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DOUBLE HELICAL

A COMPLETE HEALTH MAGAZINE

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Contents

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Navigating the Complexities of Geriatric Healthcare

Dear Readers,

Over the past decade, we've witnessed significant changes in the medical field, with Indian doctors and experts contributing significantly to global advancements. Double Helical, a comprehensive national health magazine, serves as a platform to acknowledge innovations, individuals, products, and services transforming India's healthcare sector, paving the way for affordable, high-quality, and inclusive healthcare. We are committed to societal betterment, continuing our mission by raising awareness and making voluntary contributions in education, health, human rights, and social services.

In this issue, we highlight the present scenario of hearing loss titled "Overcoming Barriers" as a special story. Education for children with hearing impairment in India has a history spanning just over a hundred years. Following independence, notable advancements occurred, including the establishment of numerous new schools in the 1950s, along with the emergence of various programs leveraging new technologies in the 1960s. During this period, the All-India Institute of Speech and Hearing was founded in Mysore, providing facilities for diagnosing hearing impairment in infants and young children. Presently, the country boasts over 500 schools catering to hearing-impaired children, with some administered by the government and others operated by NGOs. Many of these schools, predominantly residential, admit children aged five years and older, who typically reside in hostels throughout the school year, returning home only during summer vacations. Additionally, the provision of vocational courses and sheltered workshops enables some students to spend a significant portion of their lives within these educational institutions.

Apart from this, we also focus on "Elder Care in India" in this issue. As we know, in our country, due to demographic transition, the elderly population is projected to rise to 12% of the total population by 2025. The elderly are a heterogeneous population with variations in morbidity across several variables such as gender, location, socioeconomic status, and diversity in culture and religion. At least 70% of India's elderly live in rural areas, are illiterate, and economically dependent.

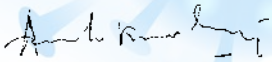
The elderly suffer from a dual burden of communicable and non-communicable diseases, in addition to impairments of special sensory functions such as vision and hearing, and other degenerative diseases. Additionally, the geriatric population is often on multiple therapies to treat several diseases, sometimes under the supervision of different specialists. This can lead to overlooked drug-drug interactions. Adherence to therapy is also a significant concern in this population, both due to several drugs being prescribed for various indications and due to failing memory or general neglect of health issues among the elderly by themselves and by their families.

It is the duty of all medical professionals and family members to provide due care, support, and financial stability to the group of people that raised them and empowered them to fulfil their lives. They must not forget that aging is natural and will be experienced by everyone. Dignity and the right to a healthy life are the least that society owes to its elderly. We should seek cost-effective, feasible models of geriatric care that are acceptable and based on our cultural practices and traditions.

In this issue, the cover story sheds light on Chronic Pain. This exploration underscores the imperative for holistic approaches to chronic pain management, recognising the interconnectedness of physical, psychological, social, and spiritual facets of pain. Through a better understanding of chronic pain and advancements in medical and psychosocial therapeutic methods, the story advocates for a paradigm shift in chronic pain management towards achieving improved patient outcomes and enhanced quality of life.

This issue also carries an exclusive interview with Dr R V Asokan, the newly appointed National President of the Indian Medical Association (IMA). With a resolute belief that "Healthcare is a Human Right," Dr Asokan unveils the Health Manifesto—a groundbreaking initiative aimed at addressing the rising health challenges facing India today. His unwavering dedication to advancing medical practices and policies resonates throughout the interview, emphasising the urgent need for equitable, accessible, and affordable healthcare for all segments of society. As the voice of over 367,774 doctors, Dr Asokan's manifesto not only acknowledges the strides made in healthcare but also delineates key deficiencies in current health policies, proposing actionable solutions to handle these complex issues. This manifesto, born out of extensive consultations and frontline healthcare workers' experiences, guides policymakers towards a future where quality healthcare is a fundamental right for every citizen.

Like these, the current issue is packed with many more interesting and thought-provoking stories. Happy reading!



Thanks and regards

Amresh K Tiwary,
Editor-in-Chief

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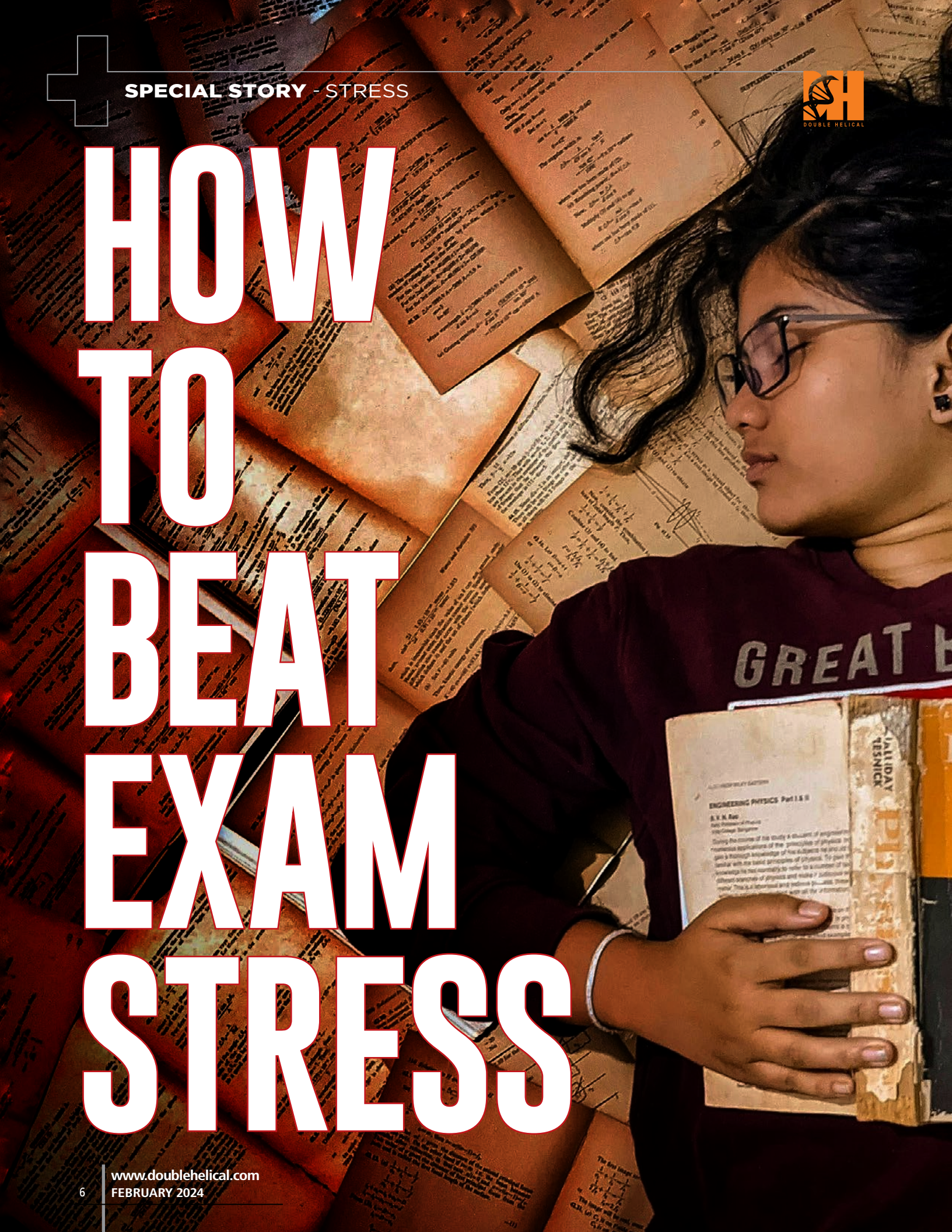
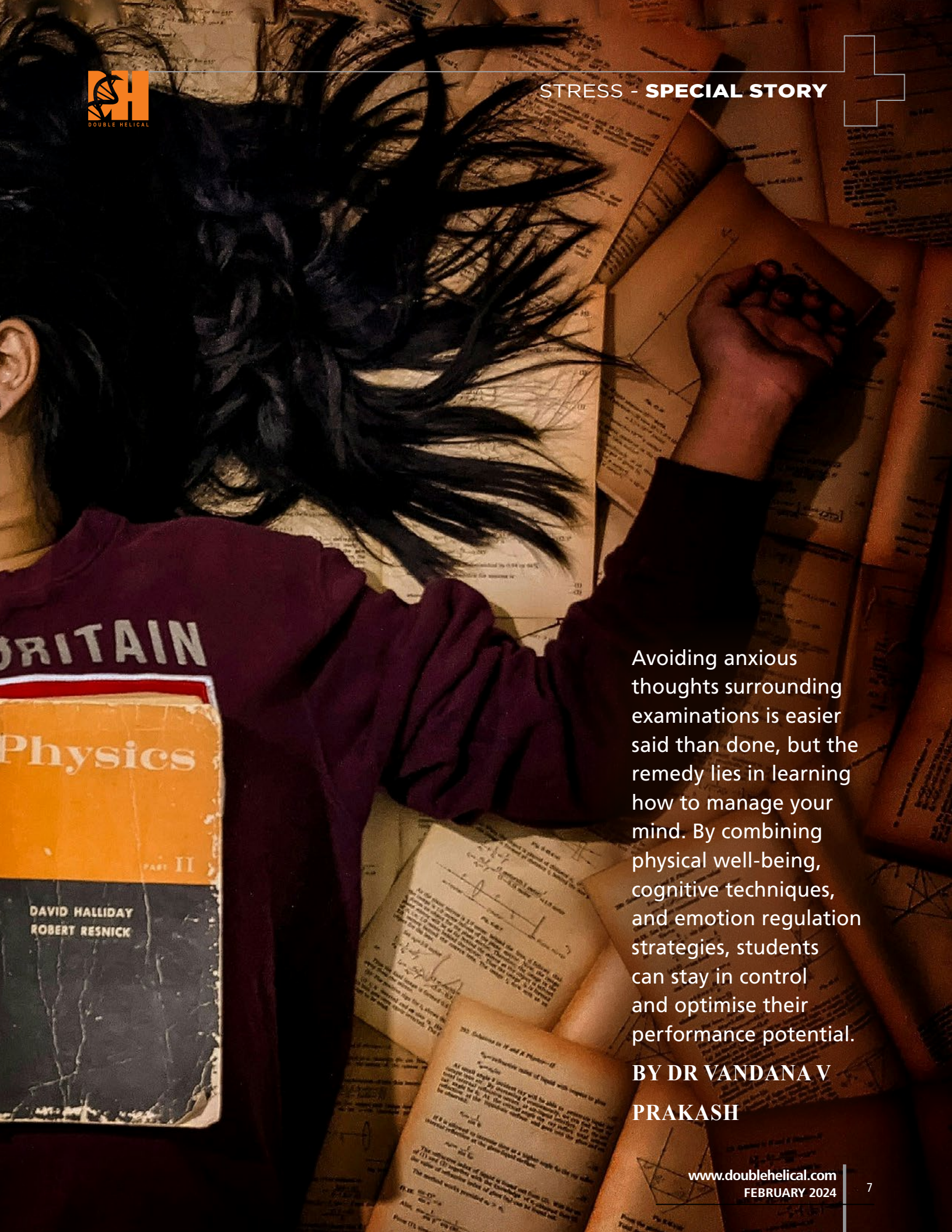
HOW TO BEAT EXAM STRESS





Avoiding anxious thoughts surrounding examinations is easier said than done, but the remedy lies in learning how to manage your mind. By combining physical well-being, cognitive techniques, and emotion regulation strategies, students can stay in control and optimise their performance potential.

BY DR VANDANA V PRAKASH

"The journey of life comprises of minor examinations in the form of school/board examinations. These small examinations are but the stepping stones to help us face the highest examination i.e., LIFE".

Words to these effects have been said to students for innumerable years. Despite knowing the wisdom hidden in these words, we tend to forget it at the most crucial time i.e., Examinations. We all feel nervous and anxious at this time and "examination" becomes a dreaded word. A little anxiety boosts us to study better, however, too much apprehension and nervousness prevents us from giving our best performance. In such cases anxiety actually reduces our performance.

Do you know that most artists, performers and high achievers also experience excessive anxiety before their performance? They report being physically sick, blanking out and having palpitations. But their success lies in channelising this nervous energy into a positive one by focusing purposefully on the task in hand. So the first thing that you need to understand is that tension and nervousness are a normal phenomenon. What is important is to reorient those negative energies into positive ones.

So, how do we know we have examination anxiety? These behaviours tell us that we have examination anxiety.

- Excessive worry
- Fear of being evaluated
- Fear of the results
- Feeling that things are going out of control
- Feeling moody and irritable
- Having irrational thoughts like "achievement means 100% marks", "I am useless if I get less marks", "my parents will not love me now" etc.
- Physically feeling unwell like having headaches, stomach-ache, vomiting, nausea, dry mouth, frequent urination and increase in heart beat etc.

