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A COMPLETE HEALTH JOURNAL

Double Helical

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FEBRUARY 2025

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DOUBLE HELICAL

A COMPLETE HEALTH MAGAZINE

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Fragile and Vulnerable

Dear Readers,

Welcome to the 10th Anniversary issue of Double Helical, your trusted national health magazine, dedicated to spotlighting groundbreaking developments, extraordinary individuals, transformative products, and exemplary services that are shaping the future of healthcare in India. By focusing on affordable, high-quality, and inclusive healthcare solutions, we aim to foster awareness and contribute to the collective effort of improving health outcomes across the nation.

In this issue, we bring to you a poignant and significant story titled "The Plight of Orphaned Children". Experts categorise children who lose their parents due to death, abandonment, or other circumstances as Orphaned and Abandoned Children (OAC). These vulnerable children, particularly those raised in institutional care, face an array of challenges that encompass social, psychological, and economic difficulties. The absence of a nurturing familial environment often leaves them grappling with fragile health, emotional instability, hampered cognitive development, and personality alterations. These adversities serve as a clarion call for society to establish robust care systems to secure their health, happiness, and overall wellbeing.

The destiny of OACs often diverges into various possibilities: some are fortunate to find love and care in adoptive families, while others might be taken in by extended relatives. Sadly, many are left to survive on the streets or find themselves in institutional settings. Today, these institutions are more commonly referred to as juvenile homes rather than orphanages, reflecting a shift in societal attitudes. Despite this change, research has revealed the myriad challenges faced by institutionalised children. The psychological and emotional repercussions of early parental separation are profound, with studies indicating that children who experience neglect or trauma during their formative years are more likely to develop aggressive behaviours and maladaptive tendencies as they grow older.

On another front, our cover story, "Overlooked Yet Real," shines a spotlight on the rising threat of Human Metapneumovirus (HMPV), particularly its implications for malnourished children. Malnutrition exacerbates vulnerability to viral infections like HMPV, which are otherwise mild and self-limiting in well-nourished children. This underscores a grim reality in India, where respiratory infections contribute significantly to child mortality. Despite its gravity, this issue has long been overlooked by both policymakers and the media.

The Covid-19 pandemic has left a lingering psychological impact on populations worldwide, and reports of emerging viruses like HMPV have reignited fear and uncertainty. However, it is critical to understand that HMPV is not a novel virus. Identified in The Netherlands in 2001, it has been part of the global virological ecosystem for decades. In fact, sero-surveys conducted on stored serum samples reveal that HMPV has been circulating globally for over 50 years. It is a respiratory virus that predominantly infects children, causing mild symptoms. Alarmingly, undue media sensationalism around what is essentially a common respiratory virus has unnecessarily heightened public anxiety.

HMPV outbreaks, such as those recently observed in China, are not isolated events. Post-pandemic surges in respiratory viruses and other pathogens have been reported in countries like France, New Zealand, Australia, Italy, and the United Kingdom. The phenomenon can be attributed to what epidemiologists describe as an "immunity debt" or "immunity gap".

Under normal circumstances, infants and children are regularly exposed to a variety of microorganisms, which helps to prime and develop their immune systems. However, during the Covid-19 pandemic, stringent lockdowns and non-pharmaceutical interventions (NPIs) such as social distancing, isolation, and excessive sanitisation disrupted this natural process. As a result, a significant portion of the population—especially children—became immune-naïve, lacking exposure to common pathogens of childhood.

HMPV typically begins infecting children around six months of age. Under normal conditions, nearly all children (90-100 per cent) encounter the virus by the age of five, allowing their immune systems to build appropriate defences. However, in countries like China, where pandemic restrictions remained in place for nearly five years, this natural progression was severely interrupted. As a result, large cohorts of children, previously shielded from the virus, are now encountering it for the first time simultaneously, leading to widespread infections.

It is vital to note that HMPV is a mild virus with low virulence, posing minimal mortality risk to healthy children. However, its impact on malnourished and vulnerable populations should not be underestimated. Policymakers must strike a balance between safeguarding public health during pandemics and preserving the natural processes that foster long-term immunity. Reactionary measures, driven by media-induced panic, should give way to well-researched, evidence-based strategies that prioritise resilience over temporary containment.

This issue of Double Helical is packed with numerous fascinating, thought-provoking, and insightful stories. We hope it inspires you to reflect on the pressing healthcare challenges of our times and the solutions that lie within our grasp.

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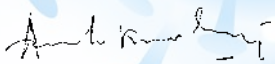
Happy reading!



Thanks and regards
Amresh K Tiwary,
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Addressing Cybercrime in the Medical Sector

In response to the alarming rise in cybercrime, particularly within the medical domain, Pushpanjali Medical Education and Research Centre, New Delhi, hosted its Monthly Clinical Meet, "Pushpanjali Meet Circle," on the pertinent topic, Cyber Crime, Security, and Concern. The event, inaugurated by **Dr Vinay Aggarwal, CMD of Pushpanjali Medical Centre**, brought together experts from various fields to discuss the challenges, risks, and preventive strategies surrounding cybersecurity in healthcare.

Dr Vinay Aggarwal opened the session with a compelling statement about the dangers of increasing cyber threats, which jeopardise sensitive medical data and critical infrastructure. He highlighted the growing prevalence of attacks such as malware, phishing, and ransomware, emphasising their potential to cause severe data breaches, financial losses, and operational disruptions in healthcare institutions. Dr Aggarwal advocated for robust defensive mechanisms, user education, and preventive measures,

urging stakeholders to remain vigilant against evolving cyber threats.

CYBERCRIME AND SECURITY: INSIGHTS FROM EXPERTS

Vivekanand Jha, ACP, Delhi Police, delivered a detailed overview of cybercrime, its manifestations, and mitigation strategies. He categorised cyber threats as follows:

- **Phishing:** Deceptive emails, texts, or calls designed to extract sensitive information.
- **Malware:** Malicious software that damages systems and data.
- **Ransomware:** Malicious software that encrypts systems, demanding a ransom for restoration.
- **Distributed Denial of Service (DDoS) Attacks:** Overloading systems with excessive connection requests to disrupt services.
- **Credential Attacks:** Attempts to steal or guess login credentials.
- **Cyberterrorism:** Targeted attacks on critical infrastructure, including healthcare systems.

ACP Jha underscored the use of social engineering and phishing as crucial components in many cyberattacks. He elaborated on how attackers exploit vulnerabilities through deceptive methods, particularly impersonating trusted entities in business email compromise schemes. He also stressed the need for constant vigilance, technology upgrades, and collaborative efforts to thwart cybercrime.

RATIONAL USE OF BLOOD: ADDRESSING MEDICAL RESOURCE UTILISATION

The session also covered the topic of rational blood use, led by Dr Chhavi Gupta, HOD-Blood Centre, Rajiv Gandhi Super Specialty Hospital, and Dr Abhinav Verma, Senior Consultant, Max Super Speciality Hospital. They stressed the importance of delivering the right blood products to patients

at the right time to improve outcomes and reduce adverse events such as transfusion reactions.

KEY STRATEGIES DISCUSSED INCLUDED:

- **Assessing Blood Loss:** Evaluating the extent of blood loss to determine transfusion needs.
- **Component Separation:** Separating whole blood into red cells, plasma, and platelets to optimize usage.
- **Using Red Cell Concentrates:** Reducing whole blood transfusions by using red cell concentrates.
- **Following Protocols:** Establishing and adhering to guidelines for emergency transfusions and monitoring.
- **Ensuring Safety:** Using rigorously tested and appropriate blood products for patients.

LIFESTYLE LONGEVITY: A HOLISTIC APPROACH TO HEALTHY LIVING

Dr Harjit Singh Bhatti, Senior Consultant at Sitaram Bhartia Institute, presented an enlightening talk on "Lifestyle Longevity." He emphasised the role of healthy choices in extending life expectancy and enhancing quality of life. According to Dr Bhatti, factors influencing longevity include:

- **Exercise:** Reducing risks of cardiovascular diseases, diabetes, and certain cancers.
- **Diet:** Emphasising fruits,

vegetables, whole grains, and lean proteins.

- **Weight Management:** Maintaining a healthy BMI.
- **Sleep and Stress Management:** Ensuring adequate rest and controlling stress for overall well-being.
- **Social Connections:** Building positive relationships to support mental health.
- **Avoiding Smoking and Alcohol Moderation:** Eliminating smoking and consuming alcohol within recommended limits.
- **Environmental Factors:** Living in areas with clean air and favourable climatic conditions.

KEY PARTICIPANTS AND SUCCESS OF THE EVENT

The event was graced by prominent figures in the medical community, including Dr Manish Kumar (Medical Director), Dr Prakash Gera, Dr Ashok Grover, Dr Ajay Lekhi (Past President, DMA), and Dr B K Gupta. Their participation and contributions ensured the success of this insightful session, fostering discussions on critical issues affecting healthcare and medical practices.

This comprehensive initiative by Pushpanjali Medical Education and Research Centre underlines the urgent need to address cybersecurity challenges, enhance medical resource utilisation, and promote a healthier, longer life through informed choices.


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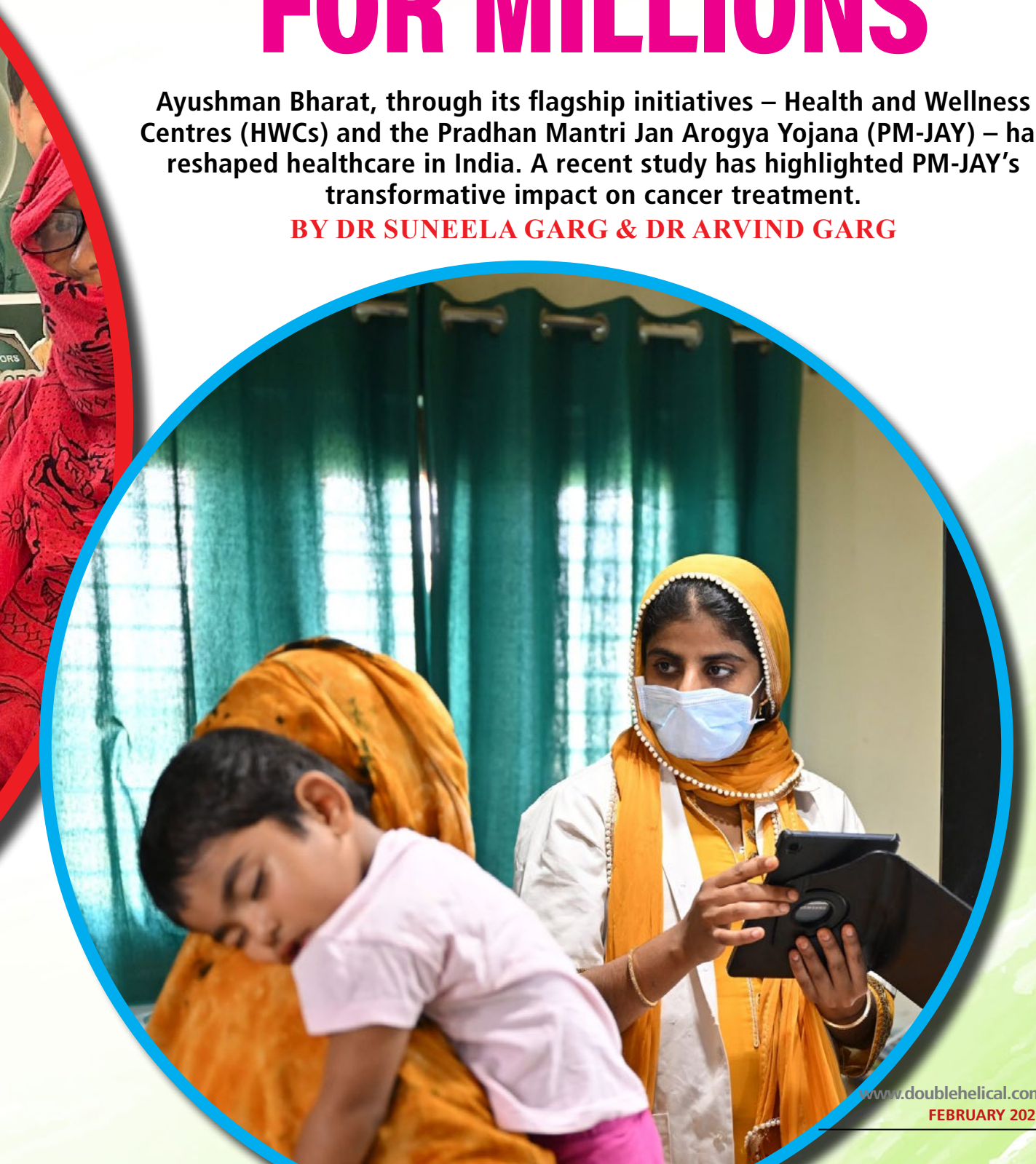
PM-JAY
NATIONAL HEALTH MISSION

A GAME-CHANGER FOR MILLIONS

Ayushman Bharat, through its flagship initiatives – Health and Wellness Centres (HWCs) and the Pradhan Mantri Jan Arogya Yojana (PM-JAY) – has reshaped healthcare in India. A recent study has highlighted PM-JAY's transformative impact on cancer treatment.

