

A MONTHLY PERSONALIZED MEDICAL MAGAZINE

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2023 Edition

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THE PIONEER IN GENETIC TESTING & REPORTING

# October's Precision Medicine Voyage: Weaving Mental Health into the Tapestry of Health



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- Personalized recommendations on lifestyle changes to prevent or delay the onset
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- Insights from pharmacogenomics profile which helps to choose right diagnostic drug with least side effects.

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## GenepowerRx<sup>TM</sup> ReproductiveHealth

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## GenepowerRx<sup>TM</sup> NeuromuscularHealth

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- Risk of rare neurological conditions and spinal muscular dystrophies and atrophies can be understood

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**MentalHealth.me** a Comprehensive genomic assessment of Anxiety, Depression, Schizophrenia and pharmacogenomics for optimized treatment and management.

- Comprehensive pharmacogenomics profile of antipsychotics, antidepressants, anti-anxiety medications which include drug response, side effect profile and dosing.
- Risk and progression of schizophrenia, mood disorders, anxiety (and) depression.



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## Esteemed Readers,

In this October edition of GenepowerRx, we embark on a succinct exploration of critical themes. Commencing on October 1st, the International Day of Older Persons beckons us to contemplate the imperative of human rights across generations. As we traverse the realm of space, observing World Space Week from October 4th to 10th, we extend our profound appreciation to the dedicated scientists of ISRO, particularly for their seminal achievements, exemplified by Chandrayaan 3.

On October 10th, World Mental Health Day prompts our consideration of mental well-being in rural India, an area of growing significance in contemporary healthcare. Concurrently, we delve into the illustrious career of Dr. Krupa Shankar. S, an exemplary medical professional and innovator. Lastly, on October 20th, World Osteoporosis Day prompts us to navigate the intricacies of osteoporosis treatment amidst the persistent challenges posed by the COVID-19 pandemic.

In this edition, you shall encounter empirically grounded medical knowledge presented with precision. We deeply appreciate your trust in GenepowerRx as your source of healthcare education.

Respectfully,

**Dr. Hima Challa**

Director, GenepowerRx

**Let's change the perspective of Mental Healthcare In Rural India**



### **Dr. Hima Challa**

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# Fulfilling the Promise of Human Rights for Older Persons: A Cross-Generational Imperative

## Introduction

In a rapidly changing world, where the demographics of our society are shifting at an unprecedented pace, it becomes paramount to acknowledge and celebrate **the International Day of Older Persons**. This day, recognized annually on **October 1st**, is an opportunity for us, as clinicians and healthcare professionals, to reflect on the evolving needs and rights of older individuals. In 2023, the theme of this day is "**Fulfilling the Promises of the Universal Declaration of Human Rights for Older Persons: Across Generations**," a theme that resonates deeply with the principles of healthcare and human dignity that we hold dear.

## The Universal Declaration of Human Rights: A Milestone

Seventy-five years ago, the United Nations General Assembly unveiled the Universal Declaration of Human Rights, a monumental document that laid the foundation for the protection of fundamental human rights universally. This declaration, crafted by representatives from diverse legal, cultural, and linguistic backgrounds, set the stage for the protection of rights that transcend borders and generations. Today, as we celebrate this historic

milestone, we are reminded that the promises enshrined in the Universal Declaration of Human Rights must extend to all individuals, regardless of age. Our older citizens, who have contributed significantly to our societies, deserve the full enjoyment of their human rights and fundamental freedoms.

## Intergenerational Solidarity: A Path Forward

The 33rd commemoration of the United Nations International Day of Older Persons shines a spotlight on older individuals around the world. It calls for the protection of their rights and addresses violations while emphasizing the importance of intergenerational solidarity. This solidarity, guided by human rights principles, including participation, accountability, non-discrimination, equality, empowerment, and legality, offers sustainable solutions to fulfil the promises of the Sustainable Development Goals.

The international community has repeatedly demonstrated that intergenerational solutions can rekindle the legacy and activism of the Universal Declaration of Human Rights. By empowering both



youth and older persons, we can shift the political will towards ensuring that the promises of the Declaration are fulfilled for all generations.

## UNIDOP 2023: Objectives and Commitments

The objectives of UNIDOP 2023 are clear and profound:

- To increase global knowledge and awareness of the Universal Declaration of Human Rights and generate commitments among all stakeholders to strengthen the protection of the human rights of current and future generations of older persons around the world.
- To share and learn from intergenerational models for the protection of human rights around the world.
- To call on Governments and UN entities to review their current practices, integrating a life course approach to human rights, and ensuring the active and meaningful participation of all stakeholders, including civil society, national human rights institutions, and older persons themselves, in the work on strengthening solidarity among generations and intergenerational partnerships.