- Lack of attention and concentration
- Increase in day-dreaming particularly of succeeding and winning praise for good performance than actually studying
- Difficulty in recalling learnt material due to high anxiety.
- Socially withdrawing from friends, relatives and even family members.

DO THESE BEHAVIOURS AFFECT OUR PERFORMANCE?

Yes, these behaviours have a negative effect on how we perform during our examinations. These behaviours hinder us by

- Inhibiting our thought processes or disorganising our thoughts.
- Making us forget learnt or familiar material.
- Sudden inability to understand previously well prepared topics.
- Making us go blank for sometime resulting in poor recall.
- Inability to understand simple questions.
- Forgetting keywords, concepts, formulas etc.
- Underperformance when self and other expectations were high.

WHY DO WE TEND TO BECOME ANXIOUS AND THEN UNDER PERFORM IN OUR EXAMINATIONS?

We are normally anxious when several basic things are not taken into account. Before and during the examination we pay little attention to our physical routine, number of study hours, attention to all subjects and our state of mind. These factors contribute to increase our

anxiety levels.

Since these factors are easily identifiable, the first and foremost thing is to list out all the obstacles that are present and are actively hindering your learning process.

START BY RECTIFYING YOUR PHYSICAL TENSIONS.

- This would include waking and sleeping the time you are habituated.
- All night studying and day-time sleeping will not help during the examination days as reversed sleep cycle will keep you awake a day prior to your examination.
- Eat normally but consume easily digestible food. Do not starve yourself as poor appetite will fatigue you faster.
- If heavy meals make you drowsy have several small meals.
- Ensure that you play or go for brisk walk for 30-60 minutes every day.
- Do not have marathon sessions. After one and half hour take a break of five to ten minutes as brain also tires and needs to refresh. While relaxing do not have guilt feelings that "I have wasted my time".
- Do not get too comfortable; avoid easy chairs, beds, rocking chairs etc. Avoid any sleep-inducing places.
- Avoid distractions like the telephone, television, radio, noisy places etc.

SECONDLY, HOW YOU DIVIDE THE COURSE CONTENT AND WHICH STUDY METHODS YOU USE WOULD ALSO INFLUENCE YOUR ABILITY TO REDUCE EXAMINATION STRESS.

- Make a timetable for each subject. See that the entire course content is covered.
- Try to complete difficult subjects' course first.
- Study two different subjects every day. One difficult and one easy.
- Do the difficult one when you are most fresh and alert.
- Underline important points with a marker. Summate the content of the paragraphs into keywords. Write these keywords in the margin.
- As soon as you have finished studying, close the book and try to recall the keywords. Count the number of keywords you have remembered and the ones you

have forgotten. Go over the ones you were unable to recall.

- Tyr to understand and learn. Do NOT use rote learning, i.e., learning by heart without understanding the subject content.
- Before sleeping at night revise the content briefly in your mind.
- Avoid cramming the course content a night before the examination. Be relaxed and sleep early so that you wake up fresh and alert. An alert mind will recall more than a tired and fuddled mind.

THIRDLY, KEEP YOUR MENTAL MAKE-UP POSITIVE.

- The more you fear the examination the more you will feel anxious. Do not make the examinations the "bogey man".
- Remember that your thoughts increase or decrease your level of anxiety. Thoughts like "I am surely going to fail", "what if I do not get above 95% marks", and "what if I do not get my career choice" etc only increase the anxiety levels. Instead use positive thoughts like "I will surely do well as I have never failed before", "percentage does not matter but working hard matters," etc.
- Be in touch with persons who can give emotional support as well as intellectual support. We all need this human touch in trying times.
- Learn to pat your back for doing well. Do not learn to be excessively critical of yourself. Once you have evaluated yourself just reassure yourself that you will put in more sincere effort and then proceed to do so.
- Learn to compete with yourself and not others despite the comparisons made by your elders. Remember this example that if you are in a car someone will always be ahead of you, however fast you may be going and someone will always be behind you. Go at the speed that you can manage without causing an accident to yourself. Learn to enhance your own abilities instead of feeling jealous of the others.

Lastly, before entering the examination hall do not open your books for the last revision because actually no revision takes place but yes anxiety does increase. Do not ask or discuss anything with your friends and classmates as their confusions will add up to your confusions. Relax yourself by breathing deeply several times. Say a small prayer. Calmly read the paper and mark the questions you know well. Attempt them first and then those you know less well.

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

(The author is Senior Consultant, Department of Clinical Psychology, Max Super Speciality Hospital, Vaishali, Ghaziabad).

COMBATING A SILENT KILLER

Initiatives like "Advise Quit Tobacco" campaign emphasises the ethical duty of healthcare professionals to promote tobacco cessation in their medical practice. Despite such efforts, challenges persist, including ongoing exposure to tobacco advertising, necessitating continued collective vigilance and action in addressing tobacco use for public health....

BY ABHIGYAN/ABHINAV

Tobacco use is a significant global public health concern, attributed to a multitude of diseases and premature deaths. Despite extensive public health efforts to raise awareness about the dangers of tobacco, its consumption remains a prevalent habit, leading to a plethora of health issues.

Dr Pawan Gupta, Founder Director of ICanCaRe and Senior Director of Surgical Oncology at MAX Institute of Cancer Care, has made remarkable contributions to the field of healthcare by pioneering Tobacco Cessation Intervention. With extensive expertise as a master trainer of this intervention in India, he emphasises the importance of incorporating tobacco cessation into medical practice to combat the root cause of numerous diseases.

A Gateway to Disease: Tobacco consumption is a leading cause of various chronic and fatal health conditions, including heart disease, stroke, respiratory diseases, and multiple types of cancer. The detrimental

Dr Pawan Gupta, a distinguished expert in Surgical Oncology, says that true disease management cannot be achieved if a patient continues to use tobacco. Scientific evidence unequivocally links tobacco use to the development and exacerbation of various diseases.

TOBACCO: A MAJOR KILLER

The introduction of health warnings on tobacco packets is a welcome move to promote tobacco-free initiatives by reducing the attractiveness of tobacco products. Under this initiative, graphic pictures must cover 60% of the package, while text warnings occupy 25%.

Tobacco claims the lives of half of its users through smoking, while smokeless tobacco contributes to nearly six million deaths worldwide. Shockingly, it leads to one death every six seconds each year, according to a report by the World Health Organization (WHO). Cigarette smoke contains over 4,800 chemicals, 69 of which are reported as carcinogenic. Beyond cancer, smoking is a major risk factor for coronary heart disease, chronic bronchitis, stroke, delayed healing of wounds, peptic ulcer disease, and infertility.

According to **Dr Suneela Garg, Professor of Excellence and Chair of the Program Advisory Committee at the National Institute of Health and Family Welfare, New Delhi,** India ranks as the second-largest consumer of tobacco products globally, with more than 275 million adults consuming various tobacco products. This is despite the existence of a comprehensive tobacco control legislation, "The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply, and Distribution) Act (COTPA 2003)."

In compliance with this act, the Union Ministry of Health and Family Welfare (MOHFW) implemented the introduction of new graphic health warnings covering 85% of the principal display area on all tobacco product packages on both sides from April 1st, 2016. Studies suggest that the impact of health warnings on an individual's mindset depends on their size and design. Obscure text-only warnings appear to have little impact, whereas pictorial health warnings that elicit strong emotional reactions are significantly more effective.

According to a Canadian Cancer Society report, regarding the size of health warnings, India was ranked 3rd in 2016 after Nepal and Vanuatu, with several countries implementing stronger warnings. Other Asian countries are also at par in this regard, with warnings covering 85% of the package on both sides in Thailand, 80% in Sri Lanka, and 90% in Nepal.

On May 31st, 2016, the slogan for World No Tobacco Day was "get ready for plain packaging." Plain packaging, also known as standardised packaging or generic packaging, serves as a crucial demand reduction measure. It diminishes the attractiveness of tobacco products, restricts the use of tobacco packaging for advertising and promotion, limits misleading packaging and labelling, and enhances the effectiveness of health warnings. Australia became the pioneering country to fully implement plain packaging in December 2012. Subsequently, Ireland, the United

Kingdom of Great Britain and Northern Ireland, and France enacted laws to implement plain packaging. Similarly, numerous countries are in advanced stages of considering the adoption of plain packaging laws.

Dr Suneela Garg, added, "In India, efforts to reduce tobacco use, such as the decision to increase the size of pack warning labels and raising the legal age for buying and using tobacco, are commendable." The new warning labels with pictures of mouth and throat cancers are mandated to cover all types of tobacco packages, including imported cigarettes and chewing tobacco. Pictorial warnings significantly enhance people's awareness of the harms of tobacco use, persuading smokers to protect the health of non-smokers by smoking less indoors and near children.

The MOHFW, in collaboration with the WHO and the International Telecommunications Union (ITU), has initiated an innovative campaign utilising mobile technology for tobacco cessation. The WHO-ITU's 'Be Healthy Be Mobile' initiative aims to reach out to tobacco users of all categories who wish to quit tobacco use and support them towards successful cessation through continuous text messaging on mobile phones. This initiative is fully endorsed by the Government of India (GOI). Additionally, the GOI has introduced toll-free numbers (1800112356/011-22901701) to aid users in quitting tobacco and a helpline (1800110456) for reporting any violations of COTPA.

As per the notification by the MOHFW, all tobacco products manufactured on or after April 1st, 2017, must display the second specified health warning image on their packs. Individuals directly or indirectly involved in the production, supply, import, or distribution of cigarettes or any other tobacco products are obligated to ensure that all tobacco product packages bear the prescribed health warnings. Violation of this regulation constitutes a punishable offence, with imprisonment or a fine as prescribed in Section 20 of the Cigarettes and Other Tobacco Products Act (COTPA), 2003. Printing the toll-free number for quitting tobacco in noticeable size and colour would also be highly beneficial. Thus, the implementation of 85% graphic health warnings, depicting various health consequences without logos, colours, or any other brand images, along with plain packaging, and the display of a toll-free number for quitting, is expected to deter tobacco consumers from the devastating health, social, environmental, and economic consequences of tobacco consumption.

According to **Dr Kalpana Nagpal, Senior Consultant in ENT and Robotic Surgery at Indraprastha Apollo Hospital, New Delhi**, the COTPA 2003 was enacted in India to protect the general populace from the harmful effects of tobacco use. Section 5 of COTPA prohibits all forms of tobacco advertisement, promotion and sponsorship (TAPS), in accordance with Article 13 of the WHO Framework Convention on Tobacco Control (WHO FCTC). Despite the existence of a ban on TAPS in India, exposure to tobacco advertising and promotion persists.

"Among Indian school-going youth aged 13-15 years, exposure to pro-cigarette advertisements on billboards and mass media has considerably increased. Twenty-eight percent of Indian adults are exposed to cigarette advertising, and 47% and 55%, respectively, are exposed to bidi and smokeless tobacco (SLT) advertisements, as per the Global Adult Tobacco Survey (GATS). COTPA allows 'On-Pack advertising' and 'Point of Sale (PoS) advertising' with some restrictions. Most of the time, we see advertisements for tobacco products being promoted by top cine stars like Sharukh Khan, Akshay Kumar, Ajay Devgan, and many more on both regional and national TV, which harm both our adults and children. Keeping this in mind, cine stars who promote tobacco products must be prosecuted," Dr Kalpna Nagpal added.

DANGERS OF SMOKING

brain damage

teeth diseases

low fertility

gastrointestinal diseases

risk of death

heart diseases

eye diseases

lung cancer

weak bones

menstrual disorder

WHAT CAN INCREASE THE DAMAGE

alcohol

coffee or tea

menthol cigarettes

smoking in the cold

smoking fast

Continuing medical education on the harmful effects of tobacco and effective cessation strategies is crucial in enabling healthcare practitioners to deliver comprehensive care to their patients. By integrating tobacco cessation into their practice, healthcare professionals can significantly contribute to disease prevention and improved overall health in the population.

effects of tobacco are not limited to the smoker alone; second-hand smoke exposure is equally harmful, affecting non-smokers in proximity.

The Clear Connection Between Tobacco and Disease: Dr Pawan Gupta, a distinguished expert in Surgical Oncology, emphasises that true disease management cannot be achieved if a patient continues to use tobacco. Scientific evidence unequivocally links tobacco use to the development and exacerbation of various diseases. Nicotine, the addictive component in tobacco, constricts blood vessels, raises blood pressure, and increases the heart rate, putting a strain on the cardiovascular system. Furthermore, the toxins in tobacco smoke cause severe damage to the lungs and have been linked to lung cancer, chronic obstructive pulmonary disease (COPD), and other respiratory ailments.

A Vital Intervention: Tobacco cessation is a critical step toward reducing the burden of disease and improving public health outcomes. Dr Pawan Gupta's advocacy for integrating tobacco cessation into medical practice underscores the ethical and moral responsibility of healthcare professionals to address this pressing issue. The campaign "Advise Quit Tobacco" seeks to motivate healthcare professionals to engage their patients in conversations about tobacco cessation - asking, advising, and referring them to specialists when needed.