BY DR SUNEELA GARG & DR ARVIND GARG



Ayushman Bharat, a flagship initiative by the Government of India, was launched following the recommendations of the National Health Policy 2017 to realise the vision of Universal Health Coverage (UHC). This landmark scheme underscores the commitment to Sustainable Development Goals (SDGs) and embodies the principle of "leaving no one behind."

Introduced in 2018 as the Pradhan Mantri Jan Arogya Yojana (PM-JAY), Ayushman Bharat has revolutionised access to healthcare for economically vulnerable populations in India. The programme provides health insurance coverage of up to INR 5 lakh annually for secondary and tertiary care hospitalisations. Covering over 10 crore families, it stands as the world's largest government-funded healthcare initiative, making quality treatment accessible to millions.

By alleviating the burden of out-of-pocket medical expenses—an issue that had previously pushed 7 per cent of India's population into poverty, as noted by NITI Aayog—Ayushman Bharat has become a beacon of hope for many. Offering cashless treatment at empanelled hospitals, it has fostered significant digital transformation in healthcare financing. Automated systems have streamlined billing processes, reduced manual errors, and enhanced overall efficiency.

As of March 2023, over 23.3 crore beneficiaries had enrolled in the scheme, with 4.49 crore hospital admissions recorded. These numbers reflect Ayushman Bharat's pivotal role in setting new benchmarks for equitable healthcare access.

However, challenges persist. Issues such as delays in payments to healthcare providers, high claim rejection rates, and supply chain inefficiencies necessitate improvements in management systems. To address these gaps, innovations like automated claims processing and digital dashboards are being implemented to ensure timely settlements and minimise disruptions. Despite these challenges, Ayushman Bharat has inspired similar initiatives at the state level. Scaling the programme across India demands robust collaboration among stakeholders, including healthcare providers, insurers, tech enablers, and patients.

The Indian government's growing commitment to universal healthcare is evident in its increasing expenditure. Health spending rose to

The PM-JAY, touted as the world's largest health assurance scheme, provides a cashless annual health cover of ₹5 lakh per family, benefiting over 55 crore Indians. From pre-existing conditions to post-hospitalisation care, the scheme covers an expansive range of treatments, ensuring no one is left behind.

1.9 per cent of GDP in 2023-24 from 1.13 per cent in 2015-16, aligning with the National Health Policy's target of 2.5 per cent by 2025. This investment is crucial as India's healthcare sector is expected to reach USD 638 billion by 2025. Ayushman Bharat plays an instrumental role in bridging gaps between affordability and accessibility in this rapidly expanding sector.

Ayushman Bharat marks a shift from a fragmented, sectoral approach to a comprehensive, need-based model of healthcare service delivery. It seeks to address the healthcare system holistically, focusing on prevention, promotion, and ambulatory care across primary, secondary, and tertiary levels.

The scheme adopts a continuum-of-care approach through its two key components:

- **Health and Wellness Centres (HWCs):** These centres provide preventive, promotive, and primary healthcare services to communities.

- **Pradhan Mantri Jan Arogya Yojana (PM-JAY):** This component ensures financial protection for hospital-based care, particularly for the economically disadvantaged.

Ayushman Bharat remains a cornerstone of India's healthcare transformation, setting the stage for a more equitable and inclusive future.

HEALTH AND WELLNESS CENTRES (HWCS)

In February 2018, the Government of India announced the establishment of 1,50,000 HWCs by transforming existing Sub-Centres and Primary Health Centres. These centres aim to deliver Comprehensive Primary Health Care (CPHC) and bring healthcare closer to people's homes. HWCs are tasked with providing an expanded range of services, including maternal and child health, management of non-communicable diseases, early diagnosis of cancers, and referrals to specialised care. These centres also include provisions for free essential drugs and diagnostic services, ensuring accessible and affordable healthcare.

HWCs are designed to meet the primary healthcare needs of the population in their catchment area, focusing on principles of accessibility, universality, and equity. Health promotion and disease prevention form a central part of this initiative, engaging and empowering individuals and communities to adopt healthier lifestyles. The emphasis on preventive care aims to reduce the prevalence of chronic illnesses, thereby alleviating the burden on the overall healthcare system.

PRADHAN MANTRI JAN AROGYA YOJANA (PM-JAY)

PM-JAY, a key component of Ayushman Bharat, was launched on 23 September 2018 in Ranchi, Jharkhand, by Prime Minister Narendra Modi. It is the world's largest health assurance scheme, providing a health cover of INR 5 lakh per family per year for secondary and tertiary care hospitalisation to over 12 crore poor and vulnerable families, amounting to approximately 55 crore beneficiaries.

PM-JAY replaced the earlier National Health Protection Scheme (NHPS) and subsumed the Rashtriya Swasthya Bima Yojana (RSBY), which was launched in 2008. In addition to families listed under the Socio-Economic Caste Census (SECC) 2011, it also covers families that were insured under RSBY but are not present in the SECC 2011 database.

The programme is fully funded by the Government of India, with the cost of implementation shared between the Central and State Governments. PM-JAY is designed to provide financial risk protection for vulnerable populations, ensuring they do not face catastrophic health expenditures.

KEY FEATURES OF PM-JAY

- Comprehensive Coverage: PM-JAY covers up to INR 5 lakh per family per year, applicable to secondary and tertiary hospitalisation across public and private hospitals.
- Cashless and Paperless: Beneficiaries receive cashless access to healthcare services at the point of care, eliminating financial and administrative barriers.
- Pre- and Post-Hospitalisation: The scheme includes expenses for up to three days of pre-hospitalisation and 15 days of post-hospitalisation, covering diagnostics, medicines, and follow-up care.
- Pre-Existing Conditions: All pre-existing medical conditions are covered from day one, ensuring no exclusions.
- No Restrictions: There are no restrictions on family size, age, or gender, providing equitable access to all eligible members.
- Nationwide Portability: Beneficiaries can access services at any empanelled hospital across India, regardless of their state of residence.
- Extensive Service List: The scheme encompasses approximately 1,929 medical procedures, including surgery, intensive care, diagnostics, medication, physician fees, room charges, and post-operative care.
- Reimbursement for Public Hospitals: Public hospitals are reimbursed at par with private hospitals, fostering equity in healthcare delivery and incentivising improvements in public healthcare infrastructure.

A recent study credited PM-JAY with improving the timely initiation of cancer treatment in India, showing a 90 per cent increase among beneficiaries since its launch. With its focus on accessible and affordable care, the scheme has narrowed treatment gaps and empowered economically disadvantaged families to seek life-saving medical interventions.

BENEFIT COVER UNDER PM-JAY

The Pradhan Mantri Jan Arogya Yojana (PM-JAY) offers comprehensive health coverage aimed at addressing the challenges posed by earlier government-funded health insurance schemes, which had varying upper limits ranging from ₹30,000 to ₹3,00,000 annually per family. These limits led to fragmented healthcare access across states. PM-JAY, in contrast, provides cashless health insurance of up to ₹5,00,000 per family annually, covering secondary and tertiary care treatments.

COMPONENTS COVERED UNDER PM-JAY

The scheme ensures that all expenses incurred during the treatment process are included, such as:

- Medical examination, treatment, and consultation
- Pre-hospitalisation services
- Medicines and medical consumables

- Non-intensive and intensive care services
- Diagnostic and laboratory investigations
- Medical implant services where applicable
- Accommodation benefits for hospitalisation
- Food services for admitted patients
- Complications during treatment
- Post-hospitalisation follow-up care, extending up to 15 days

FAMILY FLOATER ADVANTAGE

The INR 5,00,000 cover operates on a family floater basis, meaning the total amount can be utilised by any or all family members as needed. Unlike the earlier Rashtriya Swasthya Bima Yojana (RSBY), which imposed a cap of five family members, PM-JAY eliminates restrictions on family size and member age.

PRE-EXISTING CONDITIONS

Another significant advantage of PM-JAY is the inclusion of pre-existing diseases from day one. Beneficiaries suffering from any medical condition prior to enrolment are eligible for treatment under the scheme immediately upon enrolment.

PM-JAY BENEFITS FOR SENIOR CITIZENS (70 YEARS AND ABOVE)

Senior citizens aged 70 and above are entitled to free medical treatment of up to INR 5 lakh per annum under PM-JAY.

ELIGIBILITY CRITERIA

The only criterion for eligibility is that the individual must be 70 years or older, verified through their Aadhaar card.

BENEFITS

Coverage for all pre-existing diseases from the first day of enrolment.

Access to treatment across more than 30,000 empanelled hospitals nationwide.

OBTAINING THE AYUSHMAN VAY VANDANA CARD

Senior citizens can easily acquire their Ayushman Vay Vandana Card through the Ayushman Bharat App, using their Aadhaar card for verification.

PMJAY AND TIMELY INITIATION OF CANCERS

The scheme has also had a notable impact on cancer treatment in India. A study published in The Lancet Regional Health - Southeast Asia highlighted a 36 per cent improvement in the timely initiation of cancer treatment over the past six years, largely attributed to PM-JAY. Timely treatment initiation, defined as starting treatment within 30 days of diagnosis, saw significant gains, with most patients now beginning treatment within 20 days. The study compared outcomes for individuals diagnosed between 1995 and 2017 with those diagnosed after 2018, finding a marked improvement in timely treatment access post-PMJAY implementation. While timely treatment initiation increased by 30 per cent among non-enrolled individuals, the increase among PM-JAY beneficiaries was an impressive 90 per cent, reflecting the scheme's effectiveness in reducing delays and ensuring critical care for underprivileged populations.

By bridging the gap in healthcare access, PM-JAY has empowered economically weaker sections to seek early and effective treatment, significantly improving health outcomes.

(The authors are Chair, Programme Advisory Committee, NIHFW; Director, Child Care Clinic, and Head, Apollo Hospitals, Noida.)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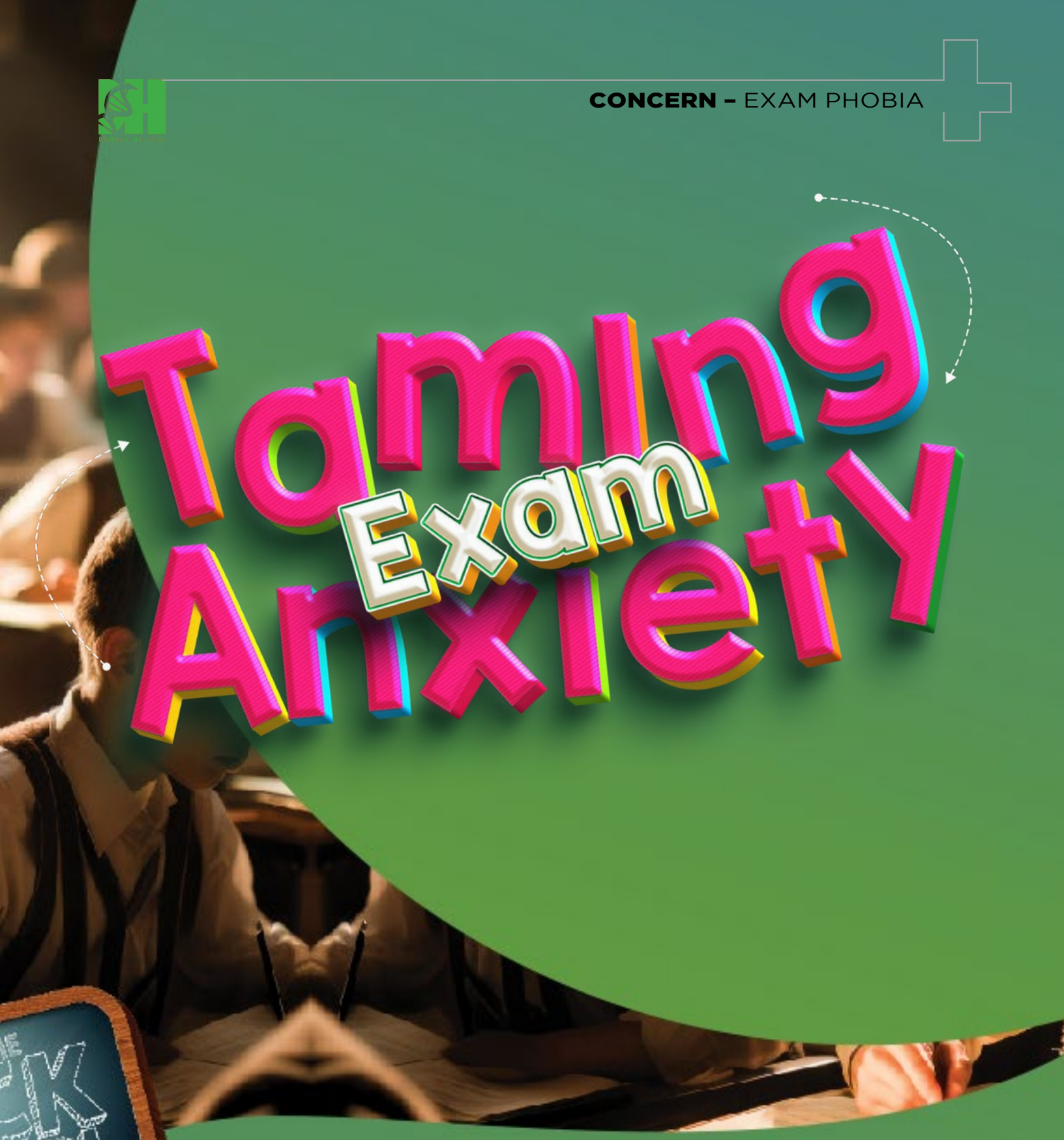
Taming Exam Anxiety



