

Vigyan Setu e-magazine



Vigyan Setu e-magazine

A quarterly, bilingual e-magazine of Vigyan Setu Foundation®

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Vigyan Setu e-magazine is a quarterly, bilingual publication by Vigyan Setu Foundation that bridges the gap between science and society. Curated with creativity, curiosity, and critical thinking, this e-magazine features insightful articles, creative expressions, and real-world applications of science, technology, and innovation. It aims to nurture scientific temper, celebrate young minds, and spotlight emerging researchers whose work is shaping a sustainable future.

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About the Cover

SIR RATAN TATA BRIDGE, TWICKENHAM, LONDON (UK)

The Sir Ratan Tata Bridge is an elegant 1911 brick footbridge located in [York House Gardens](#), Twickenham, London. Built by the Indian industrialist Sir Ratanji Jamsetji Tata (1871 – 1918), it connects the two halves of the gardens separated by Riverside Road, allowing visitors to walk from the main house to the Thames-side gardens.



Photo credit: Google images

From the Editor's Desk

Dr. Neha Sharma

The present issue reflects the dynamic and evolving relationship between science, society, and human well-being. The collection of articles in this volume traverses a wide intellectual landscape, ranging from topics relating to the cutting-edge scientific inquiry and public health challenges to emotional well-being and societal transformation, all of which accentuate the very interdisciplinary nature of science in our everyday lives.

A central thread running through this issue is the expanding role of knowledge systems in shaping a sustainable and inclusive future. The article on “*Classroom to Patents*” highlights how educational institutions are no longer mere centers of learning but have transformed into hubs of innovation and entrepreneurship. By emphasizing Intellectual Property Rights (IPR), it draws attention to the need for nurturing creativity while ensuring ethical protection and idea commercialization.

Equally fascinating is the exploration of one of Earth's greatest scientific mysteries, the extinction of dinosaurs. The discussion on the asteroid impact hypothesis, enriched by recent insights into possible extrasolar origins, reminds us of the vast and interconnected cosmos in which our planet exists. It reinforces the importance of scientific curiosity in uncovering truths that reshape our understanding of life and the universe.

The issue also brings to the forefront the human dimension of science, particularly through articles on emotional intelligence and childhood anxiety. In an increasingly competitive and fast-paced world, these contributions emphasize that scientific progress must go hand in hand with emotional well-being. The discussion on emotional intelligence positions it as a vital life skill that strengthens relationships and fosters holistic development, while the article on anxiety in children draws urgent attention to the silent mental health challenges faced by young minds today. Together, they advocate for a compassionate

and informed approach toward nurturing future generations.

Public health remains another critical area of focus in this issue. The article on malaria presents a comprehensive overview of the disease, from its biological basis to its socio-economic impact, highlighting the continued relevance of scientific awareness, community participation, and integrated health strategies. It serves as a reminder that scientific knowledge must translate into actionable solutions for societal benefit.

Adding a unique cultural and scientific perspective, the booklet review on “*Women in Science: Flight of Developed India*” celebrates the contributions of women across historical and contemporary contexts. It not only acknowledges their achievements but also critically examines the challenges they face, reinforcing the idea that inclusive participation is essential for national progress and innovation.

Read until the end if you don't want to miss out on ‘Physics can be Fun’ corner! Collectively, the contributions in this issue embody the spirit of **Vigyan Setu Foundation** bridging science and society. They reflect how science is not confined to laboratories but is deeply embedded in education, health, environment, relationships, and social equity. The diversity of topics and perspectives also highlights the importance of interdisciplinary thinking in addressing complex real-world challenges.

As we move forward in an era defined by rapid technological advancement and global interconnectedness, it becomes imperative to cultivate not only scientific knowledge but also ethical awareness, emotional resilience, and social responsibility. This issue aspires to inspire readers, especially young learners, to think critically, remain curious, and contribute meaningfully to a scientifically informed and humane society.

Editorial Team



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Classroom to Patents:

IPR in Today's Higher Education



Dr. Jasvir Kaur and Prof. Balwinder Singh Sooch*

Introduction

In this era of rapid technological transformation where, single idea can transform industries and redefine the future, understanding Intellectual Property Rights (IPRs) has become far more significant than mere a legal requirement. This is now a driving force behind academic excellence, innovation, and national growth of any country. Intellectual Property (IP) refers to creations of the mind that hold commercial, artistic, or technological value. The legal rights granted to protect these creations are known as Intellectual Property Rights (IPRs). As the global economy becomes increasingly knowledge-driven, ideas have emerged as a nation's most powerful asset. Innovation is now no longer limited to industries or research laboratories, the higher education institutes (HEIs) become key space where creativity, technology, and entrepreneurship converge. Today, universities and colleges are not only emerging as vibrant hubs nurturing original thinking and technological advancement but also prompting startups and entrepreneurship.

Yet despite this growing significance, many researchers and students remain unaware of how to protect or commercialize their creations. This gap highlights the urgent need for strong institutional IPR frameworks and widespread IPR literacy across campuses. Recognizing these challenges, the Government of India introduced the National IPR Policy, 2016, aimed at strengthening innovation culture, safeguarding creative works, and enhancing the nation's

intellectual capital. Institutional IPR policies play a similar role at the university level, they outline how IP generated within the campus is created, owned, protected, and commercialized. A well-designed IPR policy builds ethical research practices, promotes start-ups, and encourages fruitful industry-academia collaborations. Hence, IPR awareness is becoming essential component in HEIs today. Additionally new education policy (NEP) 2020 also emphasizes on the need to introduce skills and innovation-based courses and practices to make education more powerful.

