BLACK HOLE PAIRS

'n the vast theatre of the universe, few phenomena capture the imagination quite like black holes. Once considered purely theoretical, these cosmic monsters - regions of spacetime where gravity is so intense that nothing, not even light, can escape - are now central to modern astrophysics. Even more fascinating is the growing body of evidence suggesting the existence of black hole pairs or binary black holes, orbiting each other in a gravitational dance that eventually leads to a dramatic collision.

The existence of black hole pairs was long speculated, but it wasn't until 2015 that the Laser Interferometer Gravitational-Wave Observatory (LIGO) made a historic breakthrough. Detecting gravitational waves ripples in the fabric of spacetime - caused by the merger of two black holes, LIGO confirmed that not only do such pairs exist, but they also interact in ways that produce detectable cosmic signals.

These pairs are thought to form either from the collapse of two massive stars that were already orbiting each other or through dynamic interactions in dense stellar environments like globular clusters. As they spiral closer over millions or even billions of years, they emit gravitational waves that provide vital clues about their mass, spin, and distance. When they finally collide, they merge into a larger black hole, releasing enormous amounts of energy in the form of gravitational radiation.

But beyond the physics, the existence of black hole pairs challenges our philosophical understanding of time, space, and matter. These collisions are not just spectacular events; they are markers of cosmic evolution, possibly influencing galaxy formation, star systems, and even the distribution of matter in the uni-

Moreover, the discovery of black hole pairs also signals a triumph of human curiosity and ingenuity. What was once pure theory, born out of Einstein's equations, has now become observable reality. It is a reminder that even in the darkness of the universe, there is light - or rather, insight - to be found. The universe is not just a backdrop to human life but a living, evolving entity that we are only beginning to understand.

Rani Durgavati: The Queen Who Carved a Path for Modern Women's Triumphs

SAVITRI THAKUR



enturies before India's Ministries, Policies and Flagship programmes were ever imagined, a young queen rode to the frontlines and chose honour, courage and duty over surrender. Rani Durgavati - remembered across central India as a warriorqueen and a paragon of valour still speaks to a nation of women who are re-shaping public life, business, science and civic affairs. On her 501st Birth Anniversary, we are reminded of her story and the values it embodies which form

a living thread from the battlefields of the 16th Century to the

A Portrait of Courage

Rani Durgavati's life became a legend because she refused to be a passive figure in history. Faced with invading forces, she took up the responsibility of defending her realm and people. That image of a woman who led, decided and sacrificed transformed her from a regional ruler into a national symbol. Today, whether remembered in stories, memorials or local culture in cities such as Indore and across Central India, she is cited as proof that leadership is not confined by gender.

From Symbol to Policy: How India answers the call

Modern India's architecture of women's welfare and empowerment championed by the Ministry of Women and Child Development and allied Departments takes inspiration from exactly that blending of agency and public purpose that Rani Durgavati represented. Where the queen defended territory and people in her time, today the Government aims to defend and enlarge women's rights, access and opportunities across multiple fronts:

Education and Social Parity: Programmes designed to improve girls' education and reduce gender gaps address the long-term foundations of agency because leadership grows where schooling, confidence and aspiration grow.

Economic Empowerment and Entrepreneurship: From skillbuilding initiatives to credit and market access, these measures enable women to step into leadership in Commerce and the Professions which are the modern equivalents of ruling and decision-making.

Safety and Legal Protection: One Stop Centres and Helplines have strengthened legal frameworks to secure women's bodily autonomy and civic participation so that fear does not limit vocation or voice.

Health and Maternal Care: Schemes for maternal health and nutrition invest in women's wellbeing, enabling sustained public engagement and leadership roles.

Grassroots Governance and Representation: Efforts to expand women's participation in Panchavats and Urban Local Bodies echo the political agency that Rani Durgavati

Progress measured in lives and milestones

The last few decades have seen unmistakable gains: rising female literacy and workforce participation in certain sectors, growing numbers of women in elected office, rapidly increasing female entrepreneurship, and more public conversation about safety and equal opportunity. These shifts are not just statistics; they are the modern manifestations of the same principle Rani Durgavati's life taught that when women are equipped and empowered they reshape

Rani Durgavati's Legacy as a Foundation

What makes Rani Durgavati's example especially valuable is its dual character: moral and practical. Morally, she stands for dignity, courage and responsibility. Practically, her example normalises women as decision-makers and protectors of public welfare. That dual legacy has been part of India's civic imagination for generations, helping to create the social soil in which policies for women's empowerment can take root.

A New Lens for "Viksit Bharat"

As India pursues its vision of a developed nation - the 'Viksit Bharat" the country aspires to become - it needs a fresh lens: view development through the scale, depth and equality of women's agency. A "women-centred Viksit Bharat" would treat women's full participation not as an add-on but as a central development indicator. Practically, that means Measuring progress by women's leadership across sectors (boards, public service, community institutions), not just by headline welfare indicators.