Exam stress is a common issue that can adversely impact a student's academic performance. However, with the right guidance, emotional support, and mindset, students can transform their worry into a source of motivation rather than a barrier to success.

BY DOUBLE HELICAL BUREAU

"Worrying is like a rocking chair: it gives you something to do, but it gets you nowhere." – Glenn Turner.

As board and annual exams approach, every student focuses on working hard to secure good marks. However, some students become trapped in fear, stress, and anxiety.

According to experts, this fear is often caused by exam phobia, a mental condition that affects many students. When exams are near, students frequently become overwhelmed with worry about how to study, how to perform well, and how to achieve good grades.

Exam phobia stems from various causes. Some students fear performing poorly in exams, while others fear disappointing their parents or teachers. Certain subjects, often perceived as difficult, can also trigger anxiety. Additionally, students may struggle with memory retention or concentration during study sessions, which exacerbates their fear. In some cases, students place excessive importance on grades, using them as a measure of self-worth. Negative self-talk before and during exams, as well as setting unrealistically high standards for oneself and comparing oneself to others, can also contribute to exam anxiety.

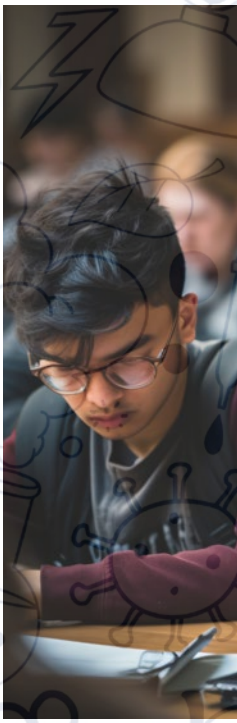
Dr Vandana V. Prakash, Senior Consultant and Clinical Psychologist at Max Superspeciality Hospital in New Delhi/NCR, explains that exam phobia can lead to poor academic performance, which, in turn, can cause heightened anxiety and depression among students. This not only affects their academic success but also impacts their overall physical and mental health, lowering their self-esteem.

However, Dr Prakash emphasises that students can overcome their fear of exams with proper guidance, emotional support, and positive reinforcement from both parents and teachers. A shift in mindset, combined with support from trusted adults, can help students conquer their exam anxiety.

"In my view, the journey of life includes smaller examinations in the form of school and board exams. These tests are stepping stones to help us face the highest examination: LIFE," Dr Prakash observes.

These words of wisdom have been shared with students for many years. Yet, despite understanding the value of this advice, many students tend to forget it at the most crucial time – during exams. Nervousness and anxiety are common at such times, making "examination" a dreaded term. A little anxiety can motivate us to study more effectively, but excessive fear and nervousness can hinder our performance. In these cases, anxiety can actually diminish our ability to perform well.

Dr Prakash further explains, "Did you know that many artists, performers, and high achievers experience



Exam anxiety often arises when basic habits like sleep, diet, and physical activity are overlooked. Establishing a healthy routine—consistent sleep, nutritious meals, regular exercise, and mindful breaks—can significantly reduce stress and improve focus, setting the stage for success in your exams.

significant anxiety before performing? They often report physical symptoms like feeling sick, experiencing a mental block, or having palpitations. However, their success lies in channelling this nervous energy into positive action by focusing intently on the task at hand. So, the first thing you need to understand is that tension and nervousness are normal. What matters is learning how to transform these negative feelings into positive energy."

HOW DO WE RECOGNISE EXAM ANXIETY?

There are several signs that indicate we may be experiencing exam anxiety, including:

- Excessive worry
- Fear of being evaluated
- Fear of the results
- A feeling of losing control

- Mood swings and irritability
- Irrational thoughts, such as:
- "Achieving success means scoring 100%"
- "If I don't get high marks, I am useless"
- "My parents won't love me if I don't do well"
- Physical symptoms like headaches, stomach aches, nausea, vomiting, dry mouth, frequent urination, or a racing heartbeat
- Lack of concentration or attention
- Increased daydreaming, especially about succeeding or winning praise for good performance, rather than actually studying
- Difficulty recalling learned material due to high levels of anxiety
- Social withdrawal from friends, family, and others

DO THESE BEHAVIOURS AFFECT OUR PERFORMANCE?

Yes, these behaviours can negatively impact performance during exams. The following are ways in which anxiety can hinder academic performance:

- Disruption of thought processes, causing disorganisation of thoughts
- Forgetting familiar or well-learned material
- Sudden inability to understand previously prepared topics
- Blanking out temporarily, leading to poor recall

A well-organised study plan is crucial for effective learning and reducing anxiety. Break your study sessions into manageable chunks, balance difficult and easy subjects, and focus on understanding the material, not just memorising it. A positive study approach will not only reduce stress but also boost your exam performance.

- Inability to understand even simple questions
- Forgetting essential keywords, concepts, or formulas
- Underperforming despite high expectations from oneself or others

WHY DO WE TEND TO BECOME ANXIOUS AND UNDERPERFORM IN OUR EXAMINATIONS?

Anxiety often arises when several fundamental factors are overlooked or neglected. Before and during an exam, students tend to pay little attention to their physical routine, the number of study hours, the distribution of time across all subjects, and their mental state. These overlooked factors contribute to increased anxiety levels, which can then hinder performance.

Since these causes are easily identifiable, the first step is to acknowledge and address the obstacles actively interfering with the learning process. By making adjustments in key areas, students can manage their anxiety and enhance their ability to perform well in exams.

1. OVERCOME PHYSICAL TENSIONS

A significant part of overcoming exam anxiety involves adjusting physical habits and maintaining a healthy routine.

- Sleep Schedule: Maintain a consistent sleep routine. If you're accustomed to a certain time for sleeping and waking, stick to it. All-night study sessions and daytime sleeping can disrupt your biological clock, leaving you fatigued and unprepared for the exam.
- Diet: Eat regular, easily digestible meals. Skipping meals or starving yourself will result in fatigue and hinder your focus. If large meals make you feel drowsy, try having smaller meals throughout the day.
- Exercise: Incorporate physical activity into your daily routine. A brisk walk or any form of exercise for 30-60 minutes daily will help reduce stress and boost mental clarity.
- Breaks: Avoid marathon study sessions. Take a 5–10-minute break after about 90 minutes of focused

Your mindset plays a crucial role in exam performance. Replace negative thoughts like "I'm going to fail" with affirmations such as "I've prepared well and will do my best." By maintaining a positive outlook, you'll lower anxiety levels and improve your ability to recall information during exams.

study. The brain needs rest to function at its best, and this break will help rejuvenate your mind. Don't feel guilty about taking a break – it is essential for your productivity.

- Comfortable Study Environment: Avoid overly comfortable spaces like beds, easy chairs, or rocking chairs, as these can induce sleepiness. Instead, choose a well-lit, quiet space that promotes alertness.
- Minimise Distractions: Keep away from distractions such as your phone, television, radio, or noisy environments. A focused study atmosphere is crucial for productivity.

2. EFFECTIVE TIME MANAGEMENT AND STUDY TECHNIQUES

How you organise your study time and the methods you use can greatly affect your ability to manage stress and reduce anxiety.

- Create a Timetable: Develop a study timetable for each subject, ensuring that all topics are covered adequately. Prioritise the most challenging subjects first.
- Balance Subjects: Aim to study one difficult subject and one easier subject each day. This balance prevents burnout and ensures you're making progress in all areas.
- Optimal Study Times: Study difficult topics when you're most alert and fresh. Tackling harder material during your peak mental hours can improve comprehension.
- Active Learning: Use active learning techniques, such as underlining key points in your textbook and summarizing paragraphs into keywords. Write these keywords in the margins for quick reference.
- Recall and Review: After each study session, close your book and try to recall the key points you studied. Track how many keywords you remember and revisit the ones you forgot. This helps reinforce retention.
- Focus on Understanding: Avoid rote memorisation, as it may lead to shallow learning. Strive to understand the concepts fully, which will make them easier to recall later.
- Nightly Revision: Before bed, briefly review the material in your mind. This reinforces your memory while you sleep.
- Avoid Last-Minute Cramming: Do not try to cram the night before an exam. Cramming increases stress and reduces the quality of learning. Instead, sleep early to ensure you wake up refreshed and ready to perform at your best.

3. MAINTAIN A POSITIVE MENTAL ATTITUDE

Your mindset plays a crucial role in how you approach exams and deal with anxiety.

- Don't Fear Exams: The more you fear the exam, the more anxious you'll feel. Avoid viewing exams as insurmountable obstacles or "boogeymen."
- Change Negative Thought Patterns: Negative thoughts like, "I am sure I will fail," or "What if I don't get above 95%?" increase anxiety. Replace them with positive affirmations, such as "I have studied well and will do my best," or "Percentage doesn't define my worth; effort does."
- Seek Support: Surround yourself with people who offer emotional and intellectual support. Having a support network can ease your stress and provide encouragement.
- Self-Appreciation: Acknowledge and celebrate your efforts, even if you don't get perfect results. Avoid being

overly self-critical. After evaluating your progress, reassure yourself that with more effort, you'll continue to improve.

- Focus on Personal Growth: Learn to compete with yourself rather than others. Everyone moves at their own pace, and comparing yourself to others can lead to unnecessary anxiety. Like driving a car, you may be ahead or behind others, but focus on driving safely and improving your own abilities rather than trying to surpass someone else.

4. PRE-EXAM PREPARATION AND MINDSET

The moments before entering the examination hall are critical in setting the tone for the exam. How you prepare mentally and physically can determine your performance.

- Avoid Last-Minute Studying: Do not open your books for last-minute revisions before the exam. This usually leads to increased anxiety rather than a better understanding of the material.
- Avoid Group Discussions: Refrain from discussing exam content with friends or classmates right before the exam, as their confusion may increase your own.
- Relaxation Techniques: Use relaxation methods, such as deep breathing or meditation, to calm yourself. Saying a short prayer or visualizing a positive outcome can help calm your nerves.
- Strategise During the Exam: Once inside the examination hall, read the paper carefully. Mark the questions you feel confident about and tackle them first. For the questions you're less sure of, leave them for later. This strategy ensures that you begin with confidence and gradually work through the paper.

The moments before the exam can make or break your performance. Instead of cramming, take time to relax and breathe deeply. Avoid last-minute revisions and stressful conversations with peers. A calm, focused approach when entering the exam hall can help you approach the paper with confidence and clarity.

By addressing these four key areas—physical health, effective study methods, positive mental attitudes, and pre-exam strategies—students can manage their anxiety, improve focus, and perform to the best of their ability during exams. With a balanced approach and a calm mindset, exams can be transformed from a source of stress into an opportunity to showcase your hard work and knowledge.

The Dark Side of GAMING

Internet Gaming Disorder (IGD), characterised by excessive and uncontrolled gaming behaviour that significantly impairs various aspects of an individual's life, has emerged as a growing concern for mental health professionals.