Some important aspects, such as, the drivers that make IPR education necessary, the impact of IPR policies, existing gaps, and key reforms for strengthening India's IPR ecosystem within higher education have been discussed here.

Knowledge of IPRs in HEIs

IPRs have become fundamental for national development as they protect ideas and encourage innovation in competitive global markets. HEIs play an important role in generating new knowledge, conducting research, and developing transformative technologies. To address the pressing challenges related to protection, commercialization, and ethical use of innovations, India's National IPR Policy 2016 outlined several objectives relevant for HEIs. India's vision of "**Creative India; Innovative India**" underscores the nation's long-standing tradition of ingenuity. Higher Education Institutions (HEIs) play a pivotal role in nurturing young innovators, and a

well-defined Intellectual Property Rights (IPR) policy is central to this mission. A structured IPR framework not only provides legal clarity and incentives for creators but also ensures that their ideas can mature into impactful innovations. In a globally connected economy, India's commitments to WTO and other international agreements demand that our students and researchers understand global IPR norms.

By integrating IPR education and institutional policies, HEIs prepare their communities to compete and collaborate on the world stage. Strong IPR environments also attract foreign investment, particularly in knowledge-centric sectors like biotechnology, IT, pharmaceuticals, and engineering. Institutions with transparent IPR rules cultivate confidence among investors, encourage research partnerships, and promote technology driven projects. Equally important is the responsibility to serve public interest. While safeguarding creators' rights, HEIs must ensure that innovations with social impact such as essential medicines or public-health technologies remain accessible and equitable. Balanced IPR frameworks help maintain this delicate ethical equilibrium. Finally, a robust IPR ecosystem is a catalyst for entrepreneurship. Clear regulations enable start-ups, spin-offs, and campus-based enterprises to grow with confidence, contributing to national economic development.

In essence, well-crafted IPR policies empower HEIs to become vibrant hubs of creativity, innovation, and industry collaboration. As more institutions adopt such policies, the benefits ranging from stronger research outputs to enhanced investment continue to strengthen India's innovation landscape.

Benefits of IPR Policies in HEIs

IPR policies established by HEIs offer many advantages that strengthen both individual and institutional growth. They protect creators from exploitation and unethical use of their work, while motivating faculty and researchers by ensuring proper recognition and rewards for their innovations. Such policies also generate economic value through patents, copyrights, licensing, and technology transfer, attracting external funding and industry collaborations. As a result, institutions experience improved rankings and global reputation, supported by an ethical culture that respects intellectual contributions. Moreover, strong IPR frameworks enhance institutional capacity by developing skilled personnel and nurturing a robust innovation ecosystem. These efforts further open doors to international partnerships, enabling HEIs to actively participate in global research and intellectual property networks.

Impact of IPR Policies in HEIs

The introduction of IPR policies across universities has significantly contributed to strengthening India's innovation landscape. These policies have improved the country's global perception by showcasing India as a creative, research-oriented, and innovation-driven nation. Stronger IP protection has also boosted foreign investment, as investors now view Indian institutions as reliable partners for technology development and collaboration. Moreover, the systematic adoption of IPR frameworks has enabled India to align more closely with international standards, ensuring compliance with global commitments and obligations in the field of intellectual property.

Gaps in Current IPR Policies in HEIs

Despite these advantages, the institutional IPR policies in many universities still face significant gaps that hinder their effective implementation. Key terms such as “fair use” often remain unclear, creating confusion among students, researchers, and faculty. Protection for traditional knowledge and cultural heritage is also insufficient, leaving indigenous communities vulnerable to misappropriation. Weak enforcement mechanisms further allow infringement and piracy to persist.

In many cases, the absence of clear guidelines on compulsory licensing affects public access to essential innovations, particularly in health and education. Limited financial and human resources also constrain institutions from executing their IPR policies efficiently. Moreover, public interest considerations are not always adequately addressed, and stakeholder engagement with government bodies, industry, SMEs, and civil society remains limited, reducing the overall impact of these policies. These gaps must be addressed to strengthen the IPR ecosystem within HEIs.

Recommendations for Strengthening IPR Policies in HEIs

To create a robust and effective IPR regime in India, HEIs must adopt comprehensive and flexible IPR policies that clearly outline ownership rights, benefit sharing, disclosure norms, licensing procedures, and commercialization pathways. Establishing dedicated IPR Cells or Technology Transfer Offices staffed with trained legal and technical experts is essential for managing patent filing, licensing, and technology transfer. Equally important is expanding institutional awareness through workshops, seminars, and curriculum integration,

supported by adequate financial and infrastructural resources. Financial incentives for patent filing and rewards for innovation can further motivate faculty and researchers. Strong collaborations with industry, government, and international bodies enhance joint R&D and commercialization prospects, while robust technology transfer support helps incubate start-ups and spin-offs. Transparency must be ensured through regularly updated policies and databases accessible on institutional websites, complemented by IPR-focused publications that showcase achievements and global trends. Finally, administrative processes should be streamlined to eliminate delays, improve coordination, and provide timely assistance, enabling a more efficient and innovation-driven IPR environment across HEIs

Conclusion

A strong IPR culture within HEIs is no longer optional but it is essential for national progress in a global knowledge economy. When implemented effectively, institutional IPR policies encourage innovation, protect creator rights, support entrepreneurship, and attract global investment. Strengthening these policies through comprehensive frameworks, awareness initiatives, financial incentives, and collaborative networks can help India build a world-class innovation ecosystem. By bridging existing gaps and empowering HEIs, the country can unlock its full creative potential and ensure that classrooms become catalysts for patents, progress, and long-term economic growth.