The Ethical Imperative: It is paramount for healthcare professionals to recognise their ethical duty to promote tobacco cessation. Continuing medical education on the harmful effects of tobacco and effective cessation strategies is crucial in enabling healthcare practitioners to deliver comprehensive care to their patients. By integrating tobacco cessation into their practice, healthcare professionals can significantly contribute to disease prevention and improved overall health in the population.

A Blueprint for Success: An ICanCaRe-certified tobacco cessation specialist follows the ABCD of tobacco cessation to achieve a 100% quit rate. The approach includes continuous intervention and active follow-up, ensuring a pleasant quit journey. Tobacco cessation is possible, feasible, and specialists are available for the purpose. ICanCaRe academy has trained doctors across 25 states of India as Certified Tobacco Cessation Specialists.

THE CAMPAIGN - #ADVISEQUITTOBACCO

No disease is cured if the patient continues to take tobacco. It is the moral responsibility and also ethical practice to include tobacco cessation in practice by all healthcare professionals!

The campaign "Advise Quit Tobacco" among healthcare providers (HCPs) seeks to address the root cause of many diseases. The campaign motivates HCPs to engage in tobacco cessation with their patients through the ASK, ADVISE, and REFER approach to Tobacco Cessation specialists.

A DEADLY TRIAD

Air pollutants and temperature fluctuations can exacerbate the adverse effects of pollens, leading to allergic disorders and increased susceptibility to viral infections. Addressing these detrimental interactions necessitates interdisciplinary approaches, large-scale interventions, and the integration of ancient indian wisdom into contemporary healthcare practices.

BY DR AMITAV BANERJEE

During the last few decades, allergies and respiratory illnesses such as allergic rhinitis, bronchitis, and asthma have shown a rising trend globally, affecting people of all ages, from children to the elderly. While pollen allergies are seasonal and coincide with changing weather patterns, the increasing air pollution resulting from industrial and vehicular emissions exacerbates the environmental threats faced by individuals. Furthermore, temperature fluctuations may act synergistically to pose health risks, particularly aggravating cardiovascular conditions in the elderly.

Most studies have focused on examining the effects of pollution, pollen, and temperature fluctuations on human health separately. However, a proper ecological appraisal necessitates that these factors should not be considered in isolation due to their synergistic interaction, which impacts health.

Outdoor air pollutants, bio-aerosols, and chemicals originating from various sources may have adverse effects on people's health when present above critical concentrations. These include carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NOx), particulate matter (PM), bio-aerosols such as pollens, fungal spores, bacteria, viruses, and chemical particles like sulfur dioxide (SO2) and ozone (O3).

In the Indian context, poor housing conditions associated with poverty introduce an additional factor of indoor air pollution, primarily due to the use of fossil fuels for cooking or heating, which poses the risk of fatal carbon monoxide (CO) poisoning. Furthermore, tobacco smoke exacerbates indoor

air pollution if any household member is a smoker.

In addition to the aforementioned pollutants and chemicals, fluctuating temperatures also have a significant impact on human health, either in isolation or synergistically.

Air pollutants and temperature fluctuations can enhance the adverse effects of pollens through various mechanisms. Some pollutants can alter the physical, chemical, and biological properties of pollen grains. Different agents of air pollution may adhere to the surface of pollen grains. Pollutants such as particulate matter (PM), nitrogen dioxide (NO2), sulfur dioxide (SO2), and carbon monoxide (CO) can directly affect the physical and chemical properties of pollen grains, altering their surface characteristics or molecular structure and increasing their allergy-causing potential. Consequently, the number of allergens or sub-pollen particles containing allergens released into the environment may increase. These fragmented particles, often smaller than 3 microns, can bypass the mucociliary defense mechanism of the upper respiratory tract and penetrate deeper into the lungs.

PM can serve as a carrier of allergens by binding with airborne pollen and simultaneously modifying their allergen load and composition. Gases such as nitrogen dioxide (NO2) and ozone (O3) can also alter the allergenic properties of pollens through nitration reactions, leading to a modulated immune response. Pollens can also act as carriers of lipids, further impacting the immune response to allergens. Moreover, many pollutants can interact with pollen, causing biological changes such as altered viability, germination rates, and fertility.

Environmental temperatures play a crucial role in shaping the commencement, duration, and severity of the pollen season, exhibiting regional variations. Changes in temperature and the increasing levels of greenhouse gases can impact the quantity of allergens in several ways, including promoting increased and faster plant growth, higher pollen generation, increased allergenicity of pollen, and earlier and prolonged plant seasons. Climatic factors such as rainfall, temperature, humidity, and wind movements can further influence the density of pollens in the atmosphere, subsequently affecting human health.

Studies indicate a combined effect of air pollution, pollens, and heat on population-level health outcomes, including an increase in respiratory morbidity and mortality. These effects are particularly relevant for individuals with existing heart and lung diseases.

In such adverse environmental conditions, inhalation of allergens can lead to allergic disorders such as rhinitis, bronchitis, and asthma, while also influencing immune defenses and increasing vulnerability to viral infections. This disturbance of the immune system upon exposure to pollens is commonly observed in individuals with allergies but can also affect healthy individuals. For asthmatics, such environmental conditions can trigger

bronchoconstriction and increased permeability of airway epithelium, exacerbating symptoms. Instances of allergic rhinitis tend to peak during such climatic conditions.

Skin conditions like allergic and atopic dermatitis are similarly exacerbated by seasonal factors and changing climates. Low humidity and cold temperatures can worsen atopic dermatitis, while low humidity can also dry the epithelial linings of the nose and throat, rendering them more susceptible to viral infections.

While the association between airborne pollens and cardiovascular diseases has not been extensively studied, there is a hypothesis suggesting that pollens could be a risk factor for heart attacks. This pathway may involve pollens activating mast cells, which subsequently lead to histamine release, potentially causing coronary artery spasm.

Studies indicate a combined effect of air pollution, pollens, and heat on population-level health outcomes, including an increase in respiratory morbidity and mortality. These effects are particularly relevant for individuals with existing heart and lung diseases. Temperature fluctuations, air pollution, and pollen exposure can trigger systemic and organ-specific inflammatory reactions, as well as cell damage, contributing to the exacerbation of these conditions.

Children typically experience repeated infections as they grow, which stimulate their immune system and contribute to the development of robust natural immunity. However, during the pandemic years, many children were deprived of this opportunity due to physical distancing and other non-pharmacological interventions (NPIs).

Currently, there are significant research gaps in understanding the interaction between changing weather conditions, pollens, and air pollution, and their impact on public health. Research efforts should focus on studying their effects on various aspects such as birth outcomes and vulnerable populations, including children, pregnant mothers, the elderly, and individuals with a genetic predisposition to respiratory and cardiac diseases.

While there is considerable emphasis on the effects of heat, air pollution, and pollen on health, it's essential to acknowledge that other environmental factors can also impact health. These factors may include occupational exposures, different types of air pollution mixtures, as well as airborne bacteria, viruses, molds, and fungi. In the real world, individuals are exposed to a complex combination of risk factors that may be poorly defined or understood, posing challenges for research. Furthermore, most diseases, especially non-communicable conditions, have multiple risk factors, such as genetic predisposition, unhealthy lifestyles, stress, and poor sleep quality. Future research into the causation of non-communicable diseases should consider environmental factors as effect modifiers or contributors to the causal pathway.

Additionally, factors like "immunity debt" and the "hygiene hypothesis" in the post-COVID period warrant further investigation.

The epidemiological triad model of

disease causation comprises three factors: the agent, the environment, and the host. While discussing different agent factors such as air pollutants, pollens, and environmental conditions, it's crucial to also consider host factors that contribute to people's health. Understanding the interplay between these factors can provide valuable insights into disease prevention and management strategies.

In recent months, following the onset of winter and the post-pandemic period, there has been an uptick in childhood pneumonias, initially observed in China and later reported in countries across the Western hemisphere. These infections have been attributed to common respiratory viruses and pathogens. Notably, the outbreak coincided with China entering its first winter season since lifting its strict COVID-19 restrictions last December.

The organisms responsible for the outbreak in China are known pathogens, and no new virus or bacterium has been isolated. Maria Van Kerkhove, acting director of the WHO's epidemic wing, suggested that the increase is likely due to children coming into contact with common viruses and bacteria from which they were somewhat protected during the COVID-19 restrictions.

Children typically experience repeated infections as they grow, which stimulate their immune system and contribute to the development of robust natural immunity. However, during the pandemic years, many children were deprived of this opportunity due to physical distancing and other non-pharmacological interventions (NPIs). This phenomenon has been termed the "immunity debt" or "immunity gap," representing a short-term consequence of the "hygiene hypothesis."

Professor François Balloux, an expert in computational biology at University College London, has squarely blamed China's strict lockdown measures for the mystery pneumonia currently sweeping across the country. He suggests that China is experiencing waves of respiratory infections as it lifts its lockdown restrictions, particularly during its first winter season post-lockdown. The prolonged movement restrictions drastically reduced the circulation of respiratory pathogens, resulting in decreased natural immunity to common infections.

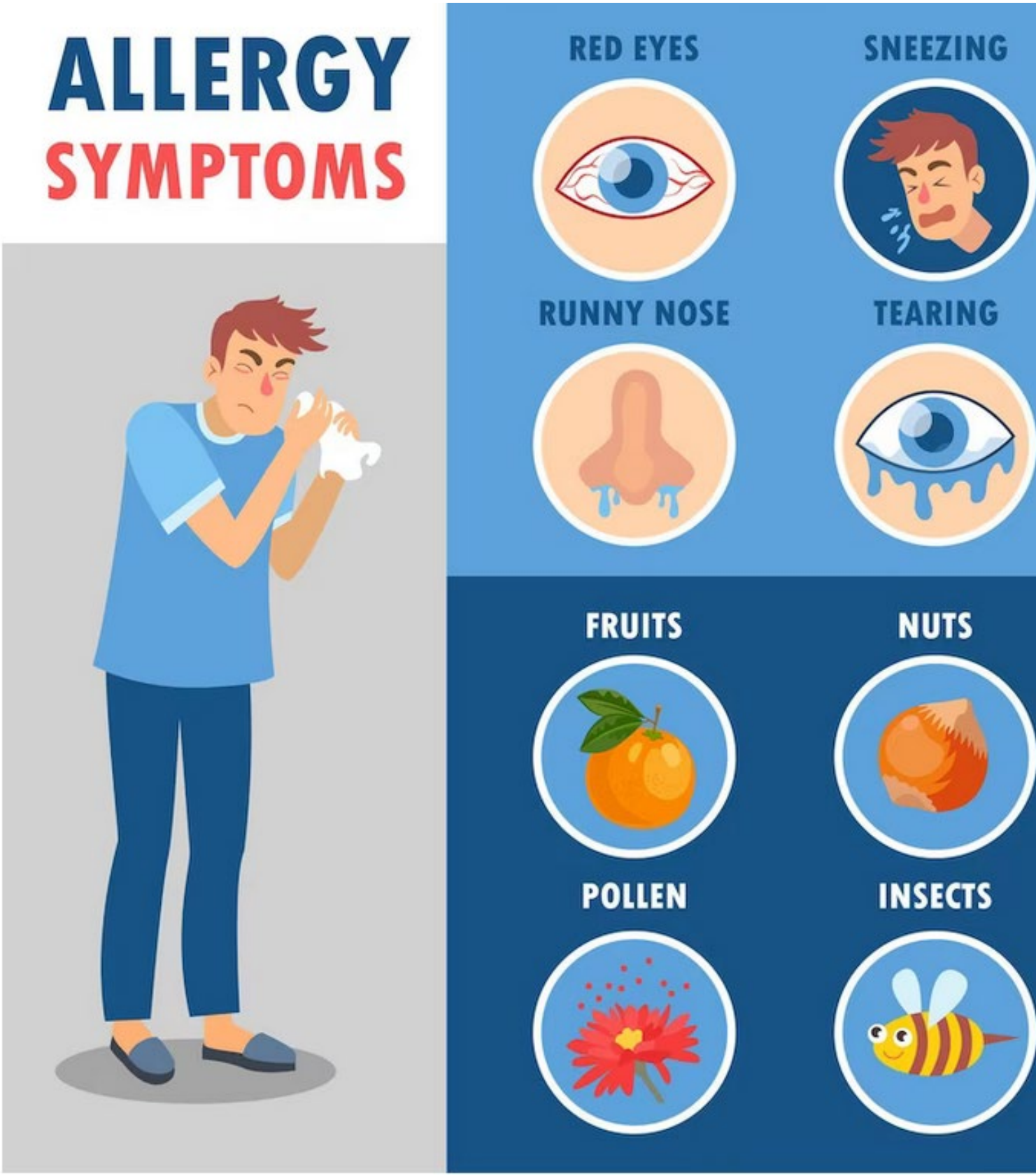
While there is considerable emphasis on the effects of heat, air pollution, and pollen on health, it's essential to acknowledge that other environmental factors can also impact health. These factors may include occupational exposures, different types of air pollution mixtures, as well as airborne bacteria, viruses, molds, and fungi.