BY ABHIGYAN/ABHINAV

Online gaming has witnessed explosive growth in India, with a recent KPMG report revealing a staggering 400 million online gamers, solidifying the nation's position as a global gaming powerhouse. This surge is primarily attributed to the widespread penetration of smartphones and the increasing affordability of internet access. A significant portion of urban households, exceeding 60 per cent, actively engage in online gaming. The Indian gaming industry is poised for substantial growth, with projections estimating 700 million gamers by 2025, driven by a diverse landscape of both casual and competitive gaming platforms.

In the United States, the Entertainment Software Association reports that video games are enjoyed in a substantial two-thirds of households. A recent study estimates that approximately 160 million American adults actively participate in internet-based gaming.

While undeniably entertaining and often characterised by intense competition, the potential for gaming addiction remains a subject of ongoing debate and scrutiny among researchers and healthcare professionals.

Reports frequently document instances of children exhibiting concerning behaviours, such as aggression, which are attributed to excessive gaming. A particularly alarming aspect is that these children often fail to recognize the problematic nature of their gaming habits. Furthermore, parental concerns may not always be readily apparent or adequately addressed.

Dr Nimesh G. Desai, formerly the Director of the Institute of Human Behaviour and Allied Sciences (IBHAS) in Delhi, observes that children are typically brought to clinical settings only when mental or physical health issues become pronounced. This suggests that the actual number of children struggling with Internet Gaming Disorder (IGD) may be significantly higher than currently reported, as many cases may go unnoticed or unreported until severe behavioural problems emerge. Dr Desai

According to the All-India Gaming Federation, India's online gaming industry is expected to be worth 15,500 crore by 2023, highlighting the significant economic impact of the gaming sector in the country.

Dr Nimesh G. Desai

emphasises the importance of early intervention through counselling, stating that these issues can be effectively addressed if identified and addressed promptly.

A key concern regarding excessive gaming lies in its seemingly endless nature. The successful completion of one level often unlocks another, creating a continuous cycle of challenges that can captivate young minds and potentially lead to social isolation. In the context of competitive games, children may erroneously equate in-game power with real-world dominance, potentially fostering distorted perceptions of self-worth and social standing.

Dr Desai emphasises the importance of parental vigilance in identifying potential signs of problematic gaming behaviour. These may include:

- A noticeable increase in aggression when denied gaming access.
- Refusal to engage in other activities, such as eating or participating in social interactions.
- Stubborn insistence on continued gaming despite attempts to limit access.
- Dr Desai offers reassurance, stating that many children who exhibit signs of gaming addiction can successfully overcome these challenges with appropriate counselling and support.

WHAT IS GAMING DISORDER?

Dr Mina Chandra, Professor and Head of the Department of Psychiatry at Dr Ram Manohar Lohia Hospital in New Delhi, defines Gaming Disorder, as outlined in the 11th Revision of the International Classification of Diseases (ICD-11), as "a pattern of gaming behaviour, both digital and video gaming, characterised by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences."

The World Health Organization recognises online game addiction as a legitimate mental health disorder, characterised by severe and persistent gaming behaviour that prioritises gaming over other essential life interests. Studies conducted in India indicate that approximately 3.5 per cent of adolescents suffer from IGD, surpassing the global average by 0.5 per cent.

Dr Chandra further notes that Indian studies reveal a higher prevalence of IGD among boys compared to girls, with an 8 per cent prevalence among boys and 3 per cent among girls.

Internet Gaming Disorder encompasses the problematic use of both online and offline video games. Current research suggests that the prevalence of IGD among adolescents ranges from 1.3 per cent to 19.9 per cent, with males generally exhibiting higher rates than females.

Dr Rushi Tamanna, Associate Professor and HOD of the Department of Clinical Psychology at the Centre of Excellence in Mental Health, ABVIMS-Dr RML Hospital

Dr Mina Chandra

The DSM-5, the diagnostic manual used by mental health professionals, outlines specific criteria for diagnosing Gaming Disorder. It emphasises that the gaming behaviour must cause significant impairment or distress in several aspects of a person's life, such as work, school, and social relationships.

in New Delhi, highlights the potential links between gaming disorders and various mental and physical health issues. Dr Tamanna states, "Gaming disorders can also be linked with anxiety, depression, obesity, sleeping disorders, and stress. People who remain physically inactive for long periods due to gaming may also be at higher risk of obesity, sleep disorders, and other health-related issues."

Research indicates that 0.3 per cent to 1.0 per cent of the general population may meet the criteria for a potential diagnosis of Internet Gaming Disorder.

Factors such as age, gender, socioeconomic status, and access to smartphones with internet connectivity significantly influence the risk of developing IGD among adolescents.

The International Classification of Diseases (ICD) serves as a globally recognised standard for recording and reporting health conditions. It plays a crucial role in ensuring interoperability and comparability of health data across different regions and healthcare systems. The inclusion of a specific category within the ICD depends on its utility and the availability of sufficient evidence to support the existence of a particular health condition.

Dr Tamanna emphasises that for a diagnosis of gaming disorder, the behaviour pattern must:

- Result in significant impairment in personal, family, social, educational, occupational, or other important areas of life.
- Be evident for at least 12 months.
- IGD is characterised by persistent and recurrent involvement with video games, often leading to:
- Significant impairment in daily work and/or educational activities.
- Loss of interest in other social activities.
- Deterioration of relationships.
- Diminished educational or career opportunities.
- Gaming as a means of escaping anxiety, guilt, or other

Dr Rushi Tamanna

Adolescence represents a period of vulnerability for the emergence of addictive behaviours, with a peak incidence during the transition into young adulthood. During this crucial developmental stage, teens are focused on establishing autonomy and identity, making them more susceptible to the allure of excessive gaming.

negative emotional states.

Research has established a strong link between excessive digital gaming and adverse mental health outcomes, including loneliness, depression, and even suicidal thoughts. This concern was amplified during the COVID-19 pandemic, when lockdowns led to a significant increase in gaming app downloads across India.

SYMPTOMS OF IGD INCLUDE:

- Preoccupation with gaming.
- Withdrawal symptoms (sadness, anxiety, irritability) when gaming is interrupted or unavailable.
- The need to increase gaming time to maintain satisfaction.
- Difficulty reducing or quitting gaming.

DEFINING AND DIAGNOSING GAMING DISORDER

The DSM-5, the diagnostic manual used by mental health professionals, outlines specific criteria for diagnosing Gaming Disorder. It emphasises that the gaming behaviour must cause significant impairment or distress in several aspects of a person's life. This proposed condition is limited to gaming itself and does not encompass problems with general internet use, online gambling, or the use of social media or smartphones.

Under the proposed criteria, a diagnosis of IGD would require experiencing five or more of these symptoms within a year. The condition can include gaming on the internet, or on any electronic device, although most people who develop clinically significant gaming problems primarily play on the internet.

Whether internet gaming should be classified as an addiction/mental disorder is the subject of much debate and a growing body of research. There is neurological research showing similarities in changes in the brain between video gaming and addictive substances.

According to a report, the validity and reliability of the criteria for internet gaming disorder were examined by comparing them to research on gambling addiction and

problem gaming, and estimating their impact on physical, social, and mental health. The study found that among those who played games, most did not report any symptoms of IGD, and the percentage of people that might qualify for internet gaming disorder is extremely small.

The two clinical vignettes illustrate distinct developmental pathways: an internalised pathway characterised by the development of social anxiety, emotional and behavioural avoidance, and an externalised pathway characterised by low levels of emotional regulation strategies and impulsivity. In both clinical cases, attachment issues played a key role in understanding the specific associations of risk and maintaining factors for IGD. Moreover, gaming behaviours may be seen as specific forms of maladaptive self-regulatory strategies for these two youths. These clinical observations support the assumption that gaming use in adolescents should be viewed within a developmental framework, including key aspects of emotional development that represent significant targets for therapeutic interventions.

Adolescence represents a period of vulnerability for the emergence of addictive behaviours, with a peak incidence during the transition into young adulthood. Developmentally, teens are focused on establishing autonomy and identity through a series of social experiences within peer groups. The need to integrate multiple, and sometimes conflicting,

The act of playing video games is more addictive than the actual games themselves. The brain's reward system plays a crucial role, with the release of dopamine providing a sense of pleasure and reinforcement, making it difficult for some individuals to resist the urge to continue playing.

demands and developmental needs may result in interpersonal conflicts and emotional distress. In this context, addictive behaviours can emerge as a means of developing a new sense of identity within a peer group and as a way to relieve emotional distress. While the starting point of addictive behaviour is often during adolescence, etiological factors are rooted in childhood, especially early-environmental factors and cognitive and socio-emotional dysfunctions.

Dr Rushi Tamanna emphasises that most of the literature devoted to severe gaming misuse in adolescents comes from studies conducted in general populations, internet-recruited samples, or outpatient clinics. Only anecdotal reports exist concerning youths with severe psychiatric disorders. However, in this latter group, the aggregation of academic problems, social withdrawal, and the severity of internalised symptoms puts them at very high risk of developing gaming misuse. Moreover, if Internet gaming misuse alters the course of psychiatric symptoms in youths with severe psychiatric disorders, recognizing and treating dual diagnoses would represent a clinically relevant approach.

According to the All-India Gaming Federation, India's online gaming industry is expected to be worth 15,500 crore by 2023. A 2019 survey by the US-based Limelight Networks found that India had the second largest number of gamers after South Korea, and while time spent online is still not as high as in other countries, it found that almost a quarter of adult Indian gamers had missed work while playing games.

The World Health Organization categorised gaming disorder as a mental health condition in 2018. However, as the pandemic increased screen time across age groups, concerns have been growing. Last month, China limited gamers under 18 years to just three hours of online games per week, during specified times, and made the industry responsible for enforcing the restriction.

In India, legal focus has been on recent laws in the

southern States seeking to ban online games such as rummy, poker, or even fantasy sports which offer prize money or financial stakes. The Kerala High Court quashed such a law in the State, accepting the industry's stance that, as games of skill rather than chance, they should not trigger bans on gambling. However, worried parents, psychiatrists, and mental health advocates warn that the dangers go well beyond monetary motivations.

For gaming disorder to be diagnosed, the behaviour pattern must be severe enough to significantly affect a person's functioning in personal, family, social, educational, occupational, or other significant domains, and it must have been present for at least a period of 12 months.

According to numerous research studies, mental health conditions like depression, anxiety, and stress as well as gaming disorder may co-occur. Users who struggle with these underlying problems may develop the habit of playing video games excessively because it allows them to escape from the uncomfortable emotions they experience; in some cases, this may be the only thing that helps them feel better. The emotional, physical, social, and mental health of those who meet the criteria for gaming disorder is frequently worse.

The act of playing video games is more addictive than the actual games (and its effect on our brains). This is due to the fact that playing video games is very stimulating and results in the release of large amounts of dopamine.

Video games generate challenges that are easy to accomplish and consistent, which divert us from achieving meaningful goals outside of gaming. Also, people typically tend to feel happy after finishing tasks.

As people experience immediate gratification for achieving these in-game successes, gaming can be addicting. This incentive mechanism eventually results in reinforced behaviour (e.g., more gaming).

Gaming disorder has negative effects on finances, employment, and education. The expense of the equipment and the required high-speed internet might add significantly to the financial difficulties. Additionally, the time spent concentrating on playing the games can eat up time that could be spent on academics or a profession.

Drug abuse is another significant concern for those with gaming disorders. Since depression and gaming disorder are strongly correlated, many addicts may find themselves receiving antidepressant prescriptions and using them. Because these medicines are difficult to quit using due to the withdrawal symptoms that arise, such as nausea, anxiety, irritability, and, in extreme circumstances, greater depression, an addiction to them may develop. Additional substance misuse problems could arise as a result of the addict's lack of concern for their health.

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OVERLOOKED


YET REAL

Malnourished children are particularly vulnerable to viral infections, including HMPV, which are typically mild and self-limiting in well-nourished children. Malnutrition and child mortality in India, exacerbated by respiratory infections, presents a grim reality that often goes unnoticed by the media and policymakers.