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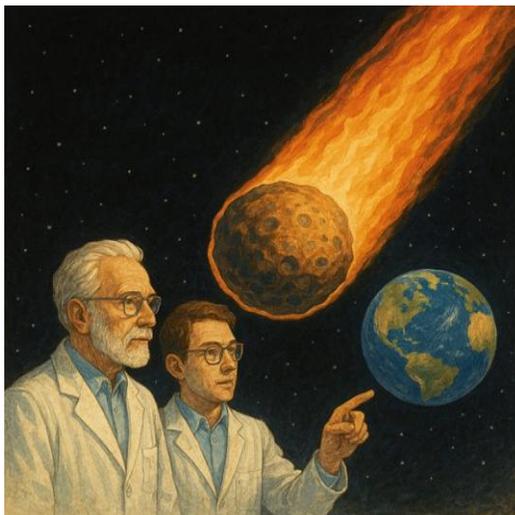
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New Findings in Dinosaur Extinction: The Asteroid that came from “After”

The Legacy of the Father-Son Duo who Unravelled its Mystery before

Dr. Divyendu Sen

The mass extinction that wiped out the dinosaurs 66 million years ago remains one of the most intriguing events in Earth's history. The dominant theory behind this catastrophic event is the asteroid impact hypothesis, a groundbreaking idea proposed by the remarkable father-son duo, Luis and Walter Alvarez. Recent studies have further deepened the mystery, suggesting that the asteroid responsible for this extinction may have originated from an extrasolar system. Adding to this intrigue, traces of plutonium found on Earth hint at a potential connection between interstellar objects and cosmic events. This article explores the fascinating journey of this theory, its key players, and the latest revelations in the field.



asteroids and comets, leading the Alvarez' to conclude that a massive extraterrestrial impact was responsible for the mass extinction event.

Their theory faced scepticism initially, but in 1991, a giant impact crater was discovered near the Yucatán Peninsula in Mexico. Named the Chicxulub crater, it measured about 180 kilometres (112 miles) in diameter, confirming the Alvarez hypothesis. This impact would have triggered massive wildfires, tsunamis, and a prolonged "nuclear winter" effect, leading to the collapse of ecosystems and the demise of the dinosaurs.

A Cosmic Origin: The Asteroid's Extrasolar Roots?

While the Alvarez hypothesis solidified the idea of an asteroid impact, recent scientific advancements have opened new dimensions to this event. A groundbreaking study suggests that the Chicxulub impactor may not have originated from our solar system but could be an interstellar object.

In 2023, researchers analysing the chemical composition of the asteroid debris proposed that its structure and trajectory differed significantly from typical solar system

asteroids. Some scientists argue that the asteroid could have been a long-period comet from the Oort Cloud or, more intriguingly, an extrasolar visitor, similar to 'Oumuamua, the first confirmed interstellar object detected in 2017.

Adding to this cosmic mystery, traces of **Plutonium-244 (Pu-244)** have been discovered in ancient seabed deposits on Earth. Since Pu-244 is not naturally occurring today and has a half-life of about 80 million years, its presence suggests that it may have originated from an interstellar source, possibly from the same cosmic events that produced extrasolar asteroids. If future research uncovers Pu-244 in the impact residues of the Chicxulub crater, it could provide strong evidence that the dinosaur-killing asteroid had an extrasolar origin, carrying with it materials formed in distant supernovae or neutron star mergers.

Conclusion: A Story Still Unfolding

The asteroid impact theory, pioneered by the Alvarez duo, has stood the test of time and

scientific scrutiny. However, the possibility that the dinosaur-killing asteroid originated from beyond our solar system adds an extraordinary twist to this cosmic story. With ongoing research, new technological advancements, and deeper space explorations, we may one day uncover the complete history of this cataclysmic event and its implications for life on Earth.

As scientists continue to unravel the mysteries of our universe, the story of dinosaur extinction serves as a reminder of the ever-present cosmic forces that shape our world.

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Emotional Intelligence

Dr. Wahied Khawar Balwan

The present “celluloid” era is marked by “me-only” orientation coupled by materialistic strivings to achieve “excellence” in varied spheres of life, to make the self “glorified”, thereby paying minimal heed to the needs of the others. Competition, jealousy coupled with other negative emotions, self-insufficiency serves as “piercing and attacking edges” to have their toll on interpersonal relationships in the long run. As such, the depth, genuinely and serenity of relationships are getting eroded at fast pace. It is Emotional Intelligence (EI) which serves as a “catalyst” in making individuals aware of the emotional planes of themselves as well as others, and helps foster healthy relationships, which naturally calls forth well-being in the long run. Emotional Intelligence is the vehicle to well-being in relationship perspective.