Alongside usual viral infections such as Respiratory Syncytial Virus (RSV), influenza, and SARS-CoV-2, the surge is also driven by the bacterium Mycoplasma pneumonia.

Mycoplasma pneumonia infections occur throughout the year but peak every winter, with epidemics cyclically occurring every 3-4 years. However, due to China's implementation of a longer and harsher lockdown than any other country, it is experiencing the steepest "lockdown exit" wave.

The descriptive epidemiology, which focuses on the distribution of cases among different age groups, lends support to the "immunity debt" hypothesis. Children, as a result of NPIs during the pandemic, have had limited exposure to common respiratory pathogens circulating in the community. In contrast, adults likely retain immune memory from pre-pandemic exposures.

This short-term "immunity debt" may lead to an accumulation of "interest" in later years, potentially resulting in a rise in allergic diseases. The distribution patterns of allergic conditions indicate a notable increase in more affluent regions with better hygiene and sanitation. "The hygiene hypothesis"


ALLERGY
SYMPTOMS
RED EYES
SNEEZING
RUNNY NOSE
TEARING
FRUITS
NUTS
POLLEN
INSECTS

Ancient Ayurvedic texts mention "Jal-Neti" or saline irrigation of the nasal passages as an essential personal hygiene practice. This raises the question of whether the ancient practitioners of Ayurveda were ahead of their time in recognising its benefits.

suggests that early-life infections play a crucial role in immune system maturation, protecting against autoimmune diseases and allergies later in life. The higher incidence of autoimmune and allergic diseases may be attributed to decreased exposure to infections due to improved sanitation and healthcare.

To address diseases stemming from environmental factors such as pollen and pollution, scientists from the Post Graduate Institute of Medical Education and Research propose large-scale population-level measures. These include developing pollen forecasting systems, training healthcare workers and the public to interpret and respond to pollen forecasts, utilizing protective equipment like shields, spectacles, and air filters, and ensuring compliance with allergy medications. Emphasizing community awareness regarding pollen allergy, its symptoms, and management strategies is crucial.

These recommendations stem from a study sponsored by the Department of Science and Technology, Government of India, and published in the International Journal of Hygiene and Environmental Health. The study highlights the importance of proactive measures to mitigate the impact of environmental factors on public health.

Prof Khaiwal, the lead author of the study, advocates for a multi-stakeholder approach, emphasizing the importance of the education sector in developing capacity for aerobiological research, creating pollen forecast systems, and providing training for healthcare professionals.

In light of the COVID-19 pandemic, a study published in the Journal of the American Medical Association (JAMA) titled, "Benefits and Safety of Nasal Saline Irrigation in a Pandemic – Washing COVID-19 Away," underscores the effectiveness of hypertonic nasal saline in promoting mucociliary clearance and reducing viral burden through physical removal. The nasal lining plays a crucial role in the innate immune system, serving as a primary defense against inhaled viruses, bacteria, pollens, and particulate matter. Saline nasal rinsing effectively eliminates pollutants and pathogens trapped in the nasal mucus.

Ancient Ayurvedic texts mention "Jal-Neti" or saline irrigation of the nasal passages as an essential personal hygiene practice. This raises the question of whether the ancient practitioners of Ayurveda were ahead of their time in recognising its benefits. Could regular "Jal-Neti" practice help prevent or treat conditions such as otitis media, asthma, sinusitis, and allergies?

There is a pressing need to invest more in research within the AYUSH systems of medicine and toward the development of an integrated healthcare system. Rather than waiting for the West to discover and teach us, we should embrace and explore the wisdom of our ancient traditions. .

(The author, an eminent epidemiologist and Professor at a Medical College in Pune, recently ranked in Stanford University's list of the world's top 2% scientists. He is also the author of the book, "COVID-19 Pandemic: A Third Eye.")

COMBATING MALIGNANCY

Medical experts emphasise the importance of accurate diagnosis, multidisciplinary collaboration, and patient-centred treatment plans in handling the complexities of cancer surgery...

BY TEAM DOUBLE HELICAL

Cancer surgery is a highly specialised branch. A doctor who specialises in surgical treatment of cancer is called a surgical oncologist. Surgery is the oldest type of cancer therapy and remains an effective treatment for many types of cancer today.

Considered the most effective among available cancer treatment options, minimally invasive surgery is increasingly sought after. However, it is a highly specialised technique that also requires extensive training, a multidisciplinary team, and strong paramedical support.

Following primary cancer surgery, reconstructive or plastic surgery may be performed to restore the body's appearance or function. This can occur concurrently with tumour removal surgery or after the patient has healed or undergone additional treatment.

According to **Dr A K Singh, Senior Neurologist associated with MAX Hospitals in Dehradun,** cancer is a diverse group of several hundred entities that can originate from virtually any part of the body. It occurs when normal cells undergo changes and begin to proliferate uncontrollably. These abnormal cells can aggregate to form a mass known as a tumor. Tumors can be either malignant, meaning they have the potential to spread to other parts of the body, or benign, indicating they are noncancerous. However, certain types of cancer do not produce solid tumors; these are referred to as hematological malignancies. Examples include leukemia, various forms of lymphoma, and myeloma, which affects the plasma cells in the bone marrow, the soft tissue inside bones

TYPES OF SURGERY

Diagnostic: For most cancers, a biopsy is the only way to make a definitive diagnosis. A biopsy is the removal of a small amount of tissue for further study. During a surgical biopsy, the surgeon makes an incision in the skin and removes a portion or all of the suspicious tissue. There are two primary types of surgical biopsies: incisional, which involves removing a piece of the suspicious area for examination, and excisional, which entails removing the entire suspicious area, such as an abnormal mole or lump.

Following the biopsy, the removed tissue undergoes microscopic examination by a pathologist, a doctor specialising in interpreting laboratory tests and assessing cells, tissues, and

organs to diagnose diseases. The pathologist provides a pathology report to the surgeon or oncologist, who then establishes the diagnosis.

Staging: Staging surgery aims to determine the size of the tumour and whether it has spread, often involving the removal of nearby lymph nodes, small bean-shaped organs aiding in infection fighting, to assess potential spread. Combined with physical examinations, biopsies, laboratory tests, and imaging results, staging surgery assists doctors in determining the optimal treatment and predicting the patient's

The cancer treatment options that the doctor recommends depends on the type and stage of cancer, possible side effects, and the patient's preferences and overall health. In cancer care, different doctors often work together to create a patient's overall treatment plan that combines different types of treatment.

prognosis, or likelihood of recovery.

Tumour Removal (Curative or Primary Surgery): The most common cancer surgery involves removing the tumour along with some surrounding tissue, known as the margin. Tumour removal may serve as standalone treatment or be combined with chemotherapy, radiation therapy, or other modalities, administered before or after surgery.

Conventional surgery involves large incisions through the skin, muscle, and sometimes bone. However, in select cases, surgeons may opt for less invasive techniques to expedite recovery and minimise postoperative pain.

Debulking: When complete tumour removal poses risks of excessive damage, surgeons perform debulking surgery to remove as much of the tumour as feasible. Additional treatments like radiation therapy or chemotherapy may be employed to shrink the remaining cancer.

Palliation: Palliative surgery aims to alleviate side effects induced by tumours, enhancing the quality of life for patients with advanced or widespread cancer. It can relieve pain or restore physical function by addressing issues such as nerve compression, spinal cord compression, bowel obstruction, or bleeding. **Dr Arun Sharma, Senior Neurosurgeon at the Indian Spinal Injuries Centre in New Delhi**, notes that certain cancers, occurring in vascular-rich areas like the uterus or in fragile organs such as the esophagus, stomach, and bowel, are more prone to bleeding and may benefit from surgical intervention to control bleeding.

Additionally, bleeding may result from certain medications used in cancer treatment. When surgery becomes necessary to control bleeding, a common technique is suture ligation, which involves tying off blood vessels using surgical thread. Surgery may also involve the insertion of feeding tubes or medication delivery tubes. If cancer or its treatment impedes eating, a feeding tube may be inserted directly into the stomach or intestine through the abdominal wall, or a tube may be placed into a vein to administer pain medication or chemotherapy. Surgery may also be employed to prevent

fractures in bones weakened by cancer or its treatment; inserting a metal rod can help prevent fractures and alleviate pain during healing.

Reconstruction: Following primary cancer surgery, reconstructive or plastic surgery may be performed to restore the body's appearance or function. This can occur concurrently with tumour removal surgery or after the patient has healed or undergone additional treatment. Examples include breast reconstruction post-mastectomy and surgery to restore appearance and function following head and neck surgery.

Prevention: Some surgeries aim to mitigate the risk of developing cancer. For instance, doctors may recommend the removal of precancerous polyps in the colon to prevent colon cancer. Additionally, women with a strong family history of breast or ovarian cancers or known mutations in the BRCA1 and BRCA2 genes may opt for mastectomy or oophorectomy to reduce the risk of developing these cancers.

TYPES OF MINIMALLY INVASIVE SURGERY

While conventional surgery often necessitates large incisions, minimally invasive procedures involve one or more small incisions, leading to shorter recovery times and reduced postoperative pain. Examples include:

Laparoscopic Surgery: The doctor performs surgery through small incisions in the skin using a thin, lighted tube with a camera. For example, a laparoscopy refers to a minimally invasive surgery of the abdomen, and mediastinoscopy and thoracoscopy are terms used when the same type of procedure is performed in the chest.

Laser surgery: The doctor uses a narrow beam of high-intensity light to remove cancerous tissue.

Cryosurgery: The doctor uses liquid nitrogen to freeze and kill abnormal cells. Mohs micrographic surgery also called microscopically controlled surgery: The dermatologist shaves off a skin cancer, one layer at a time, until all cells in a layer appear to be normal cells when viewed under a microscope.

Robotic Surgery: This is the latest in minimally invasive techniques of cancer surgery in which the operating surgeon uses a robotic system to perform the surgery. The surgeon is sitting comfortably on the console at some distance while the robot is performing the operation based on the instructions of the surgeon. This system has several advantages like better magnification, degrees of movement, 3D vision and faster rehabilitation. However, the steep cost is the limiting factor.

Endoscopy: The doctor inserts a thin, flexible tube with a light and camera on the tip, called an endoscope, into an opening of the body (such as the mouth, rectum, or vagina) to examine the internal organs. During an endoscopic procedure, it is possible to remove samples of potentially abnormal tissue for further examination.

Dr A K Singh said, "The goals of

surgery vary. It is often used to remove all or some of the cancerous tissue after diagnosis. However, it can also be used to diagnose cancer, find out where the cancer is located, whether it has spread, and whether it is affecting the functions of other organs in the body. In addition, surgery can be helpful to restore the body's appearance or function or to relieve side effects".

The location where you have surgery depends on the extent of the surgery and how much recovery is needed. Surgery may be performed in a doctor's office, clinic, surgical centre, or hospital. Outpatient surgery means that you do not need to stay overnight in the hospital before or after surgery. Inpatient surgery means that you do need to stay in the hospital overnight or longer to recover after the surgery.

Dr Arun Sharma, added, "The diagnosis of cancer begins when a person reports any unusual symptoms. After discussing a person's medical history and his or her symptoms, the doctor will perform various tests to find out the cause of the ailment. However, many times a person with cancer has no symptoms. Sometimes a doctor diagnoses cancer after a cancer screening test in an otherwise healthy person. Examples of screening tests include a colonoscopy, a mammogram, and a pap test."

The results of these tests may necessitate additional tests to confirm or disprove the result of the screening test. Less often, cancer is diagnosed when a person undergoes a medical test for another reason. The cancer treatment options that the doctor recommends depends on the type and stage of cancer, possible side effects, and the patient's preferences and overall health. In cancer care, different doctors often work together to create a patient's overall treatment plan that combines different types of treatment. This is called a multidisciplinary team approach.

"Healthcare is a Human Right"

Dr R V Asokan, recently appointed as the National President of the Indian Medical Association (IMA), brings a steadfast commitment to improving healthcare in India. With a distinguished record in medicine and leadership roles within the IMA, he embodies persistence and dedication, aiming to advance medical practices and policies for the betterment of all. In an exclusive interview with Double Helical, Dr Asokan unveiled the Health Manifesto—a comprehensive blueprint aimed at addressing the critical health challenges confronting India....

Dr R V Asokan, a practicing General Physician operating a 43-bedded hospital in Punalur, a small town in the Kollam district of Kerala State, has a distinguished record within the medical community. He served as the IMA State Secretary of Kerala for three years, subsequently becoming its State President.

One of Dr Asokan's significant contributions was the conception and establishment of IMAGE, the biomedical waste project of the IMA Kerala State Branch, spanning 26 acres of land in Palakkad. Additionally, he facilitated a Rs 100 crore Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM) public-private mix project for the IMA and served as its National Coordinator for six years. Dr Asokan also served as a member of STAG (TB) in WHO-Geneva (Strategy and Technical Advisory Group). Furthermore, he held the position of National Secretary of the IMA Hospital Board of India for four years before assuming its chairmanship for another four years.