By also designing infrastructure and urban spaces that enable safe mobility and economic participation for women. Investing in lifelong learning and reskilling so women can access tomorrow's jobs and technologies.

Thus the focus being of Prioritising policies that reduce unpaid care burdens - childcare, eldercare and community support - to unlock women's time for public and economic

When these choices are made, the nation honours the spirit of leaders like Rani Durgavati in the most meaningful way: by ensuring every woman has the capability to lead, protect and build.

Thus linking the past courage to future promise, Rani Durgavati's story is not a relic; it is a living argument for what India can become. Her courage was an assertion of women's right to shape public destiny. Today, India's ministries, civil society and citizens are tasked with converting that assertion into everyday reality - through schools and hospitals, through laws and livelihoods, through safe streets and equal boards. If the pulse of a Viksit Bharat is measured by the strength of its women, then honouring Rani Durgavati means making that strength universal.

In the end, the queen's finest legacy may not be a monument of stone but a nation where millions of women lead from every podium life offers - be it at home, in the markets, in science and in governance carrying forward a tradition of courage and stewardship into the 21st century.

(The writer is Minister of State for Women and Child Development, Government of India)

Cancer Patients: Healing Beyond Medicine

DR. RAKSHA KUNDAL & DR. SUNANA GUPTA

Then someone learns they have cancer, the first thoughts are usually about surgery, chemotherapy or radiation. These treatments are crucial and can save lives, but there is another component of the cancer journey that is less visible yet equally significant: the mental, emotional, behavioural and spiritual challenges faced by patients and their families

A lot of stress comes from anxiety about the future, finances, medical care, sleep difficulties, and being alone in hospital rooms. Often, coping with this invisible suffering is harder than dealing with physical pain. Palliative care is a field of medicine that addresses not only the body but also the

What Does "Distress" Mean?

International cancer experts use the term "distress" to describe the negative feelings and experiences - whether psychological, social, or spiritual - that make it difficult for a patient to cope with their condition. Distress is a broader and more compassionate term than anxiety or depression, which are medical conditions often stigmatized.

Patients may not necessarily be clinically depressed but may still feel fearful, sad, angry, hopeless or isolated. They may worry about treatment effectiveness, the future of their children, or family finances. While such feelings are normal, unacknowledged distress can reduce resilience, hinder adherence to treatment, and worsen overall well-being.

Why It's Important to Assess Distress

Caregivers often focus solely on the tumor - scans, blood tests and surgeries. However, increasing evidence shows that patients receiving both medical treatment and emotional support have significantly better outcomes

One widely used tool is the "Distress Thermometer", where patients rate their distress on a scale from 0 to 10. This helps clinicians identify those in need of additional support. Unfortunately, many patients suffer in silence, fearing judgment or being perceived as weak. This highlights the need for healthcare systems to address mental wellness routinely and

Palliative Care: More Than Just Healing

Many people mistakenly believe palliative care is only for the terminal stages of illness. In fact, it is relevant from diagnosis through all stages. According to the World Health Organization, palliative care improves the quality of life for patients and families by addressing physical, emotional, social and spiritual pain. It complements curative treatments

How Palliative Care Supports Emotional Well-Being

Palliative care professionals look beyond medical charts, listening carefully to patients' concerns. This approach fosters a sense of control, dignity and hope, including attention to spiritual needs. Many patients ask questions like, "Why me?" or "What does this suffering mean?" Palliative care respects each individual's beliefs and provides comfort aligned with

AIIMS Jammu: A Dedicated Palliative Care Service

AIIMS Jammu has established a dedicated Palliative Care OPD, operational Monday to Friday, recognizing the importance of holistic support. The clinic offers a safe space for patients to discuss emotional concerns, receive assessment and counselling for distress, and manage pain, fatigue, and treatment-related side effects. It also addresses social challenges, facilitates caregiver support and ensures access to spiritual and social resources tailored to individual needs. This initiative underscores AHMS Jammu's commitment to comprehensive patient care, addressing not just physical symptoms but also emotional, socialand spiritual well-being.

A Family-Centred Approach Cancer affects not only the patient but the entire family. Children worry silently, couples face hidden challenges, and older parents may feel helpless. Palliative care helps caregivers manage stress, prevent burnout and maintain emotional strength. By empowering families, it strengthens the patient's support system and reminds everyone that healing involves resilience, love and compassion, not just disease management.

Reducing the Social Stigma

Mental health remains a sensitive issue in our society. Many patients fear judgment and hesitate to express emotional distress. Healthcare practitioners encourage patients to use the term "distress" instead of psychiatric labels, helping normalize conversations around emotional well-being.