Introduction

The present era of globalization is marked by perfectionistic orientation coupled by materialistic strivings to achieve “excellence” in varied spheres of life. People are increasingly focussing on the avenues to attain the “ideal standard” in the rat-race of unhealthy competition. As such, the relationship-platter is increasingly becoming brittle, with its enmeshed threads getting torn apart ruthlessly, owing to underlying prejudices, bigotry, conspiracies, unhealthy competitive-sprees and the like. Hence, the dire necessity to realize the danger of the alarming situation and mending itself by adopting appropriate measures to re-instill happiness and well-being in the long run. The

present chapter is a humble attempt to understand the significance of Relationship Science in the context of long-term well-being of individuals, with Emotional Intelligence (EI) serving as an important catalyst in the process.

Greening of Relationship Science

Relationship Science is emerging to be an integrating force within psychology. This is because close relationships are the essential units of human existence. The desire to establish and maintain intimate ties with others is considered by some to be a basic motive². The success and failure of interpersonal relations have a profound impact on one’s life satisfaction³, psychological well-being, and physical health⁵. Besides, many studies have documented that a troubled relationship, especially a distressed marital or family relationship, is the most common problem of those seeking psychotherapy.

In fact, the tissue of a relationship is the oscillating rhythm of influence observed in the interactions of at least two people. This rhythm is displayed in regularities in their interaction pattern, and the goal of relationship science is to identify the causal conditions responsible for that rhythm. Relationships are inherently temporal rather than static. A relationship itself is invisible; its existence can only be discerned by observing its effects. The oscillating rhythm of a relationship emanates right from the time of conception through birth with the development of attachment with the significant care-giver within the initial few

months of life followed by its reverberations in different spheres (owing to generalizations). Attachments first develop in terms of object-relations with a part object (i.e., the mother's breast) followed by the perceptions of the mother as an "object", and then as a "person", to be generalized later on to other individuals with which the child interacts⁸. In fact, the crux of one's relationship-web essentially depends on the quality of infantile reverberatory connection with significant members. The "yacht" of interpersonal relationships is steered properly by the catalyst of Emotional Intelligence, by balancing the fusion of head and heart. It paves the way for thoughtful reflection that necessitates the development of empathy, respect, reciprocity and acceptance of the "significant other", which serve as the key pillars of healthy relationship.

Emotional Intelligence: The Key to Steer Relationships

Emotional Intelligence (EI) is the integration of emotion and reason that results in a whole that is greater than the sum of its parts. It essentially depends on the optimum blend of affection and cognition that determines how people make sense of their emotional experience and how they use it. EI serves as a highlight factor in establishing and maintaining relationships. In fact, an interpersonal relationship is conceived of as a developing process of interdependent functioning characterized by recurrent patterns of interaction, the rules governing those patterns of interaction, and the relatively enduring emotional, cognitive and behavioural dispositions of the people involved toward the people and involved in the relationship. Every relationship has emotional and cognitive aspects that continue

between interactions and contribute to its persistence.

Hence, the mental processes included in Emotional Intelligence are:

- Appraising and expressing emotions in the self and others,
- Regulating emotions in the self and others, and
- Using emotions in adaptive ways.

EI may be related both to characteristics that build relationships and to the quality of those relationships. Four building blocks of relationships where EI comes to play an important role may be

- Empathy
- The ability to self-monitor in social situations
- Good social skills and
- Cooperation.

The corresponding important indices of relationship quality may be affiliation, close affective ties and a satisfactory close partnership.

Thus, in any relational context, individuals need to start the process of recognition by attending to their bodies. They need to be able then to symbolize what they feel, first to themselves and then, when appropriate, expressing this to others. People need to be able to say to themselves, "I feel". Having acknowledged their emotional experience, people then need to begin to understand those feelings. The mind needs to symbolize bodily felt experience in words, to synthesize the neuro-chemical cascades that wash over into conscious experience and symbolise them into personal meanings. Thoughtful reflection on emotional prompting is a crucial part of Emotional Intelligence. This is where conscious thoughts play its crucial role. Hence, it appears that EI plays a crucial role in

mending relationships so as to instil a sense of well-being in the long run.

Emotional Intelligence as an Avenue Toward Well-Being in Relational Context

EI enables individuals to have effective regulation of affect within themselves and others, thereby contributing to well-being. Thus, the emotionally intelligent person is often a pleasure to be around and leaves others feeling better, by means of the reverberatory impact of “contact therapy”. It reflects a focus on positive psychological and social functioning, personal strengths and mental health. As such, EI enables one to transcend the path toward personal growth by a continual process of “working through” one experiences in the canvas of relationships. Thus, the chief features of well-being, fuelled by EI in relationships include the development of:

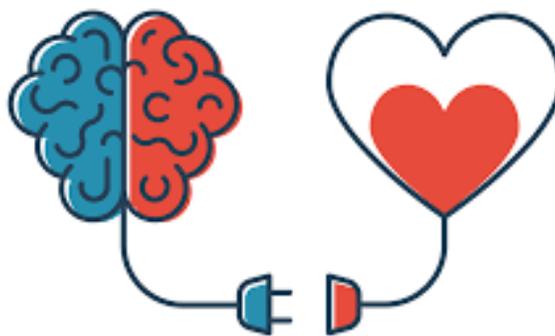
- Self-acceptance
- Personal growth
- Sound purpose in life
- Environmental mastery
- Autonomy
- Positive and healthy relations with others
- Sense of generativity
- Coherence and integration of personality
- Mindfulness.