Hailing from Punalur, Kollam district, Kerala, Dr Asokan completed his MBBS degree and pursued MD in General Medicine. His leadership roles within the IMA at both state and national levels underscore his commitment to advancing medical practices and policies.

Recognising his contributions, Dr Asokan was appointed Chairman of the Action Committee, which spearheaded the struggle against some implications of the National Medical Commission (NMC). Recently assuming office as the National President and Honorary Secretary General of the Indian Medical Association (IMA), he unveiled the Health Manifesto—a comprehensive blueprint aimed at addressing the critical health

challenges confronting the nation.

Dr Asokan emphasised that the IMA, representing doctors practicing modern medicine in India, boasts a membership of 367,774, making it one of the largest professional organisations globally. He stressed the organisation's commitment to ensuring healthcare providers possess the latest scientific knowledge and uphold evidence-based practices.

Regarding the Health Manifesto, Dr. Asokan stated, "While acknowledging the achievements in healthcare, this manifesto identifies major shortcomings in India's health policies and proposes remedial actions to confront current and emerging challenges. It aligns with the principles of Universal Health Coverage and the United Nations Sustainable Development Goals (SDGs), aiming to guide policymakers in delivering optimal healthcare solutions."

The IMA advocates for increased public expenditure on healthcare to improve infrastructure and human resources, emphasising the need for universal healthcare coverage. He further elaborated, "The manifesto, crafted through extensive consultations, reflects frontline healthcare workers' experiences and aims to address disparities in healthcare access. Despite resource constraints, it strikes a balance between visionary goals and pragmatic approaches, focusing on short to medium-term impacts while addressing long-term challenges."

Dr Asokan envisions the manifesto as instrumental in shaping policies that prioritise the current and future healthcare needs of the nation. While not exhaustive, it identifies priority areas necessitating immediate action to enhance health outcomes and ensure a healthy future for all citizens.

"As President of IMA, I recognise the imperative for equitable, accessible, and affordable healthcare for all segments of society. The manifesto underscores the need for empathetic and responsive health policies," he emphasised.

Highlighting the IMA's contributions, Dr Asokan mentioned the organisation's proactive response during the COVID-19 pandemic, including the establishment of a nationwide helpline that received over two million calls. The IMA distributed essential healthcare equipment and food supplies through its 1700 branches and provided helpline services for doctors. Tragically, over 2000 doctors lost their lives to COVID-19 while serving on the frontlines.

Reflecting on past initiatives, Dr Asokan recalled the IMA's efforts in HIV/AIDS sensitisation in 1993, a time marked by limited knowledge, treatment options, and widespread fear and discrimination. The IMA's HIV sensitisation program, in collaboration with the Clinton Foundation, trained nearly 400,000 healthcare personnel and partnered with NACO to prevent mother-to-child transmission. The organisation's engagement in tuberculosis elimination since 1997, supported by Global Fund initiatives, is recognised internationally as a cost-effective and successful model, impacting over 234,377 doctors through training programs and workshops.

Dr Asokan underscored his commitment to serving humanity while upholding the integrity and honour of the medical profession. He acknowledges the manifold responsibilities accompanying his position, including ensuring legal protection and addressing both personal and professional concerns on behalf of doctors. He emphasised the Indian IMA's dedication to advancing public health, aiming to establish public health centres such as blood banks and cancer treatment hospitals to enhance healthcare delivery.

"While acknowledging the achievements in healthcare, this manifesto identifies major shortcomings in India's health policies and proposes remedial actions to confront current and emerging challenges."

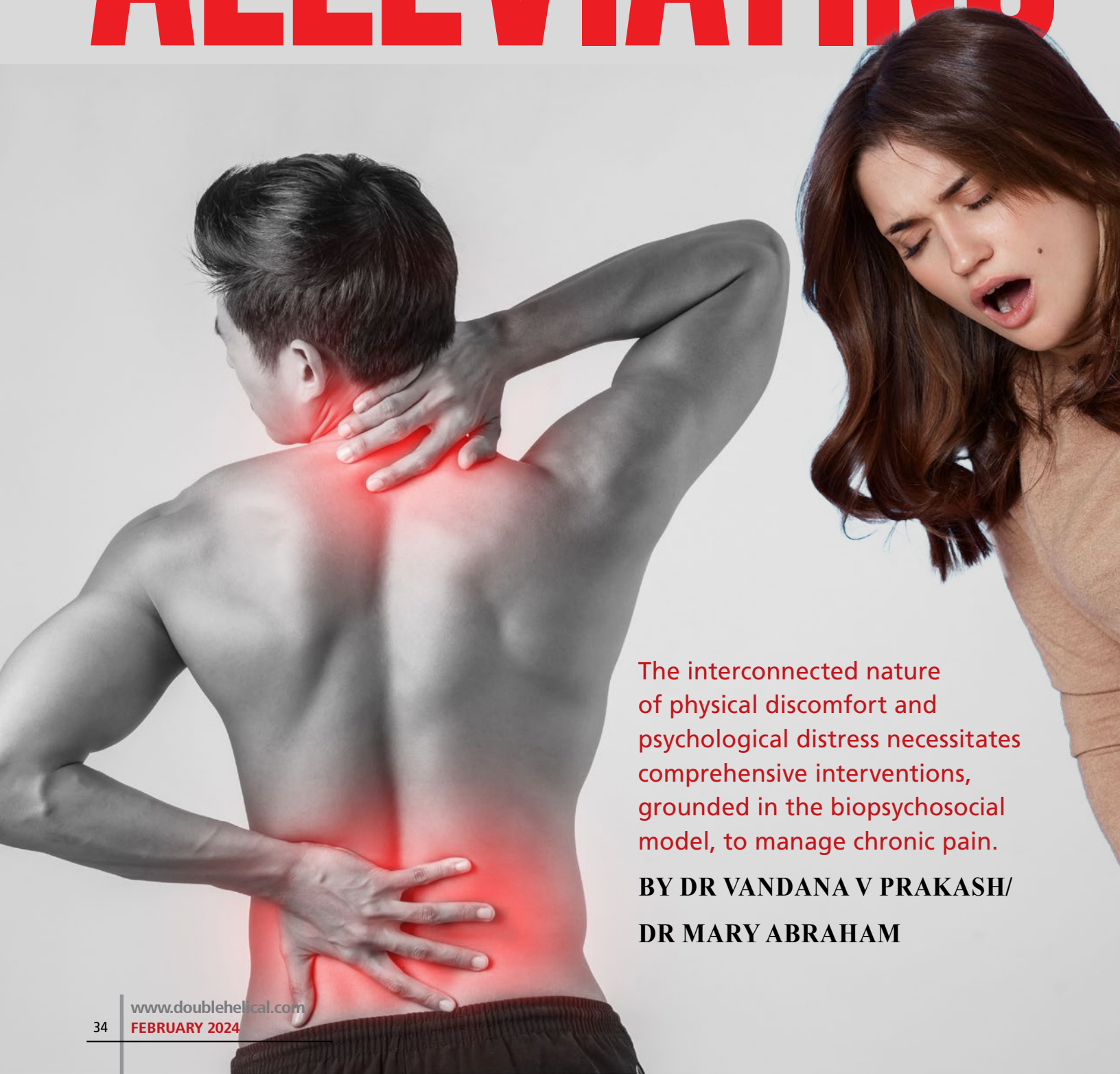
Violence against doctors and healthcare practitioners in India has emerged as a growing concern, with approximately one in two doctors experiencing violence in public hospitals on average. This phenomenon is more prevalent in healthcare settings compared to other industries and can manifest in various forms. Root causes include patient dissatisfaction, rising healthcare costs, unrealistic expectations, and understaffing, compounded by a lack of formal dispute resolution mechanisms and low health literacy among the population.

Dr Asokan noted that healthcare violence is a global issue, often stemming from ignorance about diseases and treatment options. Mob mentality exacerbates the problem, placing additional strain on hospital staff. Communication gaps, staff shortages, and inadequate security measures within hospitals further contribute to the risk of violence. Dr Asokan stressed the need for transparent institutional policies and government action plans to ensure the safety of medical professionals.

Driven by a vision of equitable healthcare access as a human right, Dr Asokan advocates for the implementation of public health centres and initiatives to tackle pressing health challenges. He urged political leaders to prioritise healthcare in their agendas, citing the meagre 2.1% GDP expenditure on healthcare as a pressing concern.

Dr Asokan's leadership embodies the ethos of persistence and dedication, striving for continuous improvement within the medical community and advocating for policies that prioritise equitable healthcare access and quality outcomes.

ALLEVIATING



The interconnected nature of physical discomfort and psychological distress necessitates comprehensive interventions, grounded in the biopsychosocial model, to manage chronic pain.

BY DR VANDANA V PRAKASH/

DR MARY ABRAHAM

SUFFERING

Pain is an experience that all living beings encounter during their lifespan. It is an exceedingly unpleasant and disagreeable condition to be in and we cannot help wishing it away. Certain types of pain like acute pain, however, are essential for our very survival. While acute pain usually occurs due to an injury and tends to get alleviated faster, chronic pain can cause a lot of agony, physical disability and a plethora of psychological issues.

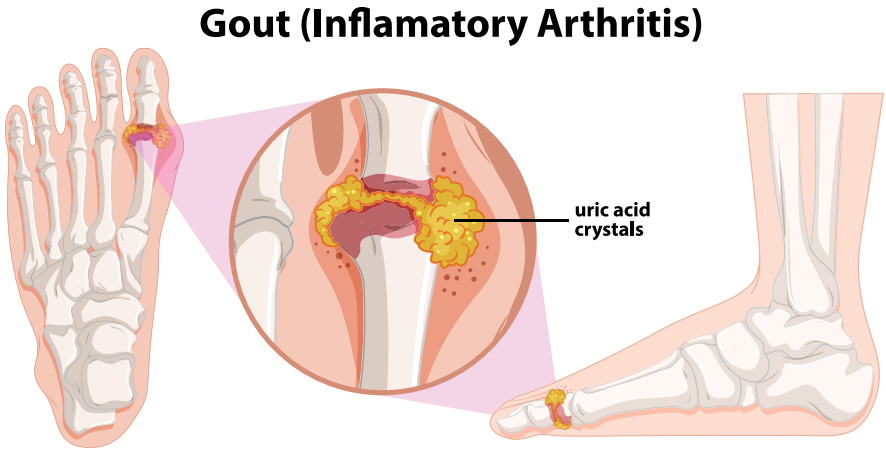
What is Chronic Pain?

When pain has lasted for more than three months, it is termed as chronic. Chronic pain does not play a protective role as seen in acute pain, but persists beyond the expected time of healing and the underlying causes are insufficient in explaining its presence and intensity. Chronic pain also tends to disrupt biological functions like the sleep cycle and gradually affects the day-to-day functionality (personal, social and occupational) of the person. Subsequently, the quality of life is reduced leading to negativity in thoughts and emotions. Chronic pain can eventually result in disability.

CHRONIC PAIN SYNDROME

In Chronic Pain Syndrome, the pain has lasted for more than six months. The pain now is not predominantly physical but more related to mind and mood. In other words, the psychological aspects supersede the physical pain. The presence of psychological disorders such as depression, chronic depression (dysthymia), anxiety disorders, poor sleep, chronic fatigue, increased irritability, guilt feelings, loss of sexual drive, suppressed and expressed anger, substance abuse and sometimes dependence, family and marital dysfunctionality, role reversal and occupational loss are some of the associated conditions. In extreme cases, suicidal thoughts and attempts are also seen. Hence, what may have begun as a

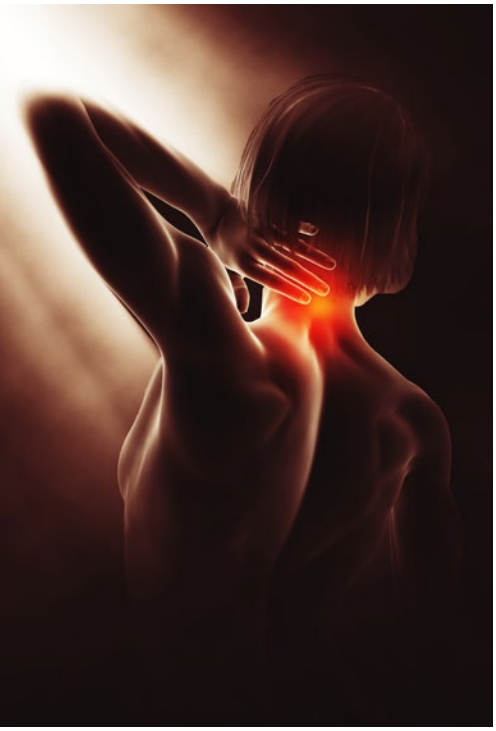
Dr Vandana V Prakash



physical injury when not healed, partially healed or cannot be healed has serious psychosocial consequences.