BY DR AMITAV BANERJEE

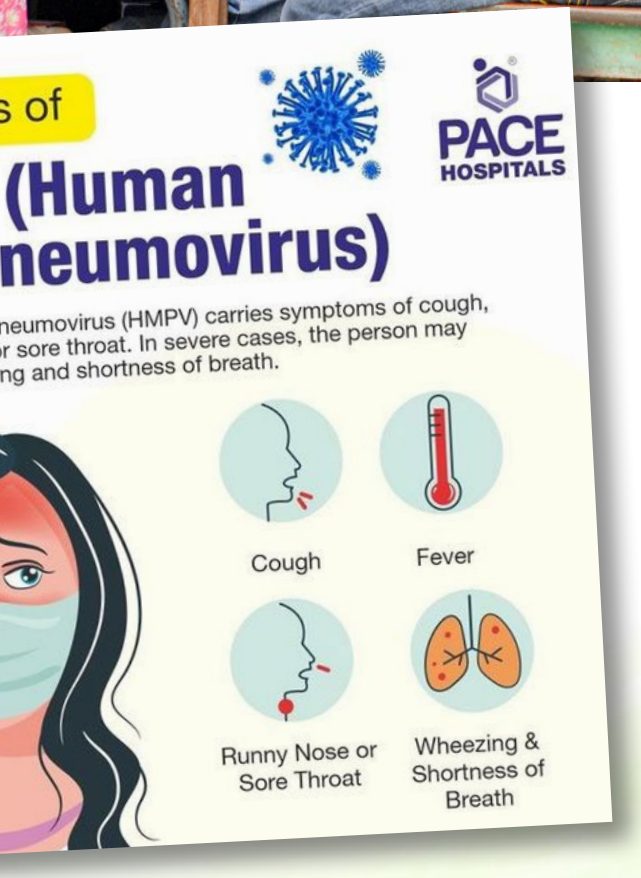
In recent weeks, media outlets have been buzzing with alarming reports of widespread outbreaks of a respiratory virus, particularly among children, across many provinces in China. Hospitals in the country are reportedly overwhelmed with large numbers of cases, pushing health services to their limits. The virus responsible for these outbreaks has been identified as the Human Metapneumovirus (HMPV). Given the lingering trauma of the Covid-19 pandemic, such media reports about emerging viruses have reignited panic among the global population.

IS HMPV A NEW VIRUS?

Contrary to media speculation, HMPV is not a new virus. Although it was first identified in The Netherlands in 2001, HMPV has long been a part of the global virological landscape. This respiratory virus commonly infects children and is typically self-limiting. Sporadic reports of HMPV cases among children in India from various states align with what is well-documented in medical textbooks and should not cause undue alarm. Unfortunately, unnecessary media hype around what is essentially a garden-variety respiratory virus has amplified public anxiety. Serosurveys conducted on stored serum samples have revealed that HMPV has been circulating globally for over 50 years, underscoring its endemic nature.

POST-PANDEMIC SURGES AND THE CONCEPT OF "IMMUNITY DEBT"

HMPV outbreaks in China are not an isolated phenomenon. Similar surges in respiratory viruses and other pathogens have been documented in various countries—including France, New Zealand, Australia, Italy, and the United Kingdom—in the post-pandemic period. These surges are particularly pronounced among children and can be attributed to a concept known as "immunity



Costly diagnostic tests for HMPV are being offered by private laboratories to affluent sections of society, who are least likely to suffer from severe outcomes of such infections. Meanwhile, marginalised children, for whom such infections are often deadly, remain invisible to both media and policymakers.

debt" or "immunity gap."

Under normal circumstances, infants and children are routinely exposed to a variety of viruses and bacteria, which stimulate and prime their immune systems. However, during the Covid-19 pandemic, strict lockdown measures, along with other non-pharmaceutical interventions (NPIs) such as physical distancing, isolation, and the excessive use of sanitisers, significantly curtailed this natural process. As a result, large sections of the population—especially children—were left immune-naïve and vulnerable to common infections of childhood.

For instance, HMPV typically begins infecting children from six months of age. Under normal conditions, by the time they reach five years, 90-100 per cent of children would have encountered the virus, allowing their immune systems to develop appropriate defences. However, the harsh and prolonged restrictions in China, in place for nearly five years, disrupted this natural progression. Consequently, a large cohort of immune-naïve children is now encountering HMPV simultaneously, leading to widespread infections that would ordinarily have occurred gradually over time.

ASSESSING THE RISKS OF HMPV

It is important to note that HMPV is a mild virus with low virulence. While it may lead to a high number of cases, it poses little risk of mortality in healthy children. Severe infections are primarily limited to immune-compromised individuals—whether children or the elderly—who are inherently vulnerable to a wide range of viral infections. For the general population, HMPV does not warrant special attention, provided that underlying co-morbidities are managed effectively.

India's staggering child malnutrition rates make children vulnerable to severe outcomes from otherwise mild infections like HMPV. Encounters with pathogens set off a vicious cycle: malnourished children are more likely to suffer severe disease and even death. Those who survive these infections often emerge more malnourished than before, perpetuating the infection-malnutrition-infection cycle

LESSONS FOR FUTURE PANDEMICS

The phenomenon of immunity debt underscores an essential public health lesson: excessively strict restrictive measures, beyond a reasonable limit, may fail to achieve a net benefit for the population in the long term. Humans cannot live in sterile environments indefinitely. Once restrictions are lifted, the rebound in the transmission of common pathogens is inevitable, and the immunity debt must eventually be paid—often with interest. Infections can be postponed, but not permanently prevented.

Policymakers must weigh these trade-offs carefully when formulating responses to future pandemics. Public health strategies should strike a balance between protecting the population from immediate threats and preserving the natural processes that build immunity over time. Knee-jerk reactions and media-induced panic should give way to evidence-based

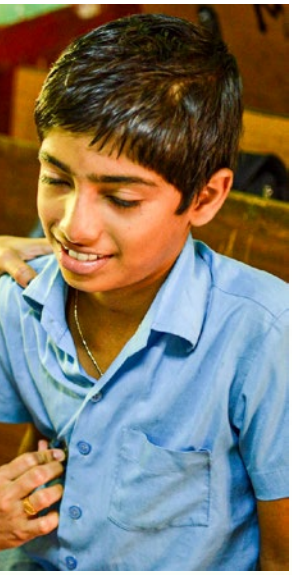
approaches that prioritise long-term resilience over short-term containment.

THE BURDEN OF CHILD MALNUTRITION

Mild viruses such as HMPV and others typically cause mild, self-limiting infections in the majority of children. However, their impact can be devastating in immune-compromised individuals, particularly malnourished children. India, with one of the highest rates of child under-nutrition globally, faces an alarming public health crisis. Statistics reveal that 36 per cent of Indian children are stunted, reflecting lower height for age, 17 per cent are underweight, and 6 per cent suffer from severe malnutrition. These figures point to a widespread challenge with far-reaching implications.

> **Approximately 400,000 deaths occur annually among children under the age of five due to respiratory infections—a stage of life when children are most likely to encounter HMPV. This staggering number translates to over 1,000 child deaths every day, many of whom belong to malnourished and marginalised communities.**

This significant prevalence of under-nutrition compromises the immune systems of affected children, making them more vulnerable to viral infections, including HMPV, which would otherwise be mild and self-limiting in well-nourished children. Such encounters with pathogens set off a vicious cycle: malnourished children are more likely to suffer severe disease and even death. Those who survive these infections often emerge more malnourished than before, perpetuating the infection-malnutrition-infection cycle. This cycle remains a critical, yet under-addressed, factor in India's child mortality statistics.



HIGH MORTALITY AMONG MALNOURISHED CHILDREN

India's high child mortality rate, exacerbated by respiratory infections, paints a grim picture that often escapes the attention of media and policymakers. Approximately 400,000 deaths occur annually among children under the age of five due to respiratory infections—a stage of life when children are most likely to encounter HMPV. This staggering number translates to over 1,000 child deaths every day, many of whom belong to malnourished and marginalised communities. These deaths, occurring in the shadows of systemic neglect, fail to generate

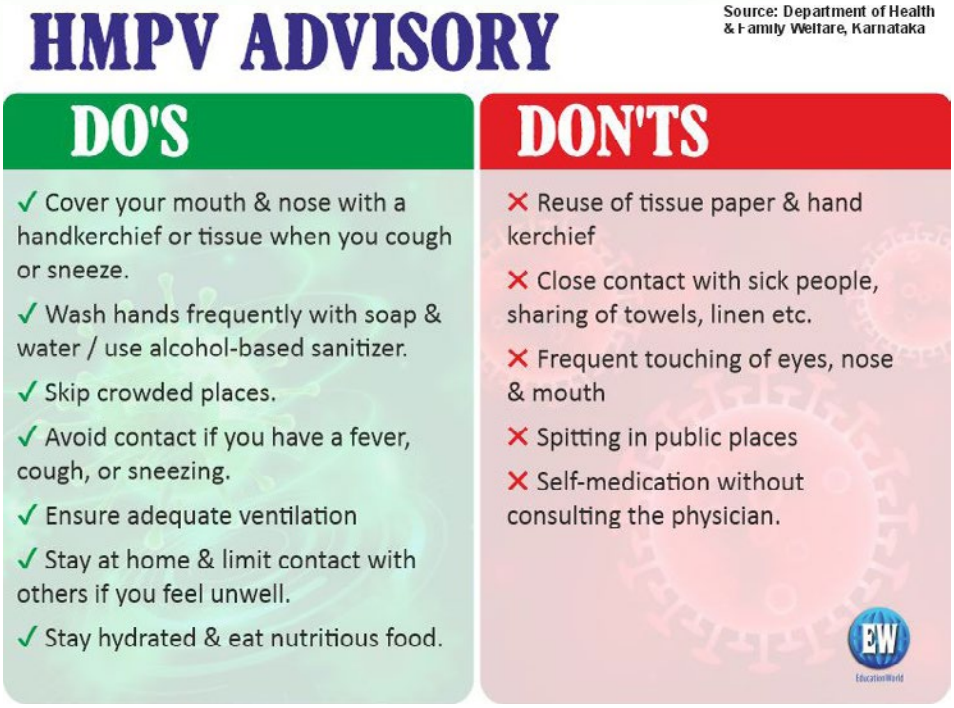
> **Many states face a 40-50 per cent shortfall in healthcare personnel, including doctors and paramedical staff, across government hospitals and health centres. These gaps directly impact the healthcare access of underprivileged populations, perpetuating health inequities.**

public or governmental concern.

IF YOU DON'T HAVE BREAD, EAT CAKE!

It is a painful irony that mild infections, otherwise easily managed, are claiming the lives of so many children due to unresolved child malnutrition and inequitable access to healthcare services. Adding to this tragedy is the fact that costly diagnostic tests for HMPV are being offered by private laboratories to affluent sections of society, who are least likely to suffer from severe outcomes of such infections. Meanwhile, marginalised children, for whom such infections are often deadly, remain invisible to both media and policymakers.

Even more disconcerting is the clamour from certain quarters for increasing testing of a virus that is largely benign in healthy populations. This misplaced focus is reminiscent of the infamous remark attributed to Queen Marie-Antoinette during the French Revolution: "If you don't have bread, eat cake." It underscores the disconnect between public health



priorities and the ground realities of underserved populations.

ADDRESSING SILENT PANDEMICS

India stands at a crossroads. To tackle child malnutrition effectively, the nation needs nothing short of a "Nutrition and Health Revolution." The current allocation of resources towards widespread testing for relatively benign viruses is a misplaced priority. Instead, these funds must be redirected towards combating child malnutrition. Improving nutrition would bolster children's immunity, enabling them to withstand a wide range of pathogens, rather than addressing infections on a case-by-case basis.

Equally critical is the urgent need to strengthen India's public health infrastructure. Recent audits by the Comptroller and Auditor General (CAG) have exposed severe deficiencies in this domain. Many states face a 40-50 per cent shortfall in healthcare personnel, including doctors and paramedical staff, across government hospitals and health centres. These gaps directly impact the healthcare access of underprivileged populations, perpetuating health inequities.

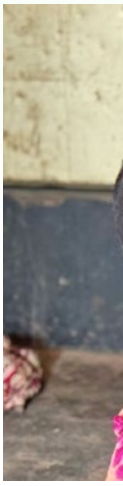
As a nation, we must recognise that waiting for a hypothetical Disease 'X' pandemic is a luxury we cannot afford. Instead, the battle must begin now, targeting the root causes of our vulnerabilities. The real challenge lies in tackling the 'silent pandemics' of child malnutrition and unequal access to healthcare services. The path ahead is challenging, and the journey is long, but as the poet aptly said, "We have miles to go before we sleep.".

(The author, a renowned epidemiologist and Professor Emeritus at DY Patil Medical College in Pune, has served in the armed forces for over two decades. Recently, he was ranked among the world's top 2 per cent scientists by Stanford University.)

STAY SAFE NOT SCARED

India's healthcare system, bolstered by lessons from the COVID-19 pandemic, is well-equipped to handle HMPV. Its detection indicates improved disease monitoring rather than an emerging crisis.