Conclusion

Thus, to draw the curtain close, it can be said that relationship platters are the most essential social-emotional commodity for all of us. To live happily and healthily, and help others to live the same way, we ought to have the “cloaks” of close and satisfying relationships. The sense of happiness with the root of belongingness creates the context of our sense of well-being. In this, the creator is behaviorally conceived to be emotional intelligence the new arena of cognition-emotion blended element of mind.

It is this emotional intelligence (EI) which serves the crucial role of a mediator in making relationships meaningful and essential to their mental and physical well-being. As such, it is the catalyst which helps in keeping one’s relationship-web optimally functional, to bring forth feelings of happiness, well-being, and contentment with a generativity rimmed outlook as resultants on the whole.

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Anxiety in Children: Understanding the Silent Struggle of Young Minds

Mr Kuldeep Gupta

Spotting the earliest signs to finding the right support, so, every child can grow up feeling safe, understood, and empowered

In today's fast-moving and increasingly competitive world, childhood is no longer untouched by emotional stress. Anxiety has gradually become one of the most common difficulties experienced by children, yet it often remains unnoticed or misunderstood. Academic expectations, social comparison, constant digital exposure, and rapidly changing lifestyles place significant pressure on young minds. As a result, many children experience persistent worry, fear, and self-doubt that can affect their learning, confidence, and overall emotional well-being.

What is Childhood Anxiety?

Worrying is a normal part of childhood. Children may feel nervous before examinations, shy when meeting new people, or uneasy on their first day at school. Such emotions are usually temporary and form a natural part of growing up. Anxiety becomes a concern, however, when these worries persist for long periods, they appear excessive and begin to disrupt a child's daily activities.

From a clinical perspective, childhood anxiety involves intense and persistent fear or worry that the child finds difficult to manage. It is often linked to a heightened state of alertness, as if the brain's internal alarm system remains active even in the absence of real danger. Unlike brief moments of nervousness, anxiety tends to

return repeatedly and can cause significant distress, affecting a child's emotional well-being and ability to function comfortably in everyday situations.

How Common is Anxiety Among Children in India?

An updated 2024–2025 WHO and UNICEF analysis shows that 1 in 7 children and adolescents (aged 10–19) globally experiences mental health conditions, with anxiety and depression being the most prevalent. Anxiety disorders are particularly high, with estimates showing that 4.1% of 10–14-year-olds and 5.3% of 15–19-year-olds are affected. In India, studies indicate a high burden, with some reporting anxiety prevalence rates among adolescents ranging from 14.4% to 56.8% in various settings, often higher among girls.

Despite its prevalence, childhood anxiety remains significantly under-recognized in India. Cultural beliefs often lead families to dismiss anxiety as "shyness," "laziness," or a lack of moral fortitude. The stigma surrounding mental health means many parents feel shame or confusion when their child shows signs of distress. Additionally, the intense focus on academic achievement, particularly in Class 10 and Class 12 board exam years, creates enormous pressure that amplifies anxiety. Understanding that anxiety is a genuine, treatable condition, not a character flaw, is

the critical first step for Indian caregivers.

Root Causes of Anxiety

Childhood anxiety usually develops from a combination of factors rather than a single cause.

Academic Pressure: High expectations, exams, and competition create stress and fear of failure.

Family Environment: Conflict, critical parenting, or major family changes can increase insecurity.

Social Challenges: Bullying, peer pressure, and social exclusion affect confidence.

Biological Factors: Genetic tendencies may make some children more prone to anxiety.

Stressful Experiences: Loss of loved one, parental separation, illness, accidents, or other traumatic events can trigger anxiety.

Digital Exposure: Excessive screen time and disturbing online content may increase worry.

Poor Coping Skills: Difficulty expressing emotions or managing stress can intensify anxiety.

Lifestyle Factors: Lack of sleep, poor diet, and low physical activity can affect emotional health.

Recognizing the Signs

Physical, Emotional, and Behavioral Signs

Physical Signs:

- Frequent stomach aches or headaches with no medical cause.
- Trouble sleeping or recurring nightmares.
- Fatigue, muscle tension, or restlessness.
- Nail biting, hair pulling, or other nervous habits.
- Complaints of nausea, especially before school.

Emotional Signs:

- Excessive worry about future events or "what if" scenarios
- Intense fear of making mistakes or being judged
- Irritability, sudden crying, or emotional meltdowns
- Low self-esteem and persistent self-doubt

- Difficulty concentrating due to intrusive worries

Behavioural Signs:

- Refusing to attend school or social events
- Clinging to parents or caregivers beyond typical ages
- Avoiding new situations or unfamiliar people
- Seeking excessive reassurance from adults
- Procrastination driven by fear of failure.

Common Types of Anxiety Disorders in Children

- Generalized Anxiety:** Persistent, uncontrollable worry about many different things, such as school, health, family, the future. The child feels anxious almost every day with no single clear trigger.
- Separation Anxiety:** Intense fear of being separated from parents or caregivers. Very common in early childhood but concerning when it persists beyond age 8 or severely disrupts schooling.
- Social Anxiety:** Overwhelming fear of social situations, being watched, or judged by others. Children may avoid speaking in class, attending parties, or making new friends.
- Specific Phobias and Panic:** Intense, irrational fear of specific objects or situations (dogs, darkness, injections). Panic disorder involves sudden, overwhelming episodes of fear with physical symptoms like racing heart and breathlessness.