Traditionally, chronic pain was deemed to be a malady of the elderly. But today's younger generation also seems to be the afflicted with chronic pain and it is not uncommon to see people in the third and fourth decades of life frequenting pain clinics. Chronic pain may be associated with co-existing conditions like arthritis, diabetes, surgery, accidents, neurological disorders, musculoskeletal diseases and cancer. Besides this, viral infections like corona virus, chikungunya and dengue fevers also leave behind a trail of pain that often converts to chronic pain and disability in its wake. Apart from these conditions, other varied causes can lead to chronic pain. These could be age-related changes, sedentary lifestyle and high level of personal or occupational stress. The latter may be exacerbated by poor social and emotional support, long working hours and inadequate sleep, to name a few. Many psychological disorders can also predispose to chronic pain. It

Dr Mary Abraham



Chronic pain and mind are actually two sides of the same coin. Many a time, the patient is not even aware that the mind can be the dominant factor in perpetuating their pain and suffering.

SPORTS INJURIES

could be vice versa too and pain can also cause psychological disturbances.

People afflicted with chronic pain are often not able to reconcile to the fact that besides medical treatment, they need psychological support in order to overcome their distress. In fact, chronic pain and mind are actually two sides of the same coin. Many a time, the patient is not even aware that the mind can be the dominant factor in perpetuating their pain and suffering. The concept of 'Total Pain' emphasises the physical, psychological, social and spiritual aspects of pain. Therefore, the treatment approach has to be holistic in consonance with the biopsychosocial model. With a better understanding of chronic pain from a scientific point of view, availability of newer generation medicines, more evolved pain management techniques and suitably tailored psychosocial therapeutic methods, chronic pain is no longer insurmountable. Chronic pain can be managed and the quality of life of the individual can be improved.

In the book, Managing Chronic Pain, we have presented to the reader a holistic approach of chronic pain management based on the biopsychosocial model so that all facets of chronic pain are addressed and there is a good outcome with patient satisfaction.

(The authors are Senior Consultant, Clinical Psychologist)

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ALIGNING YOUR SMILE

Explore the causes and effective management of toothache, discover essential oral hygiene practices, learn strategies for addressing alignment issues, and dive into a detailed exploration of the phases involved in orthodontic care.

BY DR DEEPTI SHARMA

Toothache occurs when the innermost layer of the tooth (dental pulp) becomes inflamed. The pulp is made up of sensitive nerves and blood vessels. Dental pulp can become inflamed as a result of tooth decay, which leads to holes (cavities) forming in the hard surface of the tooth. Other causes include a cracked tooth—often so small that it can't be seen with the naked eye—a loose or broken filling, receding gums (where the gums shrink, exposing softer, more sensitive parts of the tooth root), and a periapical abscess (a collection of pus at the end of the tooth caused by a bacterial infection).

There are several other conditions that can cause pain similar to toothache, even when the pulp isn't affected. These include periodontal abscess, ulcers on the gums, sore or swollen gums around a breaking tooth—such as when wisdom teeth start to emerge—sinusitis, which can sometimes cause pain around the upper jaw, and an injury to the jaw joint. Babies can also experience discomfort when their teeth start to develop, known as teething.

If dental pain persists, it's important for patients to seek a dental health consultation from an expert dentist. They can receive relevant advice such as dental fillings, root canal therapy, etc.

There are two types of caries: enamel caries and dentine caries. When caries affect the tooth structure, acid dissolves the enamel, creating a small hole known as a dental cavity. This initial stage, called enamel caries, is not painful. However, if the decay reaches the dentine area, it becomes painful. This stage is known as dentine caries, and patients may experience pain and sensitivity to hot/cold and sweet intake.

As decay progresses, it can reach the pulp. This stage, known as pulpitis, is extremely painful, often causing jaw pain. If left untreated, the decay continues to spread and infects the pulp, forming an abscess at the end of the root structure. This stage, known as a dental abscess, is very painful, and patients may experience jaw pain and radiating pain pointing towards other dental and facial areas.

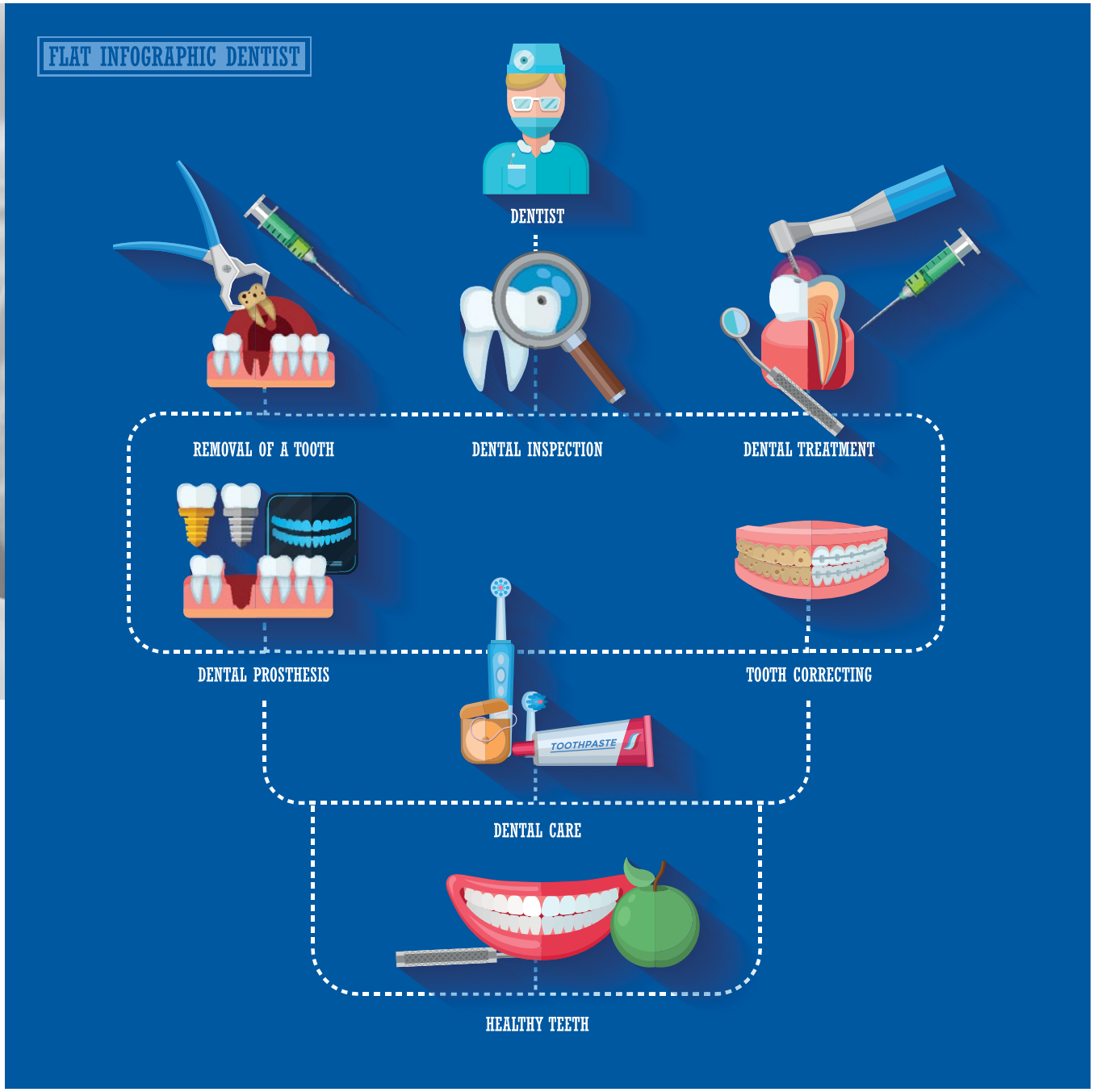
Dentists typically refer patients to orthodontists when teeth overcrowding or misalignment affects the bite. Several reasons necessitate orthodontic care, and some orthodontists manage wisdom tooth extractions and other surgical repairs needed to restore teeth.

DO's:

1. Gargle after every meal to maintain oral health.
2. Use a soft toothbrush for brushing your teeth.
3. Check your mouth regularly for signs of tooth decay.
4. Eat healthy foods to support dental health.
5. Brush your teeth twice daily.

DON'Ts:

1. Avoid brushing your teeth with excessive pressure.
2. Never share your toothbrush with others.
3. Minimise intake of sticky foods, sweets, and sweet drinks.
4. Avoid smoking, as it can harm oral



health.

5. Limit snacks between meals to reduce the risk of tooth decay.

Remember, every tooth in a human's body is more valuable than a diamond. Full mouth rehabilitation is suitable for individuals who have experienced the following dental issues:

- Excessive tooth wear, prolonged tooth abrasion, or erosion of enamel.
- Teeth grinding at night (sleep bruxism) causing pain or discomfort in the mouth, jaw, and facial muscles.

You may be a good candidate for full mouth reconstruction if you are currently dealing with any of the following issues:

- Tooth decay in multiple teeth
- TMJ disorder
- Broken or decayed restorations
- Uncomfortable or unnatural-looking dentures or tooth replacements,

- Bite problems, or missing teeth.

TMJ disorder, or temporomandibular joint disorder, refers to a condition that affects the temporomandibular joint, which is the joint that connects your jawbone to your skull. This disorder can cause pain and discomfort in the jaw joint and the muscles that control jaw movement.

The benefits of full mouth oral restorations include repairing damaged teeth, replacing missing teeth, improving bite issues (occlusion), and dramatically rejuvenating smile aesthetics.

ALIGNING YOUR TEETH

Dentists typically refer patients to orthodontists when teeth overcrowding or misalignment affects the bite. Several reasons necessitate orthodontic care, and some orthodontists manage wisdom tooth extractions and other surgical repairs needed to restore teeth. Understanding the three phases of orthodontic care helps patients anticipate what to expect if facing alignment issues and needing braces.

The Planning Stage: The planning stage begins with an initial consultation where the dentist examines the teeth and completes x-rays. The dental professional determines the appropriate type of braces for straightening and realigning teeth. Orthodontists discuss options with patients, outlining costs associated with different braces styles.

Patients collaborate with their orthodontist to choose an option that suits their lifestyle and minimises disruptions. Pros and cons of each choice are discussed, along with expected outcomes. If overcrowding requires tooth extractions, these are scheduled and completed before braces installation.

The Active Phase: During this phase, permanent braces are affixed to the patient's teeth. With ceramic and metal braces, brackets are cemented onto teeth, and wires connect through brackets on each

If left untreated, the decay continues to spread and infects the pulp, forming an abscess at the end of the root structure. This stage, known as a dental abscess, is very painful, and patients may experience jaw pain and radiating pain pointing towards other dental and facial areas.

tooth to create a hinge restricting mouth movement. Braces gradually realign teeth over up to two years.

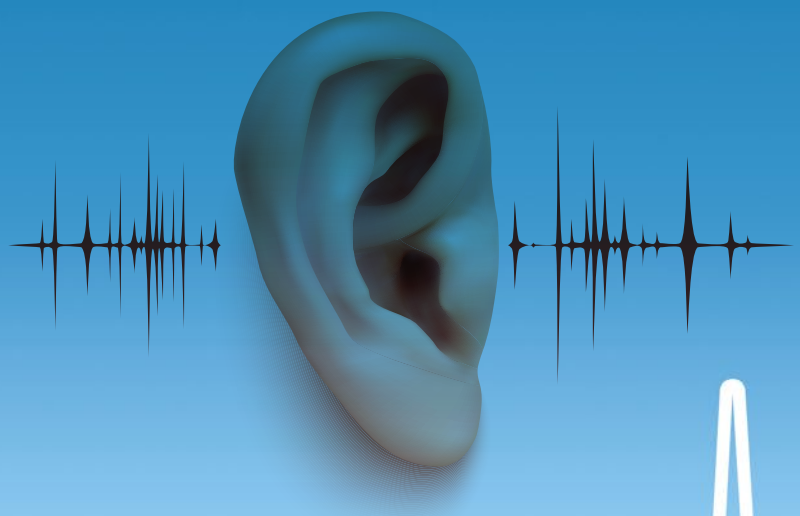
Invisalign braces offer an alternative to ceramic and metal braces. A mould of the patient's teeth is taken, and the braces are custom-fitted. Patients can remove Invisalign braces for brushing, flossing, and eating. New braces are provided every six weeks until teeth are aligned.

The Retention Phase: The final stage begins with the removal of permanently installed braces and wires. The orthodontist provides a retainer to the patient to maintain proper teeth alignment. Additionally, a mouthguard may be provided to prevent tooth damage from teeth grinding during sleep. If the retainer proves ineffective, the dental professional may recommend further orthodontic treatments, such as prescribing Invisalign for patients who previously had metal or ceramic braces. If any tooth becomes misaligned, the orthodontist provides a device to guide it back into place. Retainers are typically effective for maintaining alignment.