As clinicians, it's crucial to be aware of the demographic trends. The number of people aged 65 years or older worldwide is projected to more than double, reaching 1.6 billion by 2050. This aging population presents unique healthcare challenges and opportunities. With advances in healthcare, individuals born in 2022 can expect to live an average of 71.7 years, a remarkable increase from those born in 1950. This highlights the need for healthcare systems to adapt to the changing needs of older individuals.

Population aging is an irreversible global trend. By 2050, 1 in 6 people worldwide will be aged 65 or above. Women, who tend to live longer than men, comprise the majority of older persons. This demographic shift requires us to address gender-specific health concerns in our healthcare practices. In conclusion, the International Day of Older Persons in 2023 urges us to fulfil the promises of the Universal Declaration of Human Rights across generations. As clinicians, we play a vital role in ensuring the physical and emotional well-being of older individuals. By embracing intergenerational solidarity and human rights principles, we can create

a world where the rights and dignity of older persons are upheld, and the legacy of the Universal Declaration of Human Rights endures for generations to come. Leveraging precision medicine as a suggested solution, we can further this cause by tailoring healthcare to the unique genetic factors, lifestyles, and environmental influences of older individuals. This approach enables early detection and prevention of age-related diseases, optimizes medication management, and enhances the overall quality of life for older persons.

Let us commit to advocating for the rights of older individuals, working towards a future where everyone, regardless of age, enjoys the full spectrum of their human rights, and where personalized healthcare through precision medicine becomes a cornerstone of their well-being. This is the promise we must fulfil, not just for today, but for generations to come, ensuring a healthier, dignified, and more vibrant aging experience for all.

### Source

<https://social.desa.un.org/issues/ageing/international-day-of-older-persons-homepage>



# Precision Psychiatry: Crafting Personalized Solutions for Mental Health

In the ever-evolving landscape of mental health care, a recent study by Gómez-Carrillo and colleagues has illuminated a new path toward precision psychiatry. Published in *Frontiers in Neuroscience*, this research offers fresh insights into the field, emphasizing the importance of personalized approaches to mental health.

Traditionally, mental health care has often adhered to a one-size-fits-all model, where individuals with diverse experiences and needs are squeezed into broad diagnostic categories. However, this study heralds a paradigm shift. It underscores that our unique differences are not adequately captured by such overarching labels. Instead, it beckons us to explore the intricate web of factors that contribute to mental well-being.

Precision psychiatry, as proposed by the research, is like a finely crafted puzzle. It relies on genetic markers and biological data to tailor treatment decisions, aiming for optimal outcomes while minimizing adverse reactions. In an era of advancing technology, the promise of pinpoint accuracy in mental health care has never been closer. Yet, the study delves deeper. It reveals the limitations of a purely biological approach. Mental health isn't solely a product of genes and neurotransmitters; it's a complex interplay of biology, psychology, society, and culture. Our experiences, emotions, and cultural contexts all shape our mental well-being.