The Impact of Untreated Anxiety

When anxiety goes unaddressed, its impact ripples across every dimension of a child's life.

Academically, persistent anxiety impairs concentration, memory, and problem-solving, the very skills needed for school success.

Socially, anxious children often withdraw from friendships, miss out on extracurricular activities, and struggle to develop the confidence needed for healthy relationships.

Mental Health, higher risk of depression

and anxiety disorders in adulthood.

Family Strain, increased conflict, caregiver stress, and disrupted family routines.

How Parents and Teachers Can Respond Tackling Anxiety

The most powerful thing any adult can do for an anxious child is to respond with calm, consistent empathy. The goal is not to eliminate all anxiety, but to help the child develop the tools to manage it.

Listen Without Dismissing: Avoid phrases like "don't be silly" or "there's nothing to worry about." Instead, validate: "I can see this feels really scary for you. I'm here." Being listened to with patience and compassion is often the first step toward helping a child manage anxiety.

Build Predictable Routines: Children often feel more secure when their daily life follows a stable routine. Regular sleep times, study schedules, and family activities help reduce uncertainty and provide a sense of control, which can lower anxiety.

Teach Simple Relaxation Techniques: Introduce children to deep breathing, stretching, or quiet reflection. Even a few minutes of slow breathing can help calm the body and mind during moments of stress. These small practices gradually build emotional resilience. In addition, light physical activities such as walking or gentle movement can ease tension and help reduce the body's stress response.

Encourage Gradual Confidence Building: Avoidance strengthens anxiety. Gently and patiently encourage the child to face feared situations in small, manageable steps — with praise and recognition for every bit of courage shown.

Limit Excessive Pressure: High expectations related to academic performance or competition can intensify anxiety. Encourage children to focus on learning and effort rather than perfection.

Praise their progress and perseverance instead of only the results.

Model Healthy Coping: Children learn by watching. When adults openly (and calmly) talk about managing their own stress, and demonstrate balanced responses to challenges, they give children a powerful template to follow.

Seek Professional Help When Needed: If anxiety becomes persistent and begins to interfere with school, friendships, or daily activities, it may be helpful to consult a trained professional in Child Psychology or Clinical Psychology. Early guidance and support can prevent the problem from becoming more serious later in life.

Building a Supportive Environment for Every Child to Thrive

Anxiety in children is real, it is common, and most importantly, it is treatable. The journey begins with awareness: understanding that a worried child is not a weak child, and that reaching out for support is an act of courage, not failure. India's children carry extraordinary pressures, but they also have extraordinary resilience when they are surrounded by adults who see them, hear them, and believe in them.

Whether you are a parent, grandparent, teacher, or community member, your response to an anxious child matter more than you knows. Small, consistent acts of compassion, patient conversation, a calm routine, a gentle encouragement to try again, build psychological safety that allows children to face their fears and grow into confident, resilient adults.

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Beat the Bite: The Science and Strategy of Malaria Prevention

Dr. Lankesh Yashwant Bhaisare, Dr. Desh Deepak Chaudhary, and Dr. Vinod Vishnuji Madavi

Introduction

Malaria continues to spread throughout tropical and subtropical regions of the world, making it one of the most common diseases caused by vectors. Even though coordinated control and elimination efforts have made significant steps in recent decades, the disease still poses a serious threat to public health in many endemic nations. Complex interactions between parasite biology, vector ecology, climatic variability, socioeconomic factors, and new issues like insecticide and antimalarial drug resistance are what cause persistent transmission. As a result, malaria continues to be a serious worldwide health issue that calls for persistent, integrated, and evidence-based control measures.

Aetiology and Causative Agents of Malaria

Plasmodium is a genus of protozoan parasites that cause malaria. The biological vector, a female *Anopheles* mosquito carrying the infection, bites people to spread the infection. Sporozoites are injected into the human host during a blood meal and quickly move to the liver, where they go through an asexual multiplication phase known as exo-erythrocytic schizogony. Following their release into the bloodstream, merozoites infiltrate red blood cells, destroying them and causing malaria symptoms.

Understanding the species-specific epidemiology and pathogenicity is essential for effective diagnosis, treatment, and malaria control strategies.

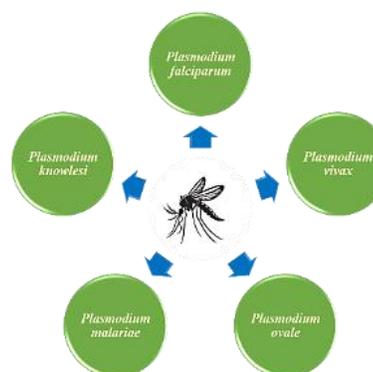


Fig 1. Five *Plasmodium* species are known to infect humans

Life cycle of malaria parasite

The female *Anopheles* mosquito (definitive host) and humans (intermediate host) are the two hosts in the complicated life cycle of the malaria parasite (*Plasmodium* spp.). Hepatic (liver stage), erythrocytic (blood stage), and sporogonic (mosquito stage) are its three main stages.