BY DR K. MADAN GOPAL
AND PROF DR SUNEELA GARG



Recent reports of a few Human Metapneumovirus (HMPV) cases in India have sparked public anxiety. Social media platforms have been flooded with posts, ranging from speculative to alarmist, while television coverage has further amplified concerns. To allay public fears, the Union Minister of Health and Family Welfare (HFM), Government of India, convened a press briefing, assuring citizens that the situation is under control.

Officials clarified that the small number of identified cases received medical attention, and none have reported severe complications. India's existing disease surveillance and response infrastructure—significantly bolstered during the COVID-19 pandemic—has been actively monitoring the situation. Statements from the Indian Council of Medical Research (ICMR) and the National Centre for Disease Control (NCDC) emphasised the need for awareness over panic.

Medical experts interviewed in the media have pointed out that HMPV is not a novel virus. It has been circulating globally for years, causing mild to moderate respiratory infections in most cases. They argue that the detection of a few cases is indicative of improved disease surveillance rather than a looming public health crisis.

UNDERSTANDING HUMAN METAPNEUMOVIRUS

Discovered in 2001 by Dutch scientists, Human Metapneumovirus belongs to the Paramyxoviridae family, which also includes viruses responsible for measles, mumps, and respiratory syncytial virus (RSV). While the virus was formally identified only two decades ago, researchers believe it has been circulating for far longer.

TRANSMISSION AND SYMPTOMS

- Mode of Transmission: HMPV spreads primarily through respiratory droplets from coughing or sneezing by infected individuals. Direct contact with contaminated surfaces can also lead to infection.

- Symptoms: Common symptoms include runny nose, cough, fever, and occasionally wheezing. While healthy individuals typically recover without complications, very young children, elderly individuals, and those with compromised immune systems may experience severe illness.

- Prevalence: Studies estimate that HMPV is responsible for 5–10 per cent of respiratory infections in children globally.

Though headlines about viruses can cause alarm, it's crucial to note that HMPV is not as virulent as many emerging pathogens. Healthcare professionals have successfully managed cases for years using supportive care, as there is no specific antiviral treatment for the virus.

While the virus may be unsettling to hear about, especially given the lingering memories of COVID-19, it is important to rely on credible information and medical guidance. Awareness, preparedness, and collective responsibility are the keys to staying safe—without succumbing to unnecessary fear.

SEASONAL PATTERNS AND GLOBAL PRESENCE

Human Metapneumovirus is widespread and has been documented in nearly every part of the world. In temperate regions, infections peak during late winter or early spring, often coinciding with the circulation of other respiratory viruses such as influenza and RSV. However, in tropical and subtropical regions, including parts of India, seasonal patterns vary based on local climatic factors like temperature and rainfall.

Routine respiratory virus testing panels in healthcare systems worldwide frequently detect HMPV. Outbreaks often occur in settings where close contact facilitates

> **The WHO's approach encourages preparedness without inducing panic. Through regular monitoring, nations can identify trends, detect mutations, and respond swiftly to any changes in the virus's behaviour—whether it spreads more aggressively or causes severe disease.**

transmission, such as daycare centres, schools, and nursing homes.

THE INDIAN CONTEXT: ENHANCED VIGILANCE POST-COVID-19

The recent detection of HMPV cases in India likely reflects improved diagnostic capabilities rather than an actual surge in infections. Over the past few years, India has significantly expanded its surveillance for respiratory illnesses.

The ICMR and NCDC oversee extensive virology lab networks capable of testing for a range of respiratory pathogens, including influenza, SARS-CoV-2, RSV, and HMPV. When clusters of respiratory illnesses appear unusual, they are swiftly investigated.

Hospitals and healthcare facilities across the country have been directed to test individuals presenting with persistent or severe respiratory symptoms. In the event of a surge in cases, authorities initiate a coordinated response, including contact tracing and isolation protocols when necessary. Rapid response teams are also deployed to contain outbreaks and ensure timely intervention, even in small clusters.

A CALL FOR AWARENESS, NOT ALARM

The detection of HMPV in India is a testament to the country's improved surveillance systems rather than a cause for alarm. The small number of reported cases highlights the effectiveness of India's health infrastructure in identifying and monitoring respiratory pathogens.

While the virus may be unsettling to hear about, especially given the lingering memories of COVID-19, it is important to rely on credible information and medical guidance. Awareness, preparedness, and collective responsibility are the keys to staying safe—without succumbing to unnecessary fear.

CLEAR COMMUNICATION AND PREPAREDNESS: A PILLAR OF PUBLIC TRUST

The government's proactive communication about HMPV has been instrumental in maintaining public transparency and trust. Advisories issued by the ICMR and the NCDC guide healthcare providers on identifying, testing, and managing HMPV cases. Such measures ensure early intervention, minimising the risk of large-scale outbreaks.

Globally, the World Health Organization (WHO) monitors respiratory viruses with the potential to cause significant public health impacts. While HMPV does not pose a threat comparable to SARS-CoV-2 or highly virulent influenza strains, the WHO underscores the importance of routine surveillance. This includes testing for multiple respiratory pathogens, particularly when clusters of cases are detected.

The WHO's approach encourages

preparedness without inducing panic. Through regular monitoring, nations can identify trends, detect mutations, and respond swiftly to any changes in the virus's behaviour—whether it spreads more aggressively or causes severe disease.

LESSONS FROM THE PANDEMIC: PREVENTION IN PRACTICE

Drawing from the COVID-19 pandemic, we possess the tools and knowledge to safeguard ourselves and our communities against respiratory infections like HMPV. Many effective measures are straightforward and can be seamlessly integrated into daily routines:

1. Hand Hygiene: Wash hands thoroughly with soap and water for at least 20 seconds. When unavailable, use alcohol-based sanitisers.
2. Respiratory Etiquette: Cover your mouth and nose with a tissue or your elbow when coughing or sneezing. Dispose of tissues responsibly.
3. Mask Usage: Wearing a mask in crowded spaces or when symptomatic helps prevent transmission.
4. Avoid Close Contact: Maintain distance from individuals displaying symptoms of respiratory infections and encourage them to seek medical advice.
5. Disinfect Surfaces: Regularly clean high-touch surfaces such as doorknobs, smartphones, and workspaces.
6. Stay Home if Unwell: If experiencing symptoms, rest at home and avoid public places to reduce the risk of spreading infection.
7. Seek Medical Advice: Prompt consultation with a healthcare provider is essential if symptoms worsen or persist.

LOOKING AHEAD: VIGILANCE WITHOUT FEAR

Although HMPV may seem unfamiliar to the general public, its presence has been documented for decades. The virus's detection in India is a reflection of the efficiency and robustness of the country's disease surveillance systems rather than an indication of a public health emergency.

There is no immediate cause for alarm. Instead, the emphasis remains on maintaining awareness and adopting preventive measures.

The lessons of COVID-19 have underscored the importance of consistent hygiene practices, responsible behaviour, and reliance on credible information. Simple but powerful actions—such as regular handwashing, mask-wearing when appropriate, and adhering to respiratory etiquette—remain effective defences against a range of respiratory pathogens, including HMPV.

Public vigilance and collective responsibility are vital in minimising the impact of HMPV and other respiratory infections. By staying informed, refraining from spreading rumours, and adhering to preventive healthcare principles, we can protect ourselves and our communities. The knowledge and habits cultivated during the pandemic serve as a lasting shield, enabling us to face current and future challenges with resilience and confidence.

(The authors are Health Expert, National Health Systems Resource Centre, and Chair of the Program Advisory Committee, National Institute of Health and Family Welfare, MOHFW GOI.)

The Plight of ORPHANED Children

Orphaned and abandoned children, particularly those raised in institutions, navigate a host of social, psychological, and economic difficulties. These children frequently struggle with emotional instability, disrupted cognitive development, and altered personality traits, underscoring the need for robust systems of care and support to secure their health and wellbeing.

BY ABHIGYAN/ABHINAV

Children who lose their parents due to death, abandonment, or other circumstances are categorised as Orphaned and Abandoned Children (OAC). Tragically, the population of these vulnerable children is growing at an alarming rate worldwide, reflecting a pressing global humanitarian crisis. The latest estimates indicate that India has around 20 million orphaned children, a figure that underscores the critical urgency of addressing child welfare and support systems in the country.

The future of OACs often hinges on a range of possibilities: adoption into loving families, care by extended relatives, life on the streets, or placement in institutional care. The latter, now more commonly referred to as juvenile homes instead of orphanages, is typically seen as a last resort. However, research has shed light on the multifaceted challenges faced by institutionalised children, including the negative psychological and emotional impacts of early separation from parental care. Studies reveal that children who endure neglect or trauma during their formative years are more likely to exhibit aggressive behaviour and other maladaptive tendencies later in life.

Orphans, particularly those raised in institutions, often encounter a host of social, psychological, and economic difficulties. These children frequently struggle with emotional instability, disrupted cognitive development, and altered personality traits stemming from their challenging experiences. Research suggests that the intellectual development of children in institutional settings is particularly at risk. Due to overcrowded conditions and a lack of personalised care, brain development can become delayed, especially during the critical early years of life.

THE CRUCIAL NEED FOR RESEARCH

The death or absence of a parent significantly affects every aspect of a child's life, from their physical health and nutrition to their emotional and social well-being. The question arises: does institutional care, despite its limitations, provide a better alternative to life on the streets or within unstable familial arrangements? Does it offer safety, stability, or an environment conducive to the holistic development of a child?

Orphaned children grapple with psychological scars that can hinder their development. Experts highlight how the absence of parental love and guidance often results in anxiety, depression, and behavioural issues. Addressing these challenges through compassionate interventions is critical to their well-being.

Addressing these questions is critical, as the loss of a parent is a major risk factor for developing psychosocial issues in children. Research has shown that children who experience the death of a parent are twice as likely to develop psychiatric disorders compared to those with both parents alive.

To better understand these dynamics, a comparative study has been undertaken to analyse the IQ, personality, and adjustment levels of children growing up in institutional care versus those raised by their parents. This research is unique in its approach, as it compares children from similar socio-economic backgrounds with comparable access to education, thereby isolating the impact of parental and institutional care on their development.

While institutional care is often seen as a last resort, improving the quality of care in these settings could help mitigate some of the disadvantages faced by OACs. Ensuring adequate resources, better management, and a nurturing environment can significantly enhance the developmental outcomes for these children.

THE STATE OF AN ORPHAN

Traditionally, an orphan is defined as a child who has lost both parents. However, the definition has evolved to include children abandoned by their parents or those whose parents are unwilling or unable to provide care. UNICEF defines an orphan as a child who has lost one or both parents or whose parents have permanently abandoned them. This broader definition reflects the diverse and complex circumstances under which children may become orphans.

A HISTORICAL PERSPECTIVE ON ORPHANAGES IN INDIA

The history of orphanages in India dates back to 1891, when Hakim Ajmal Khan, a visionary educationist, freedom fighter, and renowned Unani medicine practitioner, established a shelter home for orphaned boys. This initiative later expanded to a haveli in the Matai Mahal alley near the historic Jama Masjid, laying the foundation for institutional care in the country.

According to a study conducted by SOS Children's

Villages, an international charity, approximately 4% of India's child population—about 20 million children—are orphans. Data from the 3rd National Family Health Survey (2005-06) and the Indian Census corroborate this finding. States like Madhya Pradesh, Chhattisgarh, and Uttar Pradesh, account for a significant proportion of orphaned children under 18, with the eastern region (comprising Bihar, Odisha, Jharkhand, and West Bengal) also reporting high numbers, far exceeding those in northern and western regions.

CAUSES OF ORPHANHOOD AND ABANDONMENT

HIV/AIDS

HIV/AIDS remains one of the largest contributors to the orphan crisis globally. In 2014, statistics showed that every 15 seconds, a child lost a parent to AIDS-related conditions. In India, over two million children were orphaned due to AIDS, highlighting the pandemic's far-reaching impact. Sub-Saharan Africa, however, bears the brunt of this crisis, with even higher numbers of orphaned children due to AIDS.

POVERTY

Poverty is another significant cause of abandonment, as many families are unable to provide food, shelter, and care for their children. This is not due to a lack of parental affection but rather a dire shortage of resources needed to meet basic needs. The harsh realities of economic deprivation often force parents to make heart-wrenching decisions, leaving children vulnerable and abandoned.

DIFFICULT ADOPTION PROCESS

India's adoption framework has long been hindered by a lack of streamlined and accessible processes. The Hindu Maintenance and Adoption Act provided some clarity as an alternative form of care for children needing protection, but it remains one of the few laws addressing adoption in detail. This has led to reluctance among families to come forward for adoption, resulting in declining numbers in both domestic and international adoptions.

