

Studies suggest that the factory-based construction of SMRs could reduce construction times by 25-30 per cent, lowering the risk of project delays and cost overruns. This modularity also allows for a phased deployment strategy, where multiple units can be added over time to meet increasing demand, offering significant economic advantages over traditional gigawatt-scale reactors typically overbuilt for smaller grids' energy needs.

From a technical safety perspective, SMRs incorporate advanced passive safety features that rely on natural phenomena, such as gravity, natural circulation, and pressure differentials, to maintain core cooling during accident scenarios without the need for active intervention or external power (Ingersoll, 2009). This is a stark contrast to large reactors, which primarily use active safety systems that require external power and human oversight, increasing the complexity and potential for failure during off-normal events.

For example, SMRs like the NuScale reactor use a passive cooling system that can shut down and remain cool for extended periods without operator action, in contrast to conventional Pressurised Water Reactors which require more elaborate safety protocols. Moreover, SMRs often employ advanced coolants such as molten salt, lead-bismuth eutectic, or helium, which operate at lower pressures compared to the water-based cooling systems in traditional reactors, reducing the risk of catastrophic pressure-related failures. These advancements in coolant technology also enable higher thermal efficiencies, with some designs reaching up to 45 per cent efficiency, compared to the 33-35 per cent typically seen in large reactors.

By : Aditya Sinha

Mobile phones are not linked to brain cancer

A systematic review into the potential health effects from radio wave exposure has shown mobile phones are not linked to brain cancer. The review was commissioned by the World Health Organisation and is published in the journal Environment International.

Mobile phones are often held against the head during use. And they emit radio waves, a type of non-ionising radiation. These two factors are largely why the idea mobile phones might cause brain cancer emerged in the first place.

The possibility that mobile phones might cause cancer has been a long-standing concern. Mobile phones – and wireless tech more broadly – are a major part of our daily lives. So it's been vital for science to address the safety of radio wave exposure from these devices.

Over the years, the scientific consensus has remained strong – there's no association between mobile phone radio waves and brain cancer, or health more generally.

Despite the consensus, occasional research studies have been published that suggested the possibility of harm.

In 2011, the International Agency for Research on Cancer (IARC) classified radio wave exposure as a possible carcinogen to humans. The meaning of this classification was largely misunderstood and led to some increase in concern.

IARC is part of the World Health Organisation. Its classification of radio waves as a possible carcinogen was largely based on limited evidence from human observational studies. Also known as epidemiological studies, they observe the rate of disease and how it may be caused in human populations.

Observational studies are the best tool researchers have to investigate long-term health effects in humans, but the results can often be biased.

The IARC classification relied on previous observational studies where people with brain cancer reported they used a mobile phone more than they actually did. One example of this is known as the INTERPHONE study.

This new systematic review of human observational studies is based on a much larger data set compared to what the IARC examined in 2011.

It includes more recent and more comprehensive studies. This means we can now be more confident that exposure to radio waves from mobile phones or wireless technologies is not associated with an increased risk of brain cancer.

The new review forms part of a series of systematic reviews commissioned by the World Health Organisation to look more closely at possible health effects associated with exposure to radio waves.

This systematic review provides the strongest evidence to date that radio waves from wireless technologies are not a hazard to human health.

It is the most comprehensive review on this topic – it considered more than 5,000 studies, of which 63, published between 1994 and 2022, were included in the final analysis. The main reason studies were excluded was that they were not actually relevant; this is very normal with search results from systematic reviews.

No association between mobile phone use and brain cancer, or any other head or neck cancer, was found.

There was also no association with cancer if a person used a mobile phone for ten or more years (prolonged use). How often they used it – either based on the number of calls or the time spent on the phone – also didn't make a difference.

Importantly, these findings align with previous research. It shows that, although the use of wireless technologies has massively increased in the past few decades, there has been no rise in the incidence of brain cancers. Overall, the results are very reassuring. They mean that our national and international safety limits are protective. Mobile phones emit low-level radio waves below these safety limits, and there is no evidence exposure to these has an impact on human health.

Despite this, it is important that research continues. Technology is developing at a rapid pace. With this development comes the use of radio waves in different ways using different frequencies. It is therefore essential that science continues to ensure radio wave exposure from these technologies remains safe.

The challenge we now face is making sure this new research counteracts the persistent misconceptions and misinformation out there regarding mobile phones and brain cancer.

There remains no evidence of any established health effects from exposures related to mobile phones, and that is a good thing.

By-Sarah Loughran

The fate of women in China: Instruments of state policy

A policy instrument refers to the means of government intervention in markets or, in broader perspective, society in order to accomplish goals or to solve problems. Chinese women have always attracted harsher regulation of their conduct than most of the other civilized societies. The cruel practice of tying up the feet of little girls, so that they do not waste time playing around and instead sit and work at spinning spindles and looms, lasted across dynasties. The Qing dynasty had ruled China for more than 250 years; they were Manchu and not Han Chinese, with a different language, script, religion and culture and they did not tie up the feet of their little girls. Even so, they did not succeed in stopping the Chinese from continuing with this horrible practice. The Chinese had even evolved a cultural incentive for this atrocity; women with tiny feet walked awkwardly swaying from side to side trying to balance themselves and this was considered the hallmark of sophisticated women highly valued for marriage. Since Chinese parents always received bride price from the groom's family, the pain of the girl brought gain for her family and the state duly supported it.