Patients generally consult an orthodontist based on the recommendation of their dental professional. Orthodontic services include braces installation, alignment assessments, and surgical corrections. Orthodontists may also perform oral surgeries, such as wisdom teeth removal. However, alignment issues remain the most common reason individuals seek treatment from dental professionals.

Patients have three primary choices for braces: ceramic, metal, and Invisalign. Understanding the stages of orthodontic treatment helps patients know what to expect during each appointment. So, start your journey now and choose braces for that picture-perfect smile!.

(The writer is the Owner and Director of Dr Sharma Dental Care, Nagpur)



OVERCOMING BARRIERS

Enhancing accessibility for individuals with hearing impairment involves implementing comprehensive rehabilitation strategies. It also necessitates conducting multidisciplinary research and developing indigenous technological solutions to improve outcomes..

Education for children with hearing impairment in India has a history spanning just over a hundred years. Following Independence, notable advancements occurred, including the establishment of numerous new schools in the 1950s, along with the emergence of various programs leveraging new technologies in the 1960s. During this period, the All India Institute of Speech and Hearing was founded in Mysore, providing facilities for diagnosing hearing impairment in infants and young children. Presently, the country boasts over 500 schools catering to hearing-impaired children, with some administered by the government and others operated by NGOs. Many of these schools, predominantly residential, admit children aged five years and older, who typically reside in hostels throughout the school year, returning home only during summer vacations. Additionally, the provision of vocational courses and sheltered workshops enables some students to spend a significant portion of their lives within these educational institutions.

Dr A. K. Agarwal, a renowned ENT Specialist focusing on Innovation, Education & Clinical Excellence at Apollo Hospitals Group in New Delhi, emphasised the challenges of educating children with multiple disabilities, stating, "Educating children with multiple disabilities is a difficult task. In India, training programmes to train teachers to help children who are 'deaf-blind' has only recently begun."

Globally, the World Health Organization (WHO) has reported that over 5% of the world's population, totalling more than 360 million individuals, experience disabling hearing loss, according to new prevalence estimates released for International Ear Care Day.

Disabling hearing loss refers to hearing loss greater than 40 decibels (dB) in the better hearing ear in adults and a hearing loss greater than 30 dB in the better hearing ear in children. The majority of people with disabling hearing loss live in low- and middle-income countries. The prevalence of disabling hearing loss in children is greatest in South Asia, Asia Pacific, and Sub-Saharan Africa.

The overall prevalence of disabling hearing loss in children worldwide is 1.7%. A person who is not able to hear as well as someone with normal hearing – hearing thresholds of 25 dB or better in both ears – is said to have hearing loss. The prevalence of hearing loss in South Asia in the paediatric age group is 2.4%.

Dr. A. K. Agarwal added, "Prevalence

Constructive efforts are needed to advance early diagnosis and treatment of hearing disorders. Key issues in early identification that must be addressed include population/location of screening, techniques/ tools for screening, availability of human resources for screening, cost considerations, challenges in screening, and interventions for those identified.

of disabling hearing loss among men and women in South Asia is 9.5% and 7%, respectively, while the prevalence in South Asian children is 2.4%. Approximately 0.5-5 of every 1000 infants are born with or develop disabling hearing loss in early childhood. The prevalence of disabling hearing loss increases with age; in children, it is 1.7%, while in adults aged 15 years or more, it is around 7%, rapidly increasing to almost one in three in adults older than 65 years. In most regions, prevalence in children decreases linearly as the parents' literacy rate increases. In adults 65 years and older, prevalence decreases exponentially as income increases."

CONSEQUENCES OF HEARING IMPAIRMENT

According to **Dr Ravi Meher, Director Professor in the Department of ENT at Maulana Azad Medical College, New Delhi,** the consequences of hearing impairment depend on the ear(s) involved, the degree and type of hearing loss, and the age of onset. Distortion of sounds makes differentiation of environmental sounds, including speech, difficult. Merely increasing the volume does not improve sound clarity or quality. Recruitment, characterised by abnormal growth in loudness due to inner ear damage, makes it challenging to tolerate loud sounds. For children with hearing impairment, whether congenital or acquired before the development of speech and language, normal speech development is hindered. Unilateral hearing impairment also leads to difficulties in localising sound and reduced speech discrimination.

Dr Meher stated, "Consequences include an inability to interpret speech sounds, often resulting in reduced communication ability, delayed language

acquisition, economic and educational disadvantages, social isolation, and stigmatisation. A child's communication and behavioural skills are influenced by their hearing ability. Hearing loss affects social interaction, memory, comprehension, vocabulary development, emotional development, academic performance, and speech perception and production."

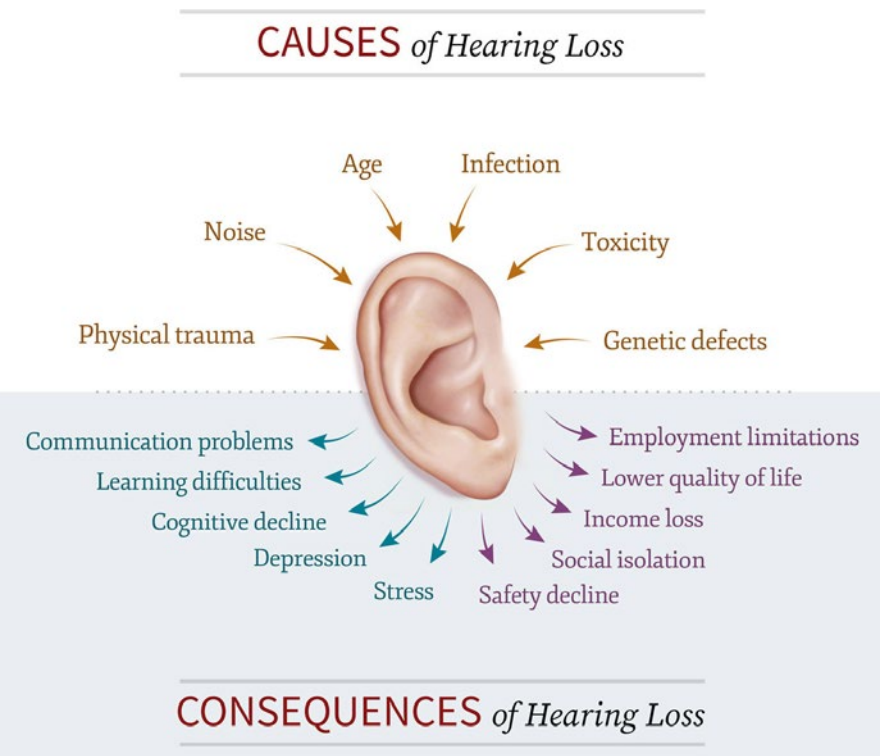
He added, "Children may experience self-described feelings of isolation, exclusion, embarrassment, annoyance, confusion, and helplessness. Barriers to seeking ear care services, such as social stigma related to diseases, lack of awareness, shortage of human resources, incorrect treatments by unqualified practitioners, and late identification of problems, need to be effectively managed. Therefore, it is essential to assess the current scenario of otological morbidities in Indian children and propose possible interventions to overcome these challenges."

Fifty percent of hearing loss is preventable through public health actions. By implementing appropriate public health measures, the current burden of ear morbidities can be reduced by half. To achieve this, we must understand the strengths and weaknesses of our healthcare system.

PUBLIC HEALTH MEASURES

From time to time, both public and private sector enterprises undertake planning initiatives at both small and large scales to assist individuals with hearing impairment. However, the services available and the implementation status of actions to combat ear disorders are still in a relatively nascent stage.

In 2006, the World Health Organization (WHO) released a new set of training manuals aimed at equipping healthcare workers in developing countries with simple and cost-effective methods to reduce deafness and hearing problems through actions at the primary level of healthcare. The Primary Ear and Hearing Care Training Resource addresses the urgent need for action to prevent and manage ear diseases and hearing impairment. These manuals are designed to be useful to a wide range of individuals, from village health workers to more experienced healthcare personnel. They can also aid communities in understanding common causes of deafness and hearing impairment and ways to prevent and/or treat the conditions. Examples of simple preventive measures include vaccination against



Rehabilitation plays a crucial role in enabling individuals with hearing impairment to lead fulfilling lives. Early acceptance by parents/family members and adherence to a well-planned rehabilitation program under professional supervision enhance the prospects for the child and family to lead a more normal life.

childhood diseases that can cause hearing impairment, maintaining good ear hygiene, appropriate use of medication, and avoidance of excessive noise.

Constructive efforts are needed to advance early diagnosis and treatment of hearing disorders. Key issues in early identification that must be addressed include population/location of screening, techniques/tools for screening, availability of human resources for screening, cost considerations, challenges in screening, and interventions for those identified.

Several projects have been initiated with the aim of early diagnosis and treatment of hearing disorders. For instance, under the Project of Prevention of Deafness at the All India Institute of Speech and Hearing, Mysore, funded by the Ministry of Health and Family Welfare, Government of India, Yathiraj et al. (2002) reported screening of 28,750 infants over a five-year period.

In 2006, the Ministry of Health and Family Welfare, Government of India, launched the pilot phase of the National Programme in Prevention and Control of Deafness. One of its objectives is early identification, diagnosis, and treatment of hearing loss. The services/facilities available for early intervention in the country encompass medical intervention, aids, appliances, and cochlear implants, as well as auditory and speech-language training. Educating children with multiple disabilities, particularly those who are deaf-blind, poses significant challenges. Training programs for teachers to assist such children in India have only recently commenced.

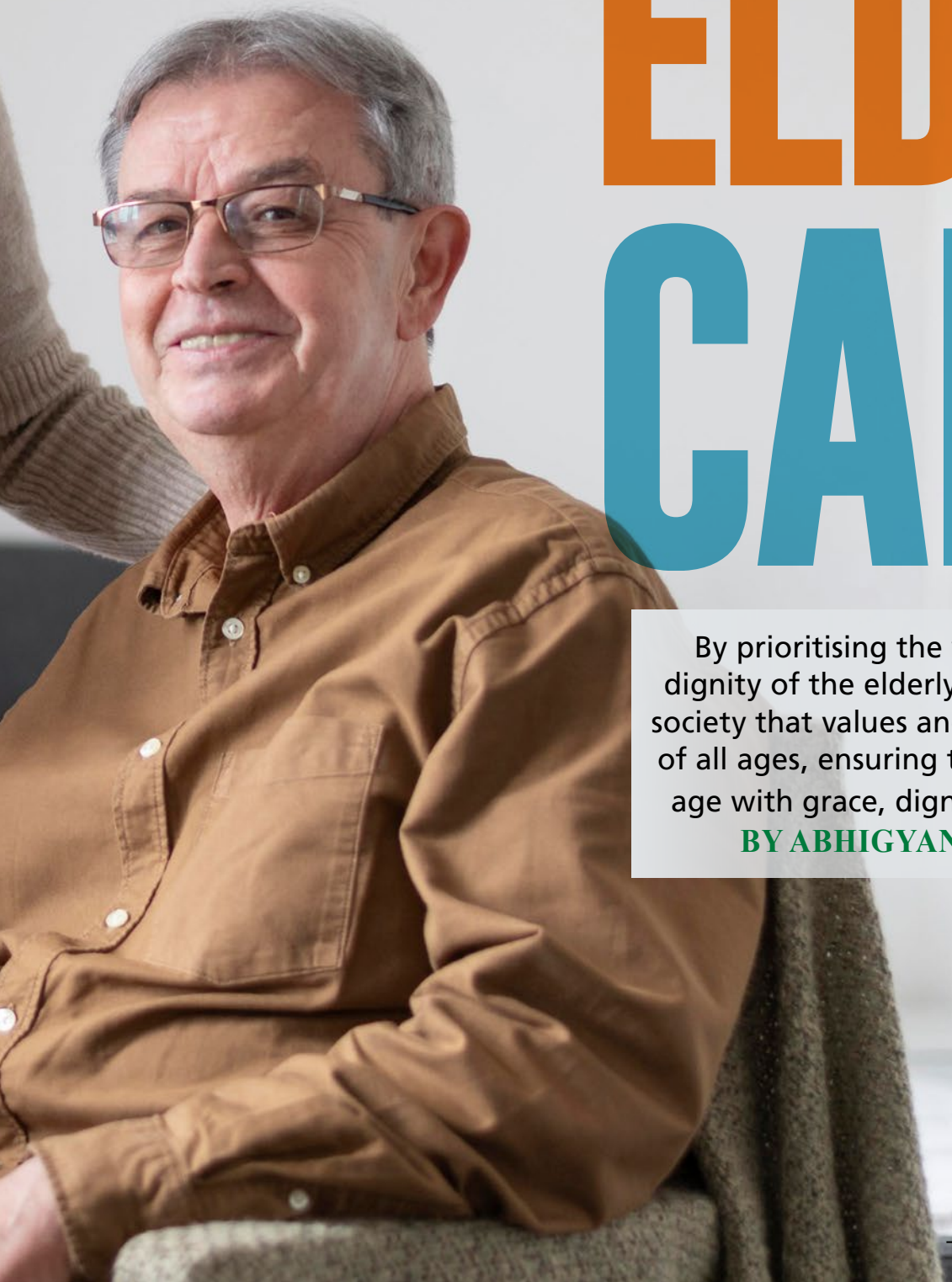
REHABILITATION

Rehabilitation plays a crucial role in enabling individuals with hearing impairment to lead fulfilling lives. Early acceptance by parents/family members and adherence to a well-planned rehabilitation program under professional supervision enhance the prospects for the child and family to lead a more normal life. Various parental attitudes towards disability, such as acceptance, rejection, indifference, and overprotection, impact the rehabilitation process. Overprotection can hinder the child's development, denying them opportunities to reach their full potential.