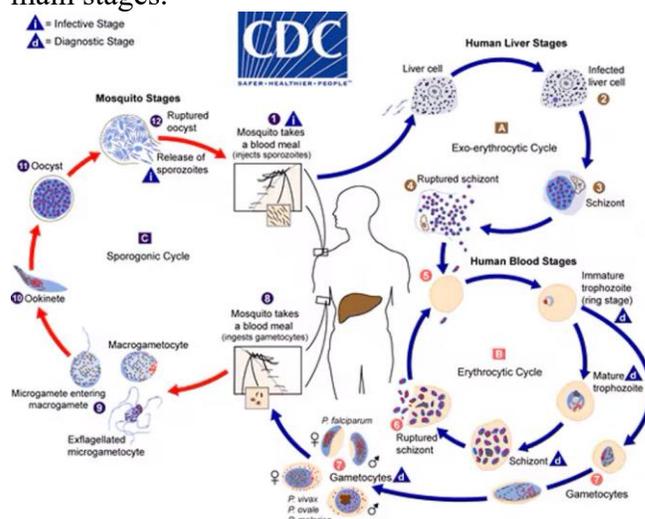


Fig 2. Life cycle of malaria parasite (Adopted from CDC)

Public Health Importance of Malaria

Malaria continues to hold significant public health importance, particularly in rural and tribal populations where access to healthcare services may be limited.

- **Public Health Threat:** In endemic areas, malaria is still a significant health risk that increases morbidity and mortality, particularly in vulnerable and underprivileged populations.
- **Economic Burden:** Due to illness-related absenteeism, the disease has a significant negative economic impact on workforce productivity. Additionally, it puts pressure on public health systems by raising household and governmental healthcare costs.
- **High-Risk Groups:** The most vulnerable groups are young children and pregnant women. Negative consequences like miscarriage, stillbirth, low birth weight, maternal anaemia, and increased neonatal morbidity are linked to malaria during pregnancy. Due to weakened immunity, children under five are more vulnerable to serious complications.
- **Impact of Climate Change:** Rising temperatures, changed rainfall patterns, and higher humidity are examples of climate variations that improve mosquito survival and breeding. As a result, the risk zones are growing as new regions become more advantageous to the spread of malaria.

Preventive and Control Measures for Malaria

Effective malaria prevention requires an integrated approach combining vector control, early diagnosis, prompt treatment, community participation, and vaccination strategies.

Beside the measures depicted in Fig 3, malaria vaccine RTS, S/AS01 (Mosquirix) has also been introduced in some countries as part of pilot implementation programs. In the future, it may also become an important component of malaria prevention strategies in India.

Conclusion

Malaria is still a dangerous disease with significant social, economic, and public health consequences. It influences healthcare systems, community productivity, and general development metrics in addition to individual morbidity. Malaria cannot be effectively controlled and eventually eradicated by governmental efforts alone; all citizens must actively participate and take collective responsibility. Malaria prevention requires persistent efforts to maintain environmental sanitation, raise community awareness, guarantee early diagnosis and full treatment, and put comprehensive vector control measures into place.

The idea of a "Malaria-Free India" may be turned from a public health objective into a concrete and attainable reality via integrated, multisectoral, and community-driven strategies.



Fig 3. Preventive and Control Measures for Malaria

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पुस्तिका समीक्षा

विज्ञान में नारी शक्ति : विकसित भारत की उड़ान



राष्ट्रीय विज्ञान दिवस-2026
(विज्ञान संचार-सामग्री)

विज्ञान में महिलाएँ : विकसित भारत का उद्रेरण
Women in Science : Catalysing Viksit Bharat

विज्ञान में नारी शक्ति : विकसित भारत की उड़ान

राष्ट्रीय विज्ञान दिवस-2026
(श्री कृष्ण विज्ञान केंद्र, पटना) में सम्पन्न "स्टेट अवार्डों"
बाल वैज्ञानिकों एवं अतिथियों का समूह।

राष्ट्रीय विज्ञान दिवस-2026
(30-31 दिसंबर, 2025) पटना में सम्पन्न अतिथिगण एवं बाल वैज्ञानिक।

आयोजक: राज्य और संघीय विज्ञान, पटना राज्य और संघीय विज्ञान,
पटना-800005 की ओर से आयोजित एवं संचालित है, पटना-800004 द्वारा प्रेषित

सायंस फॉर सोसाइटी, विज्ञान

सहभागीक : राज्य शिक्षा बोध एवं प्रशिक्षण परिषद, विहार
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“विज्ञान में नारी शक्ति: विकसित भारत की उड़ान” शीर्षक से प्रकाशित यह पुस्तिका राष्ट्रीय विज्ञान दिवस २०२६ के अवसर पर तैयार एक अत्यंत सारगर्भित एवं प्रेरणादायक विज्ञान-संचार सामग्री है। इसका मुख्य उद्देश्य विज्ञान एवं प्रौद्योगिकी के क्षेत्र में महिलाओं की भूमिका, उपलब्धियों और संभावनाओं को रेखांकित करते हुए “विकसित भारत” के निर्माण में उनकी भागीदारी को सशक्त बनाना है।

पुस्तिका की विशेषता इसकी विषय-वस्तु की व्यापकता और संतुलन में निहित है। प्रारंभिक खंड में भारत की प्राचीन परंपरा में विदुषी महिलाओं—जैसे गार्गी, मैत्रेयी आदि—के योगदान का उल्लेख करते हुए यह स्थापित किया गया है कि ज्ञान और विज्ञान के क्षेत्र में महिलाओं की उपस्थिति कोई नई घटना नहीं, बल्कि एक सशक्त ऐतिहासिक परंपरा का हिस्सा है। इसके बाद आधुनिक भारत की वैज्ञानिक महिलाओं की उपलब्धियों को अत्यंत प्रभावशाली ढंग से प्रस्तुत किया गया है, जिससे पाठकों को प्रेरणा मिलती है।