WAR AND NATURAL CALAMITIES

Armed conflicts and natural disasters are substantial causes of orphanhood. The 2011 Haiti earthquake, for instance, left over 300,000 children without parental care. Ongoing conflicts in regions like Gaza, Ukraine and Syria further add to the crisis, though exact figures remain elusive. In India, internal armed conflicts have led to children being directly targeted, recruited as child soldiers, and exposed to abuse and exploitation. Coupled with the devastating effects of the recent COVID-19 pandemic, these conditions exacerbate the plight of vulnerable children.

From the debilitating impact of HIV/AIDS to natural calamities and economic hardships, the causes of orphanhood are as diverse as they are alarming. Millions of children grow up without the care and affection of parents, leaving them vulnerable to exploitation and neglect.

PSYCHOLOGICAL IMPACTS OF PARENTAL LOSS: INSIGHTS FROM EXPERTS

Dr Rushi Tamanna, Associate Professor and HOD, Department of Clinical Psychology, Centre of Excellence in Mental Health, ABVIMS-Dr RML Hospital, New

Delhi, highlights the importance of the parent-child relationship as a source of stability in a child's life. This bond acts as an anchor, providing permanence amidst life's uncertainties. Attachment theory underscores the critical early years of life when trust and attachment bonds are formed, laying the foundation for intellectual and emotional growth. These bonds enable children to develop coping mechanisms, self-reliance, and the capacity to form future relationships.

Dr Vandana V. Prakash, Senior Consultant, Clinical Psychologist at Max Super Specialist Hospital, notes that love and affection from biological parents are foundational for personality development. Parents create the physical, psychological, and intellectual environment for their children, influencing their goals, values, and overall growth. The loss of parents can lead to emotional distress, including confusion, anxiety, and depression. In the absence of family support, children may exhibit symptoms such as poor academic performance, behavioural issues, and social withdrawal.

IMPACT OF INSTITUTIONALISATION

Institutional care often fails to replicate the warmth and personal attention of a family environment, posing unique challenges to a child's development. Dr Tamna explains that the feeling of being unloved can begin as early as infancy. Without the necessary emotional support, children in institutions may struggle with trust, confidence, and social adjustment. The lack of orientation in these settings can further amplify feelings of confusion, helplessness, and fear, leading to prolonged psychological and emotional distress.

RECOMMENDATIONS

Dr Manisha Yadav, senior child specialist, New Delhi observes that while research has identified socio-demographic factors linked with institutionalisation, fundamental aspects such as the child's orientation to their new environment are often overlooked. Children placed in institutions must be educated about their placement and relationship to the care system. Providing anticipatory guidance can help children make sense of their surroundings, validate their experiences, and reduce feelings of anxiety and confusion.

Education and counselling that help children interpret their circumstances and adapt to their environment can significantly mitigate the negative impacts of institutionalisation. While adoption into stable homes is the most ideal solution, it is not always feasible. Thus, countries and cultures must invest in scientifically backed interventions tailored to their specific contexts.

Institutionalisation represents an atypical and challenging rearing environment that increases the risk of atypical development. The focus must be on creating opportunities for optimal development through robust support systems and research-driven interventions. Only then can society ensure the well-being of orphaned and abandoned children, allowing them to lead fulfilling lives despite their challenging circumstances.

BATTLING MYTHS AND STIGMA

Paediatric neurology holds the key to transforming the lives of countless children. From epilepsy to genetic disorders, a combination of advanced therapies and public awareness is reshaping care. However, challenges such as lack of awareness, delayed treatment, and barriers to therapy persist, demanding urgent attention and systemic action.

BY DR SHEFFALI GULATI

Neurological diseases in children encompass a wide range of conditions that can affect the brain, spinal cord, peripheral nerves, neuromuscular junction, or muscles. These illnesses may arise from a one-time, static injury or represent the symptoms of progressive, degenerative disorders. The complexity and diversity of these conditions make their diagnosis and management a significant challenge in paediatrics and neurology.

Life, in its essence, is a fascinating journey, and childhood, with its innocence and rapid growth, makes this journey even more intriguing. The first five years of a child's life are a critical period for both physical and mental development. During this time, the body undergoes tremendous growth, and the brain matures at an astonishing pace, especially in the first two years. This early phase is marked by neural plasticity, where the brain's ability to adapt and form new connections is at its peak. However, this same period of rapid growth also makes the brain highly vulnerable. Any form of injury or insult during

this time can have devastating consequences, affecting the trajectory of the child's development.

Neurological problems in children manifest in various ways, and the nature of these manifestations largely depends on the child's age. This variation can be attributed to the brain's ongoing physiological development, which influences how different conditions present. For instance, a child who experiences a perinatal stroke (a stroke occurring around the time of birth) will exhibit different symptoms and outcomes compared to a child who suffers a stroke later in life. This dynamic nature of neurological presentations underscores the importance of timely diagnosis and age-specific management.

Moreover, developmental disorders often coexist with primary neurological conditions, creating a complex interplay of symptoms and challenges. Common developmental disorders such as autism spectrum disorder (ASD), intellectual disability, and attention deficit hyperactivity disorder (ADHD) frequently occur alongside neurological conditions like stroke, cerebral palsy, epilepsy, and degenerative diseases. The overlap of these conditions complicates both diagnosis and treatment, necessitating a multidisciplinary approach to care.

In India, the prevalence of paediatric neurological disorders among children aged six months to two years has been reported at an alarming rate of 27.92 per 1,000 children. This statistic highlights the urgent need for early diagnosis, intervention, and public health initiatives.

Paediatric neurological disorders contribute significantly to the global burden of neurological diseases, particularly because of the extended number of years lived with disability. In India, the prevalence of paediatric neurological disorders among children aged six months to two years has been reported at an alarming rate of 27.92 per 1,000 children. This statistic highlights the urgent need for early diagnosis, intervention, and public health initiatives. The impact of these disorders extends far beyond the affected child, imposing a substantial economic burden on families and an emotional toll on caregivers. Unfortunately, this emotional exhaustion often goes unnoticed, even by the caregivers themselves. Chronic paediatric neurological

disorders necessitate long-term care, which can lead to caregiver burnout, especially in the absence of adequate support systems.

Among these disorders, cerebral palsy stands out as the most common cause of childhood disability. It is a disorder of tone, posture, and movement, resulting from a one-time insult to the developing brain. The neonatal period is particularly vulnerable, as the immature brain is susceptible to a range of insults, including prematurity, ischemia, hypoxia, and infections. Neonates requiring admission to a neonatal intensive care unit (NICU) are at especially high risk. Close follow-up and developmental assessments for NICU graduates are crucial, as early intervention can significantly improve outcomes.

Early intervention includes therapies such as physical therapy, occupational therapy, speech therapy, and visual rehabilitation, all of which play a pivotal role in stimulating development and enhancing quality of life. However, in India, a significant hurdle in managing cerebral palsy is the lack of awareness among parents regarding the importance of neuro-rehabilitation. Many parents, driven by desperation, embark on a futile search for magical cures or alternative medicines, neglecting the critical non-pharmacological therapies their child needs.

This lack of awareness, combined with the emotional and financial strain faced by caregivers, often leads to "doctor shopping," where families move from one healthcare provider to another in search of a definitive cure. Unfortunately, this process consumes valuable time, often during the crucial period when therapy could yield maximum benefits. This delay in starting appropriate interventions can have long-lasting consequences on the child's development.

Raising public awareness about cerebral palsy is essential to changing caregivers' attitudes towards its management. Educating parents about the benefits of structured, non-pharmacological therapies and dispelling myths about quick fixes can empower them to make informed decisions. By doing so, we can ensure that children with cerebral palsy receive the care they need to reach their full potential, and families are supported in their journey of care.

EPILEPSY

Epilepsy is one of the most prevalent and misunderstood paediatric neurological disorders, surrounded by myths and weighed down by stigma. This condition is characterised by recurring seizures caused by abnormal electrical activity in the brain. Despite being treatable in a majority of cases, epilepsy continues to be misinterpreted as a psychiatric illness or, in some cultures, even a supernatural phenomenon. Such misconceptions result in delayed diagnosis and treatment, compounding the challenges for affected children and their families.

Progressive degenerative diseases, primarily genetic in nature, represent another challenging category of paediatric neurological disorders. Conditions like neurometabolic disorders may be more prevalent among specific ethnic groups and often run in families.

Encouragingly, nearly two-thirds of paediatric epilepsy cases can be effectively managed with one or a combination of two appropriately chosen anti-seizure medications. For the remaining one-third, classified as drug-resistant epilepsy, advanced therapeutic modalities such as vagus nerve stimulation, ketogenic diets, and even surgical interventions are now available. However, a lack of awareness about these options means that many children remain untreated or undertreated. Contrary to widespread belief, epilepsy does not always require lifetime medication. In many cases, anti-seizure drugs can be tapered off and discontinued after a child has been seizure-free for at least two years. Unfortunately, parental anxiety and fear of societal judgment often lead to secrecy, particularly in schools. Parents hesitate to disclose their child's condition to educators, fearing it may invite discrimination or

A significant hurdle in managing cerebral palsy is the lack of awareness among Indian parents regarding the importance of neuro-rehabilitation. Many parents, driven by desperation, embark on a futile search for magical cures or alternative medicines, neglecting the critical non-pharmacological therapies their child needs.

bullying, ultimately hindering the child's academic and social development. Public awareness campaigns are essential to dispel these myths and foster an environment of understanding and acceptance for children with epilepsy.

PAEDIATRIC STROKE

While strokes are commonly associated with adults, paediatric stroke is a significant yet less common neurological disorder in children. Typically presenting as weakness or paralysis in one part of the body, it occurs when blood supply to a part of the brain is compromised, leading to ischemia and brain damage. Unlike adult strokes, which are often linked to lifestyle factors, paediatric strokes frequently result from infections, congenital heart defects, or blood disorders.

Prompt diagnosis is critical, as early intervention can significantly improve outcomes. Neurorehabilitation plays a pivotal role in the long-term recovery of children with strokes. Through a combination of physical therapy, occupational therapy, and speech therapy, many children achieve functional recovery, although some degree of disability may persist. The distinct causes and presentations of paediatric stroke underline the need for specialised protocols tailored to children's unique needs.

BRAIN INFECTIONS

Brain infections in children, caused by bacteria, viruses, or other pathogens, can have diverse outcomes ranging from full recovery to severe long-term complications. These infections typically present with fever, headaches, vomiting, altered mental status, and seizures. Early recognition and immediate medical intervention are crucial to prevent lasting damage.

The severity of these infections depends on several factors, including the pathogen involved and the child's overall health. For example, tuberculosis and certain viral infections are endemic to specific regions in India, making awareness and preventive measures particularly important in these areas. Some infections are acute, resolving with timely treatment, while others may lead to chronic conditions requiring prolonged care.

AUTOIMMUNE DISORDERS

Autoimmune neurological disorders in children arise when the immune system mistakenly attacks the body's own tissues, often due to molecular mimicry—where the body's defence mechanism cannot distinguish between foreign antigens and its cells. These conditions can affect various parts of the nervous system, including the brain (autoimmune encephalitis or demyelination), nerves, neuromuscular junction, and muscles.

Treatment typically involves immunosuppressive therapies such as steroids, intravenous immunoglobulins (IVIG), or plasma exchange. In some cases, long-term immunomodulatory treatments are necessary. Early and accurate diagnosis is vital to manage these disorders effectively and prevent irreversible damage.

PROGRESSIVE DEGENERATIVE DISEASES

Progressive degenerative diseases, primarily genetic in nature, represent another challenging category of paediatric neurological disorders. Conditions like neurometabolic disorders may be more prevalent among specific ethnic groups and often run in families. While therapeutic options are limited, timely diagnosis and interventions can help mitigate brain damage and improve quality of life.

Advances in genetics have enabled newborn screening

Contrary to widespread belief, epilepsy does not always require lifetime medication. In many cases, anti-seizure drugs can be tapered off and discontinued after a child has been seizure-free for at least two years.

for certain disorders, allowing for early intervention. Genetic counselling plays a crucial role for families with a history of these conditions, helping them make informed decisions regarding family planning. Researchers worldwide are exploring innovative treatments, including gene therapy, to provide hope for the future.

NEUROMUSCULAR DISORDERS

Paediatric neuromuscular disorders, such as spinal muscular atrophy (SMA) and Duchenne muscular dystrophy (DMD), have witnessed groundbreaking therapeutic advancements in recent years. Novel drugs like Nusinersen, Risdiplam, and Zolgensma for SMA, as well as eteplirsen and viltolarsen for DMD, have transformed the outlook for affected children. However, the exorbitant cost of these treatments makes them inaccessible for most families.