Rehabilitation efforts for persons with disabilities have gained momentum in India in recent years, with several states and the Union Government launching programs for their benefit. Community-based rehabilitation and integrated child development schemes are two major focus areas in this endeavour.

Given the multifaceted nature of hearing impairment, research and development activities must encompass in-depth studies across various disciplines. Technological advancements, including digital programmable hearing aids, cochlear implant surgery, and rehabilitation technology, have made significant strides. Exploring indigenous technology and techniques is crucial to ensuring that the benefits of technological advances are accessible to all, particularly economically disadvantaged individuals with disabilities, for both identification/diagnosis and habilitation/rehabilitation needs.

RETHINKING ELDER CARE



By prioritising the well-being and dignity of the elderly, we can create a society that values and supports people of all ages, ensuring that everyone can age with grace, dignity, and security.

BY ABHIGYAN/ABHINAV

In India, due to demographic transition, the elderly population is projected to rise to 12% of the total population by 2025. The elderly in India are a heterogeneous population with variations in morbidity across several variables such as gender, location, socioeconomic status, and diversity in culture and religion. At least 70% of India's elderly live in rural areas, are illiterate, and economically dependent.

The elderly suffer from a dual burden of communicable and non-communicable diseases, in addition to impairments of special sensory functions such as vision and hearing, and other degenerative diseases. Additionally, the geriatric population is often on multiple therapies to treat several diseases, sometimes under the supervision of different specialists. This can lead to overlooked drug-drug interactions. Adherence to therapy is also a significant concern in this population, both due to several drugs being prescribed for various indications and due to failing memory or general neglect of health issues among the elderly by themselves and by their families.

Says **Dr A. K. Agarwal, Former Dean of Maulana Azad Medical College, New Delhi, and presently Medical Advisor for Clinical Research and Innovation at Apollo Group of Hospitals, New Delhi**, "The ever-increasing elderly population poses social and financial challenges and puts immense strain on the health system due to a marked shift toward chronic non-communicable diseases. Besides, social factors such as fewer children in each family, increased employment of women—who traditionally took care of the elderly in India—rapid urbanisation, and the rise of nuclear families call for more focus on geriatric issues. With such a significant proportion of the population being frail and fragile, there is a need to address the medical and socio-economic problems and promote social security, inclusive care, and healthy aging."

Dr Vinay Aggarwal, Past National President of the Indian Medical Association, observes, "In my opinion, geriatric care is conspicuously missing from the medical education curriculum. Moreover, nursing and other paramedical staff members are not formally trained in providing care for elderly patients. Only selected facilities have a dedicated geriatric unit, but they are concentrated in urban areas and relatively expensive. Very few hospitals provide inpatient geriatric care, and the concept of long-term care homes is also missing."

A recent study conducted for the United Nations revealed that a large majority of the elderly in India do not receive long-term and palliative care. Although there are NGO-managed old-age homes, day-care centres, and mobile medicare units that provide care to the elderly population, these services are urban-based, expensive, or focused on tertiary care rather than primary care. This setting is entirely absent in rural parts of India. Furthermore, economic support is also a concern in this age group as they are mostly dependent on family with no continuous source of income. Although the health insurance sector is on the rise in India, insurance policies tend to exclude those who need

We should seek cost-effective, feasible models of geriatric care that are acceptable and based on our cultural practices and traditions. A comprehensive preventive package should be delivered, including knowledge and awareness regarding common geriatric problems and their prevention, healthy nutrition, physical exercise, yoga and meditation, and the promotion of mental well-being.

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it the most, especially the elderly.

Recently, the Government of India has taken significant strides towards securing the rights of the elderly. In 2007, the Indian parliament passed a bill known as the Maintenance and Welfare of Parents and Senior Citizens Act, which made maintenance of parents or senior citizens by children or relatives obligatory and provided penal provisions for their abandonment. The Government of India formulated the National Program for the Healthcare of Elderly in 2011 to provide easy access to preventive, promotive, curative, and rehabilitative services to the elderly at all levels of the healthcare delivery system, along with specialized long-term and short-term training of health professionals to address the growing health needs of the elderly. However, like other health schemes, implementation has not reached the desirable level.

A report released by the United Nations Population Fund and Help Age India suggests that the number of elderly persons in the country is expected to grow to 173 million by 2026. It is expected to lead to greater challenges for medical care in terms of care delivery, cost, and maintaining quality of life for aging individuals.

Orthopaedic surgeons shall face unique challenges in caring for this aging population. In particular, spine surgeons have to face the challenges of treating the growing numbers of patients with traumatic or insufficient spine fractures as well as degenerative deformities and instabilities. The goal of the surgeon should be to enable the elderly to perform their usual activities of daily living independently or with minimal dependence on the family or care takers. Attention must be given to every aspect and potential degenerative condition associated with aging to effectively support the elderly population.

It is the duty of all medical professionals and family members to provide due care, support, and financial stability to the group of people that raised them and empowered them to fulfil their lives. They must not forget that aging is natural and will be experienced by everyone. Dignity and the right to a healthy life are the least that society owes to its elderly. We should seek cost-effective, feasible models of geriatric care that are acceptable and based on our cultural practices and traditions. A comprehensive preventive package should be delivered, including knowledge and awareness regarding common geriatric problems and their prevention, healthy nutrition, physical exercise, yoga and meditation, and the promotion of mental well-being.

COPING WITH THE

Spine care and pain management are crucial areas that require particular focus, especially concerning the elderly....

BY DR H S CHHABRA

The significant degeneration of the spine can begin as early as the third decade of life, gradually leading to progressive disc height loss and thickening of ligaments and capsules. As degeneration advances, both bony and soft tissue failures may occur, giving rise to a range of spinal conditions.

In older adults experiencing isolated low back and/or neck pain, over half of cases stem from degenerative facet joint arthritis. This form of osteoarthritis affects the column of joints that link individual vertebrae behind the spinal canal (see figure 1). Other common causes of back/neck pain are largely attributed to aging-related changes in the spine, including spinal stenosis, spondylolisthesis, and neural foraminal stenosis.

Spinal stenosis often manifests as claudication, characterized by leg pain that worsens with walking and improves with rest, eventually leading to significant disability. These conditions can also cause pain that radiates to the arms or legs due to irritation or compression of spinal nerves.

Factors such as genetics, family history, obesity, smoking, certain occupations (such as excessive driving or lifting), and previous trauma can accelerate the degenerative process.

Other common causes of back pain in the elderly include vertebral compression fractures, particularly in individuals with advanced osteoporosis. Osteoporosis, characterised by decreased bone strength and increased fracture risk, affects a significant portion of the elderly population in India.

After peaking between ages 16-25, bone mass gradually declines at a rate of 0.5% per year in women and 0.3% per year in men. By age 60, elderly men may have lost around 30% of their total bone mineral density, while elderly women may have lost around 50%. Osteoporosis affects millions of Indians, with a large portion of the urban population being deficient in vitamin D. Vertebral fractures, often the first sign of osteoporosis-related bone weakness, are prevalent in postmenopausal women, with rates increasing significantly with age.

Less common causes of back pain in the elderly include spinal tumours, both primary and metastatic, and infections, especially following spinal procedures. Timely diagnosis and treatment are crucial for managing these conditions, which can be evaluated using X-rays, magnetic resonance imaging (MRI), and, if necessary, positron emission tomography (PET) scans.

How can these conditions be treated?

The treatment for degenerative changes of the spine leading to pain starts with lifestyle and ergonomic adjustments such as sleep positions, appropriate desk and chair height, and proper lifting technique. Then anti-inflammatory medications and physical therapy are utilized. Neurotropic medications may be required for claudication symptoms. The next steps include interventional pain management techniques, such as facet joint nerve blocks for facet arthritis or epidural steroid injections for sciatic-like pain.

The majority of patients will have tolerable pain after a series of these conservative treatments, but some may require surgery for relief. Most conditions can be treated with same-day, minimally invasive surgery, although some may require much more

AGING BACKBONE

extensive surgery. Certain conditions, such as spinal stenosis or sciatic-like pain (radiculopathy), are more easily treated with surgery, while others, such as facet osteoarthritis, are not.

Vertebral compression fractures can most often be treated conservatively. This involves management of the pain and management of osteoporosis. Osteoporosis management involves pharmacological management (generally oral or intravenous bisphosphonates or denosumab injection and teriparatide injections for severe osteoporosis), calcium supplementation, general conditioning exercises like walks, and dietary/fall prevention counselling. If pain doesn't respond or if there are signs of spinal cord/nerve compression, surgery may be required. Kyphoplasty, a minimally invasive, same-day procedure where cement is injected into the fractured vertebral body, which, in almost all cases, relieves pain and stabilizes the bone from further collapse (avoiding the dangerous "hunchback" shape of the spine).

Spinal tumours, whether primary or metastatic, need to be evaluated by an oncologist as soon as they are detected. Standard interventional pain management techniques may help with the pain symptoms, but treatment using a complement of chemotherapy, radiation, and surgery will likely be recommended to address the tumours directly.

Infection of the spine, if not treated promptly, can lead to the obliteration of the spinal canal or nerves and/or septic shock. Fortunately, an extensive course of antibiotics and removal of spinal hardware (if applicable) are able to treat most infections.

The age of the patient is not a contraindication for spine surgery. The benefits of spine surgery for older patients, including less-invasive operations, outweigh the risks associated with those procedures wherever it is indicated. Also, spine surgery has seen rapid advancements in operative techniques, implants and biologics, and equipment such as computer-assisted navigation and surgical robotics increasing the safety and accuracy of surgery.

What conditions can complicate the treatment?

Other conditions involving the spine can accelerate the development or complicate the treatment of these conditions. Some of these include ankylosing spondylitis, idiopathic scoliosis, rheumatoid arthritis, previous spine surgery, and cancer.

Medical conditions unrelated to the spine can also complicate treatment. Osteoporosis, for example, can cause or accelerate many of the above conditions, so proper treatment through a primary care provider or endocrinologist can help prevent progression of these conditions. Obesity also makes treatment of these conditions difficult, so proper dieting and appropriate exercise can help immensely. Smoking is well known to exacerbate all pain syndromes, so cessation is highly recommended.

Ergonomics at home and work are extremely important and go a long way in helping to prevent or reduce back or neck aches. When sitting at a computer desk, avoid slouching of the back and

stooping of the neck. Make efforts to raise the computer monitor to eye level and adjust seat height to facilitate optimal positioning. When lifting heavy objects, be sure to bend at the knees and not at the waist, and push rather than pull as much as possible.

Proper sleep bedding and positions are important as well. A firm mattress and a pillow that allows your neck to lie in a neutral position are very important for neck and back stability. Also, sleeping with a pillow under the knees when lying supine or with a pillow between the knees when on the side can help reduce stress on the lower back.

Walking alone can improve flexibility, strength, and blood flow to the spine and intervertebral discs, which can help prevent injury. A morning or evening walk for 45 minutes can easily be incorporated into a daily routine, before or after meals. For those whose mobility is limited, staying out of bed as much as possible is the main priority.

A strong core is essential to preventing spine injury, so static exercises that strengthen and tone the abdominal, lower back, and neck muscles are also effective. Yoga and Pilates (within reasonable limits) can also be helpful in creating and maintaining flexibility and strength of the spine and core.

Thanks to smartphones and mobile apps, our lives have become much easier. Mobile health is emerging as the most convenient way to deliver services remotely and collect outcomes in real-time, thus contributing to disease management by transferring care from hospital to home. Nowadays, there are mobile apps like Snapcare which are meant to help people with back pain and to teach them self-care of the back.

Globally, there have been rapid developments in prevention, diagnosis, and comprehensive management of various spinal ailments in both medical and surgical fields. Prompt diagnoses such as vertebral fractures and infections can significantly reduce pain and even save lives. Older adults with sudden severe back pain and/or fever should be taken to urgent or emergent care as soon as possible. Timely intervention is crucial in better and efficient management of spine-related conditions affecting the elderly.

To summarise, prevention is better than cure. Healthy lifestyle and spine care are necessary to escape the agony of spine problems. Early diagnosis and timely intervention are necessary to prevent complications in the management of spine conditions. With advancements in the management of spine ailments, they can be successfully managed using medications, injections, or surgery. Spine surgery is safe in the elderly and can give excellent results in expert hands.

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