पुस्तिका में आँकड़ों, उदाहरणों और समकालीन संदर्भों का समुचित उपयोग किया गया है। स्टेम (STEM) शिक्षा में महिलाओं की बढ़ती भागीदारी, अंतरिक्ष अभियानों (जैसे चंद्रयान), जैव-प्रौद्योगिकी, चिकित्सा और क्वांटम

विज्ञान जैसे उभरते क्षेत्रों में उनकी भूमिका को तथ्यात्मक आधार के साथ प्रस्तुत किया गया है। यह सामग्री न केवल जानकारी देती है, बल्कि एक सकारात्मक दृष्टिकोण भी निर्मित करती है कि महिलाएँ विज्ञान के माध्यम से राष्ट्र निर्माण की अग्रणी शक्ति बन सकती हैं।

एक अन्य महत्वपूर्ण पक्ष यह है कि पुस्तिका केवल उपलब्धियों का उल्लेख भर नहीं करती, बल्कि चुनौतियों— जैसे लैंगिक असमानता, कार्यस्थल पर बाधाएँ, सामाजिक अपेक्षाएँ—को भी स्पष्ट रूप से सामने रखती है। साथ ही, सरकारी योजनाओं एवं नीतिगत पहलों का उल्लेख करते हुए समाधान की दिशा भी सुझाई गई है।

विशेष रूप से उल्लेखनीय है कि इस पुस्तिका में विभिन्न लेखकों/योगदानकर्ताओं द्वारा प्रस्तुत लेख, विचार और उदाहरण विषय को बहुआयामी दृष्टिकोण प्रदान करते हैं। प्रत्येक योगदान अपने आप में महत्वपूर्ण है और सामूहिक रूप से यह संकलन एक समृद्ध, संतुलित और प्रेरणादायक दस्तावेज के रूप में उभरता है। योगदानकर्ताओं के अनुभव, शोध एवं दृष्टिकोण इस पुस्तिका की विश्वसनीयता और प्रभाव को और सुदृढ़ करते हैं।

भाषा शैली सरल, प्रवाहपूर्ण और प्रेरक है, जो विद्यार्थियों, शिक्षकों एवं सामान्य पाठकों सभी के लिए उपयुक्त है। लेखों का संयोजन इस प्रकार किया गया है कि पाठक क्रमशः इतिहास, वर्तमान और भविष्य—तीनों आयामों को समझ सकें।

निष्कर्षतः, यह पुस्तिका न केवल विज्ञान में महिलाओं की भूमिका को सशक्त रूप से प्रस्तुत करती है, बल्कि “विकसित भारत” के निर्माण में उनकी अनिवार्य भागीदारी को भी रेखांकित करती है। विज्ञान और समाज के अंतर्संबंध को समझने के साथ-साथ यह पुस्तिका “नारी शक्ति” को वैज्ञानिक प्रगति के केंद्र में स्थापित करने का सफल प्रयास है। यह विद्यार्थियों, शिक्षकों, विज्ञान संचारकों तथा नीति-निर्माताओं सभी के लिए उपयोगी और प्रेरक पठन सामग्री सिद्ध होती है। “विकसित भारत” के स्वप्न को साकार करने में महिलाओं की भूमिका को समझने हेतु यह एक महत्वपूर्ण और समयोचित प्रकाशन है।

सायंस फॉर सोसायटी, बिहार द्वारा प्रकाशित इस पुस्तिका का मूल्य मात्र ₹ ३० है।

इसकी प्रति प्राप्त करने हेतु अपना निवेदन sfsbihar@yahoo.com इस ईमेल पर प्रेषित कर सकते हैं।



The Lighter Side of Physics!

Dr. Meena Sharma

Physics isn't always equations and complex theories; it also has a wonderfully witty side.

This section brings together a selection of light-hearted jokes that playfully explore scientific ideas, making them enjoyable for readers of all backgrounds.

The jokes featured here have been selected from *Physics Jokes*, a compilation by S. Rajasekar, which celebrates the humour hidden within the world of physics.

1. Why are computers so smart?

Because they listen to their motherboards!

2. How does Einstein begin a story?

“Once upon a space-time...”

3. What is the difference between an auto mechanic and a quantum mechanic?

The quantum mechanic can get the car into the garage without opening the door.

4. Why is electricity so dangerous?

Because it doesn't know how to conduct itself.

5. When people run around in circles, we call them crazy.

When planets do it, we call it orbiting.

6. Why was the math book so sad?

Because it had so many problems.

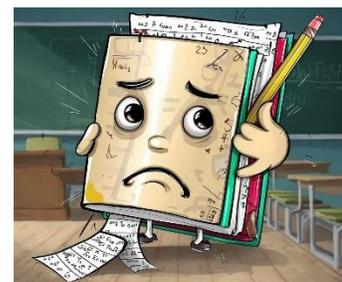
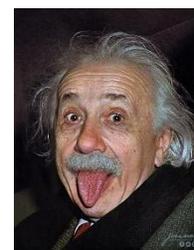
7. What did the thermometer say to the graduated cylinder?

“You may have graduated, but I've got many degrees.”

8. Relativity:

Two hairs in your milk = too much.

Two hairs on your head = too little.





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