Finally, fighting cancer requires more than medications and equipment; it requires courage, emotional strength and spiritual resilience. While doctors and treatments manage the disease, palliative care works to alleviate suffering, restore dignity and enhance overall quality of life for patients and their

(The writer Dr. Raksha Kundal is Associate Professor, Anaesthesiology, AIIMS Jammu and Dr. Sunana Gupta is Additional Professor, Anaesthesiology, AIIMS Jammu)

Girls Become Agents of Change in Society

RAMESH SARRAF DHAMORA

nternational Day of the Girl Child is an international observance declared by the United Nations. ebrated on October 11, 2012, Since then, International Day of the Girl Child has been celebrated every year on October 11th across the world. International Day of the Girl Child raises awareness about the gender inequality faced by girls worldwide based on their gender. This inequality includes areas such as education. nutrition, legal rights, medical care, and protection from discrimination, violence against women, and forced child marriage.

The theme for International Day of the Girl Child 2025 is "I am a girl, I lead change. Girls on the front lines of crisis." This theme focuses on the perseverance, leadership, and empowerment of girls in crisis situations. This theme highlights the challenges girls face, such as conflict, climate change, and inequalities. This theme emphasizes recognizing girls not just as victims of crisis but as agents of change. It calls for investment in education, health, and safety so that they can build a better and more inclusive

Despite girls' advancement in every field, they remain victims of numerous social evils. These evils hinder their progress. Even educated people and an aware society are not immune to this problem. Every year, millions of girls are killed in the womb before they are even born. Discrimination between sons and daughters persists in many homes. Daughters are not given the same quality food and education as sons. Daughters are still considered a burden in society.

In India, three to seven lakh female fetuses are aborted every year. Consequently, the number of men here is 50 million more than women. Despite constant changes in society and the increasing role of women in the workforce, conservative people believe that a son will provide support in old age, and if a daughter is born, she will go to her home. If the son does not perform the last rites, the rituals will not be complete.

The increase in the sex ratio at birth in the country over the past few years is a positive sign. In response to a

question in Parliament, the Minister vital role in the national economy. of Women and Child Development stated that the Beti Bachao Beti Padhao scheme has awakened collec-The first day of the girl child was cel- tive consciousness to change the mindset of the public to accept the rights of girls. This is reflected in the 12-point improvement in the sex ratio at birth (SRB) at the national level, which was 918 in 2014 and increased by 12 points to 930 in 2023-24.

It is a great irony in our country that we worship the girl child, but when a girl is born in our own home, we become sad. This can be seen everywhere in the country. In many states, the birth of a girl child is even considered a curse. But why do those who consider girls a curse forget that they are citizens of a country where brave women like Rani Lakshmibai sacrificed their lives for the nation?

Even today, in our country, as soon as a daughter is born, the concern for her marriage becomes more pressing than her upbringing. Due to the increasingly expensive weddings, a father is constantly worried about how to arrange for his daughter's wedding. This prevailing mindset has prevented female foeticide. The killing of female babies in the womb has led to a significant shortage of girls in society, leading to a skewed sex ratio.

If daughters receive proper education and respect in society, they will not lag behind in any field. Therefore, there is nothing wrong in saying that the Beti Bachao Beti Padhao scheme is not a scheme but a responsibility of all of us. If we all want to build a good society, it is our duty to educate our daughters in a fear-free environment. Make them so strong that they can proudly say that look, she is our daughter who is doing such a great work.

Today, girls are no less than boys in any field. They are successfully performing even the most difficult tasks. Women's power can be seen working courageously in every field in the country. Through their hard work and dedication, girls have proven themselves in many fields and sectors. They are more talented, obedient, hardworking, and responsible for their families and their lives. Girls are more caring and loving towards their families and parents, and they give their best in every task. Women also play a

They play a crucial role in the labor force and contribute to the growth and development of businesses.

On one hand, daughters are abandoned to die as soon as they are born Meanwhile, there are girls like Mohana Singh of Jhunjhunu district who are raising the prestige of the district across the country by flying fighter planes. Everyone in society should pledge to not discriminate between boys and girls and to raise awareness about gender equality. Every day, incidents of rape and harassment of girls in India make headlines. Girls don't feel safe anywhere, be it at home, school, or workplace. Savage wolves are always watching them, attacking them at any opportunity. How can the girls of this country progress in such an environ-

Educated members of society must come forward and create an environment to stop the heinous practice of female foeticide. They must educate those who practice it and change their mindset. People must pledge to neither kill a girl in the womb nor allow anyone else to do so. Only then will it be possible to stop female foeticide in the country. The government and society must work together to create an environment where girls can feel safe. Recognizing and promoting the importance of girls is essential for the development of society and the nation.