Women got some hope when Mao came to power and said, "Women hold half the sky". Yet, during his long reign, China's women merely graduated from being farm workers to low-paid factory workers. After Mao's death, China introduced the infamous one-child policy that

resulted in China aborting female foetuses and in some provinces like Hubei, in 2012, there were among children under four years of age, 176 boys for every hundred girls. China has now 30 million more men of marriageable age than women. Yet, China officially recognises a term "leftover women" which was coined by none other than the All-China Women's Federation (ACWF) that used it to describe unmarried women over the age of 27 years, who are of ugly appearance and go for higher education to improve their marriage prospects but in the process age into 'yellowed pearls'.

ACWF is an official body, an umbrella organisation to protect women's rights and interests and in China, what such state-created bodies say is state policy. Another state-supported organisation, an NGO called the Shanxi Think Tank Association, advised such educated women to go to rural areas and marry a farmer!

As the disastrous consequences of the one-child policy became obvious, China came up with two-child policy, then with a three-child policy before going all out exhorting women to give up everything and produce babies. This is the country where during a visit in the year 2004, of the present writer, an American businessman running an industry in China had lamented that he is compelled by law to get his employee's extra pregnancies terminated and he cannot sleep at night with the hallucinations of the murdered unborn girls haunting him.

Now the Chinese, who always associated a knock on the door with the visit of the dreaded police, have a different kind of knocker. On October 8, 2024, the New York Times published an article by Vivian Wang who had "visited maternity hospitals and government family planning offices in Beijing and Nanjing to see how women were being prodded to have children." The article "So, are you pregnant yet? China's in-your-face push for more babies" said that "The government is again trying to insert itself into women's childbearing decisions, knocking on doors and making calls with questions some find downright invasive." The invasion starts as the couple appears before the registrar of marriages for legalising their union and they are handed prenatal vitamins. Then come the calls to confirm that the new bride has been taking the pills regularly.

These knockers and callers were merely following the thoughts of their leader Xi Jinping. On October 30, 2023, China's official website gov.cn carried a front-page story about Xi Jinping addressing the ACWF, the same organisation that had coined the term 'leftover women'. He said that this organisation must "unremittently use the new era of socialism with Chinese characteristics to unite hearts and souls, and guide the majority of women to unswervingly listen to and follow the Party." The message of the Party was, in brief, "stem the population decline and have more babies. In fact, ACWF

officials wonder that with such a clear mandate from Xi Jinping, who is recognised in the Chinese constitution as the "core" of the constitution, why should some women mind when they are phoned to find the date of their last menstrual cycle!

Xi Jinping had hoped that with the lifting of the lockdowns, the "factory of the world" would be back to normal and Chinese couples would have enough disposable income to support another little angel in their lives. Unfortunately, that hope did not materialise and the reasons for that were mainly the policies of Xi himself. He cracked down on Jack Ma for being a smart aleck and making snide remarks about Chinese financial institutions. That was a signal to Chinese billionaires to find safe spots for their wealth and it has led to a huge drain of Chinese wealth. While data from the Bamboo Curtain is hard to come by, Forbes had reported that the number of billionaires in China had come down from 607 in 2022 to 562 in 2023. Singapore is a favoured destination and more than 500 of the super rich of China have opened single-family offices during the last five years. After scaring away the wealthy, Xi cracked down on the real estate sector where, with the goal of cashing in on the boom, almost every Chinese worth his yuan had invested large sums drawn from family savings and even as loans at high rate of interest. All these Chinese now face an impoverished future. The crackdowns on the \$50 billion Chinese online gaming

industry and the \$100 billion private tuition industry added to burgeoning unemployment among the youth.

China's aggressive capture of the electric vehicles and battery markets through price cutting has led to tariffs from the main buyer countries in Europe and America and has added to the unemployment. The exploitation by China of its hold on the supply chains has prompted the major economies to find alternatives leading to the collapse of Chinese exports in some and price crash in others like lithium, thanks to a scramble in the world to find sources and set up processing. The employment position had become so embarrassing for the Party that China stopped publishing some data in 2023. In February this year, the stock market had suffered a \$7 trillion crash, the sum equalling the combined GDP of Japan and France and almost half of China's own GDP. The recent stimulus policies gave a boost for a few days during which the desperate Chinese sold their assets and borrowed money to take advantage but in a few days the upswing fizzled out.

With no money in hand, with no way the money borrowed for real estate and stocks could be repaid and with more and more factories cutting down on production, Xi's only hope is to heat up the Taiwan issue and that he has been doing for the last few days. The prospect of a war in the near future is certainly not going to motivate the Chinese to have an extra baby, notwithstanding the meticulous follow-up by the all-intrusive state of their menstrual cycles and handing over of the prenatal vitamins to newlyweds. Women in China have long been the instruments of state policy and now that era seems to be ending.

By-RN PRASHER