Supportive care remains the cornerstone of management, with multidisciplinary approaches involving physiotherapy, occupational therapy, respiratory support, and nutritional guidance. Guillain-Barré Syndrome (GBS), the most common cause of acute flaccid paralysis in children, and Myasthenia Gravis, which affects the neuromuscular junction, also demonstrate good response to therapies like IVIG and steroids.

IMPACT OF THE PANDEMIC

The Covid-19 pandemic exacerbated challenges in managing paediatric neurological disorders. Disruptions in routine care, teleconsultations replacing in-person visits, and limited access to rehabilitation services adversely affected children with chronic conditions. Moreover, the pandemic itself caused direct neurological complications such as encephalitis and GBS in some children.

Post-pandemic, there has been a noticeable increase in behavioural issues, particularly among children with autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD). Many children with epilepsy discontinued their medications during the pandemic, leading to a resurgence of symptoms. Resuming regular care and raising awareness about the importance of consistent therapy are vital steps in addressing these setbacks.

Paediatric neurological disorders are complex and multifaceted, requiring a nuanced and multidisciplinary approach. While some conditions are curable or manageable, others necessitate lifelong care and support. Enhancing public awareness, investing in advanced therapeutic research, and ensuring access to affordable treatment are crucial for improving the lives of affected children and their families.

(The author is a Professor, Coordinator of the DM Paediatric Neurology Program, Faculty In-charge of the Centre of Excellence & Advanced Research for Childhood Neurodevelopment Disorders, and Chief of the Child Neurology Division, Department of Paediatrics, AIIMS, New Delhi.)

INHERITING A LIFELONG STRUGGLE

Thalassaemia, an inherited blood disorder, disrupts the body's ability to produce haemoglobin, leading to anaemia and complications that impact daily life. Advances in medical research have introduced promising therapies, including gene therapy, which aims to correct the genetic defects causing thalassaemia. Additionally, the development of advanced drugs targeting the underlying mechanisms of the disorder continues to improve patient outcomes.

BY DH BUREAU

Thalassaemia, an inherited blood disorder, poses significant challenges by affecting haemoglobin production, leading to severe anaemia and potential organ damage. With advancements in medical science, the focus has shifted to ensuring accessible and equitable treatment, which remains critical for improving the quality of life of those affected. It has become important to ensure that every individual, regardless of their socioeconomic status or geographical location, has access to effective and equitable treatment, thereby improving their quality of life and enabling them to contribute meaningfully to society.

Understanding Thalassaemia

Thalassaemia is a genetic blood disorder passed from parents to their children

through genes. It results from the body's inability to produce sufficient haemoglobin, a crucial protein in red blood cells responsible for carrying oxygen throughout the body. Without adequate haemoglobin, red blood cells cannot function properly and have a shorter lifespan. This leads to a reduced number of healthy red blood cells in the bloodstream, limiting oxygen delivery to tissues and organs. The lack of oxygen manifests as anaemia, causing symptoms such as fatigue, weakness, pale skin, and shortness of breath. In severe cases, anaemia can lead to complications like organ damage, delayed growth and development in children, and even premature death. The severity of symptoms varies widely depending on the type and extent of thalassaemia.

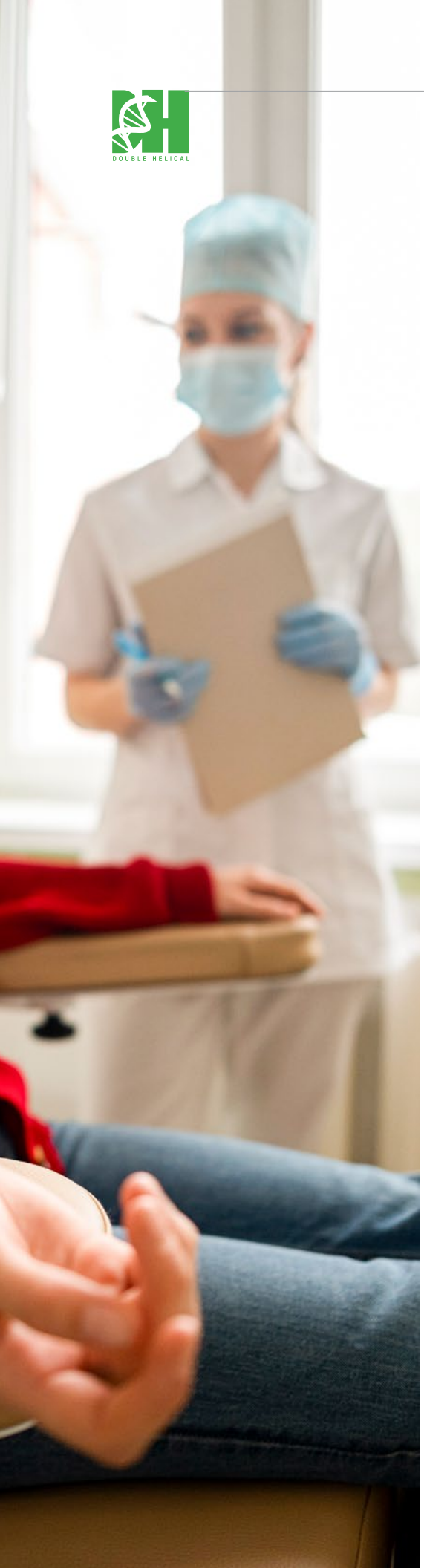
TYPES OF THALASSAEMIA

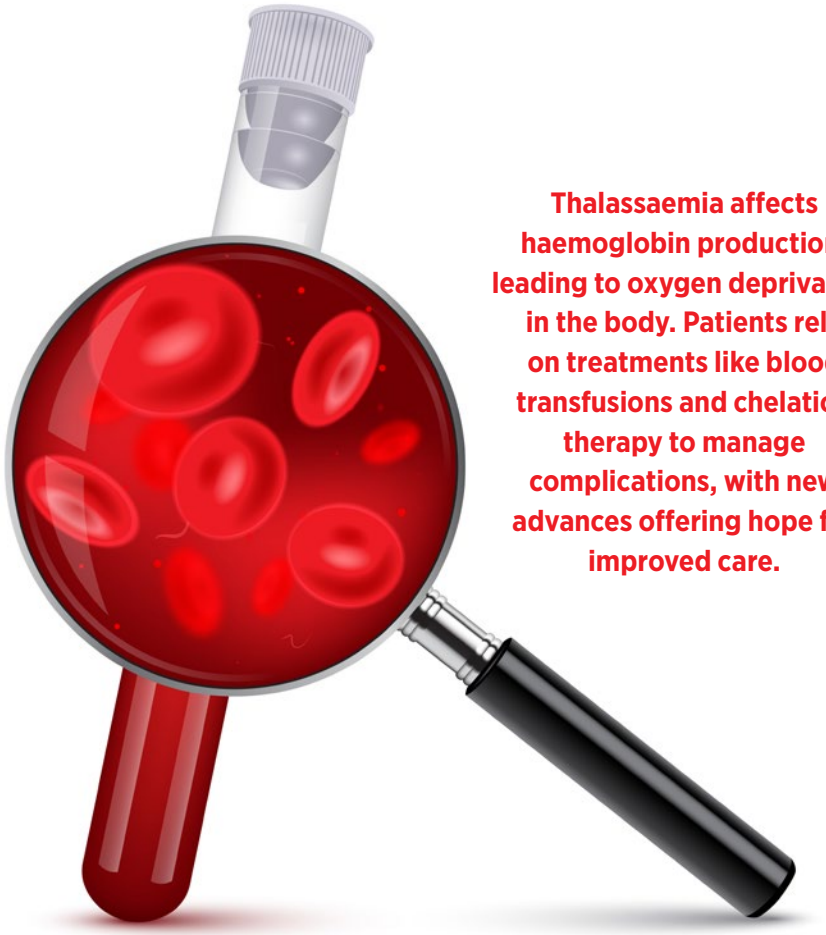
Thalassaemia is broadly classified in terms of haemoglobin affected ("alpha" or "beta") and the severity of the condition. Alpha thalassaemia occurs when the body fails to produce enough alpha globin protein chains, a component of haemoglobin. Depending on the number of defective genes inherited, symptoms range from mild to severe. Beta thalassaemia, on the other hand, arises from inadequate production of beta globin protein chains. Beta thalassaemia major, the most severe form, often requires lifelong medical intervention, including regular blood transfusions.

The severity of thalassaemia is further categorised into three forms: trait or minor, intermedia, and major. Individuals with the trait or minor form may remain asymptomatic or experience mild anaemia without significant health issues. Thalassaemia intermedia causes moderate symptoms that may not necessitate regular blood transfusions but still impact the quality of life. The major form, such as beta thalassaemia major, is the most severe, causing life-threatening anaemia that demands frequent blood transfusions and intensive medical care.

TREATMENT OPTIONS FOR THALASSAEMIA

Managing thalassaemia involves a multifaceted approach to address both the primary condition and its complications. Patients with severe forms like beta thalassaemia major require frequent blood transfusions to replenish red blood cells and improve oxygen delivery to tissues. However, repeated transfusions often lead to iron overload, a condition where excess iron accumulates in the body, necessitating chelation therapy. Chelation therapy involves the use of medications that bind excess iron, enabling its removal through excretion and preventing organ damage. Common chelation agents include deferoxamine, deferasirox, and deferiprone, each tailored to individual patient needs.





Thalassaemia affects haemoglobin production, leading to oxygen deprivation in the body. Patients rely on treatments like blood transfusions and chelation therapy to manage complications, with new advances offering hope for improved care.

For some patients, bone marrow or stem cell transplantation offers a potentially curative option. This procedure replaces defective blood-forming cells with healthy ones from a compatible donor. While this treatment offers hope, it carries significant risks and is limited by the availability of suitable donors. Supportive therapies such as folic acid supplementation, personalised nutrition plans, infection prevention, and adequate hydration play an essential role in managing symptoms and improving quality of life. Folic acid aids in the production of red blood cells, while tailored diets help manage iron intake to prevent iron overload. Vaccinations and good hygiene practices are crucial for infection prevention, given the weakened immune systems of many thalassaemia patients.

GENETIC COUNSELLING AND SCREENING

Preventive strategies such as genetic counselling and prenatal screening are vital for managing thalassaemia. These services help at-risk couples understand the likelihood of passing the disorder to their children and explore family planning options, including preimplantation genetic testing. By promoting awareness and offering these services, healthcare systems can significantly reduce the prevalence of thalassaemia in future generations.

EMOTIONAL AND PSYCHOLOGICAL SUPPORT

Living with thalassaemia can be emotionally challenging, requiring holistic care that addresses mental health alongside physical health. Support groups, counselling services, and community networks provide

invaluable assistance in coping with the condition's demands. Emotional support not only improves the mental well-being of patients but also fosters resilience in dealing with the long-term challenges of the disorder.

INNOVATIONS IN THALASSAEMIA TREATMENT

Advances in medical research have introduced promising therapies, including gene therapy, which aims to correct the genetic defects causing thalassaemia. Though still in experimental stages, gene therapy offers hope for long-term solutions. Additionally, the development of advanced drugs targeting the underlying mechanisms of the disorder continues to improve patient outcomes. These innovations signify a future where thalassaemia treatment could become more effective, less invasive, and accessible to a broader population.

THE PATH TO EQUITABLE TREATMENT

Achieving "Thalassaemia Treatment for All" necessitates overcoming barriers such as high treatment costs, lack of awareness, and inadequate healthcare infrastructure in low-resource settings. Governments, non-profits, and private sectors must collaborate to establish comprehensive care centres equipped with transfusion and chelation facilities, subsidise treatment costs to ensure affordability, and promote public awareness campaigns highlighting the importance of early diagnosis and regular monitoring. Community-based initiatives can further support patients and their families by fostering a sense of belonging and shared purpose.

While medical innovations such as gene therapy signal progress, high costs and limited healthcare infrastructure hinder access to equitable thalassaemia treatment. Collaborative efforts are crucial to bridging this gap.

TAKEAWAYS

Thalassaemia remains a significant health challenge, but with coordinated efforts, accessible treatment, and advances in medical science, its impact can be mitigated. By addressing medical, dietary, emotional, social and genetic aspects, individuals with thalassaemia can be empowered to lead healthier, more fulfilling lives. The journey towards equitable treatment for all is not just a healthcare goal but a societal imperative that demands collective action and comprehensive care strategies.

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