We all know how important a girl is to society. She plays many important roles as a mother, a daughter, and a wife. She is considered the pillar of peace in the home, yet she is often disrespected. Women play a key role in the lineage of procreation, yet from ancient societies to so-called modern societies, they have remained neglected.

The future of our society depends on how we treat and value our girls today. Empowering girls through education, health care, legal protection, and social empowerment is not only a moral obligation but also a vital necessity for social development. We must ensure that girls have equal opportunities to grow and learn. Only then will we be able to create a balanced, just, and prosperous society.

(The author is a ${\bf freelance\ journalist})$

The RSS at 100: A Century of Nation-Building

PROF. DINESH CHANDRA RAI

Sangh (RSS) is commemorating its 100th anniversary, a moment to reflect on a century of profound impact. What began as a small gathering in Nagpur on September 27, 1925, under the leadership of Dr. Keshav Baliram Hedgewar, has grown into what is widely regarded as the world's largest voluntary organization. At the heart of the RSS lies a powerful and elegant philosophy: Vyakti Nirman Se Rashtra Nirman-"building the nation by building the character of its people." This guiding principle has fueled a hundredyear commitment to cultural awareness, personal development, and selfless service, creating a massive network of individuals dedicated to societal improvement. The centenary is more than just a historical milestone; it's a moment to honor the deep influence this movement has had on India's national fabric.

This isn't just a historical milestone; it's a profound moment for India. The government's decision to issue a special postage stamp and a commemorative Rs 100 coin to honor the centenary is a significant sign of national recognition. The coin's design, which features Bharat Mata (Mother India) being saluted by swayamsevaks, is particularly symbolic. This marks the first time Bharat Mata has appeared on Indian currency, a powerful statement that weaves the organization's foundational identity into the national narrative.

Prime Minister Narendra Modi's acknowledgment of the RSS's journey as a "golden chapter" in modern Indian history further emphasizes its national importance. He has praised the organization for its tireless efforts to unify the country, transcending divisions of caste and creed. The Prime Minister has highlighted the remarkable coherence across the Sangh Parivar-the family of organizations under the RSS umbrella-which, despite their diverse functions, all operate with a single core principle: 'Nation First'. RSS's long-held beliefs have influment to the organization's enduring

societal impact. A Society's Backbone in Times of

Crisis The RSS's role as an indispensable backbone during national crises is well-established. Its tradition of disciplined service (Seva) has been on display for decades.

Whether it was the coordinated relief work after the 1956 Anjar earthquake, providing support to the armed forces during the 1962 conflict, or assisting millions of refugees in 1971, the organization has consistently stepped up.

This was never more evident than during the COVID-19 pandemic. Under the banner of Rashtriya Seva Bharati, over half a million volunteers served in nearly 93,000

locations nationwide. The scale of their humanitarian aid was immense. Volunteers distributed 45 million food packets and provided supplies to more than

7 million families. They also provided crucial assistance to marginalized groups, including migrant workers and nomadic people. The swift and systematic establishment of isolation centers and medical support validated the RSS's ability to act as a highly dependable parallel structure, providing essential services when official systems were stretched to their limits.

Beyond visible crisis management, the Sangh Parivar's continuous, quiet efforts in less-publicized areas form a vital engine for national cohesion.

For instance, the Deendayal Research Institute, founded by Nanaji Deshmukh, focuses on sustainable rural development, selfemployment, and organic farming. This work is a practical manifestation of the philosophy of Antyodaya, which means serving the last person in line.

Shaping the Future of Education As a part of the academic community, I've seen firsthand how the

The organization's conviction that instruction should be delivered in the mother tongue found a voice in the National Education Policy 2020 (NEP), which now mandates instruction in the home language up to at least Class 5, and preferably Class 8.

This is a praiseworthy move toward linguistic democratization of knowledge, which has been a core tenet of the Sangh's educational philosophy for decades.

The organization focuses on shaping the individual first, believing that a society of disciplined and selfless people will automatically build a strong and unified nation. The provided article highlights several ways this philosophy is put into practice, although it doesn't offer a specific list of methods. The key is the emphasis on selfless service (Seva) and discipline.

By participating in the RSS's structured activities, members are conditioned to prioritize the collec-

tive good over personal gain. The first century of the RSS has established a durable model of Vyakti Nirman, creating a vast pool of human capital dedicated to selfless service. This model has proven its ability to catalyze a national renaissance.

As we stand at the threshold of the next century, the legacy of service built by this organization should not just be a model to admire, but a universal societal commitment. The vision of a truly developed India (Vikshit Bharat) requires a renewed covenant from every citi-

This centenary is a moment for all of us to make a solemn pledge: to consistently prioritize the national interest (Rashtra Pratham) over narrow individual gains and partisan benefits. It is only by mirroring the spirit of Vyakti Nirmanthrough collective, selfless contribution to nation-building-that Bharat will fully realize its potential on the global stage.