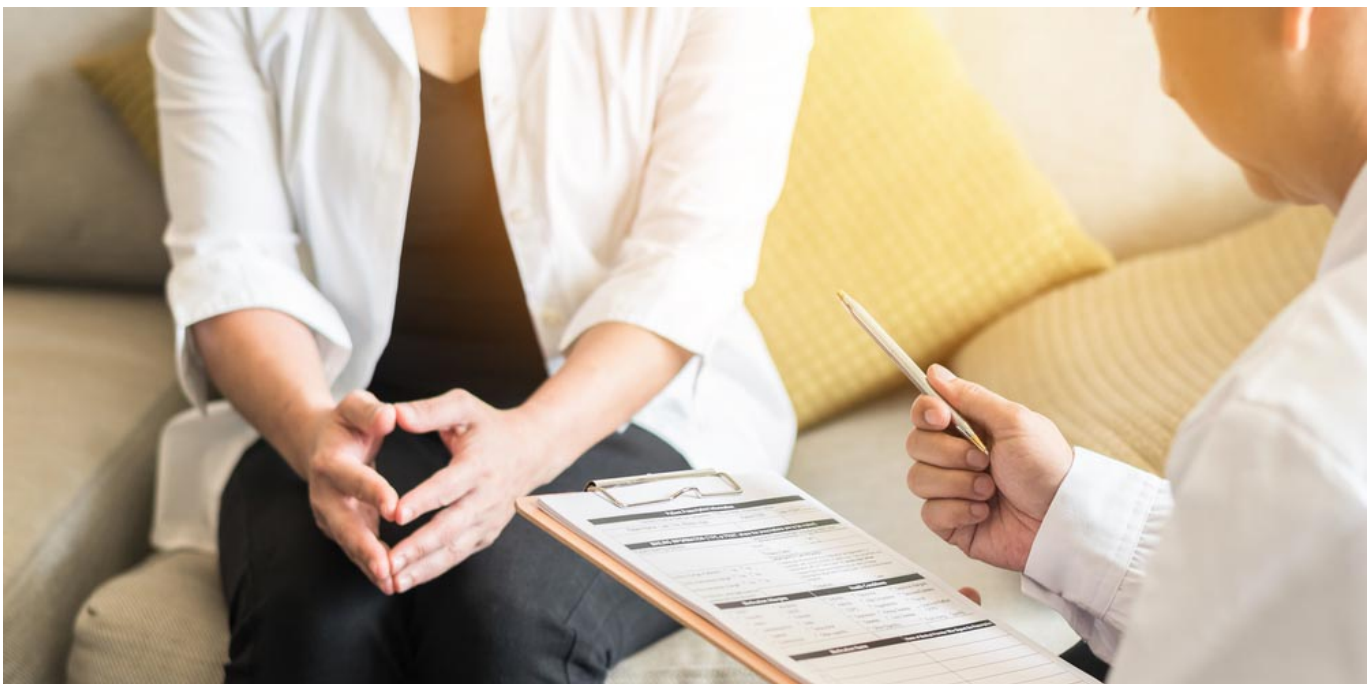
In response to this complexity, the researchers introduce a novel concept—an integrative cultural-ecosocial approach. It's a call to expand our horizons, to consider the person not just as a sum of biological variables but as a unique blend of experiences, social interactions, and cultural backgrounds. It's an invitation to reframe the way we approach mental health care. As we navigate this evolving terrain, the study encourages us to step beyond the confines of diagnostic categories. It introduces clinical staging, a way to describe an individual's mental health journey over time. Additionally, it champions dimensional models that offer greater precision than traditional diagnostics.

In this new era of mental health care, collaboration with patients and communities is paramount. By engaging with their experiences and perspectives, we can move closer to person-centered, precision psychiatry. The study has illuminated a path to a more personalized and holistic approach to mental health care. As we journey forward, let us remember that mental health is more than biology; it's the intricate tapestry of our lives, and precision psychiatry seeks to honour that complexity.

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## References:

Gómez-Carrillo A, Paquin V, Dumas G and Kirmayer LJ (2023) Restoring the missing person to personalized medicine and precision psychiatry. *Front. Neurosci.* 17:1041433.



## World Space Week - October 4th - 10th

**World Space Week (October 4th - 10th)** is an annual event that celebrates the significant contributions of space science and technology towards improving the human condition. During this week, individuals and organizations worldwide come together to acknowledge and appreciate the advancements made in the field of space exploration.

In line with the spirit of World Space Week, **GenepowerRx** extends its gratitude to the scientists at the Indian Space Research Organization (**ISRO**) for their accomplishment on Chandrayaan 3.



In addition to scientific exploration, Chandrayaan 3 also showcased India's technological capabilities in space exploration. By successfully demonstrating end-to-end landing and roving capabilities, ISRO established itself as a leading player in the field of lunar exploration.

Overall, the Chandrayaan 3 mission represents a significant milestone in India's space exploration endeavours. It not only contributes to the global celebration of World Space Week but also highlights the country's commitment to advancing scientific knowledge and technological capabilities in the realm of space exploration.





## World Mental Health Day: Nurturing Mental Well-being in Rural India

On October 10th, as the world turns its focus to mental health, we shine a compassionate light on India's rural adolescents. In a quest to raise awareness and foster well-being, we explore the unique mental health landscape of this diverse nation.

During adolescence, the pull of friendships often supersedes that of family, becoming a vital source of emotional support. Encouraging these youthful bonds can serve as a protective shield against peer and conduct issues, as well as emotional turbulence. Recent research, embracing a broad spectrum of 17,514 participants from diverse corners of India, reveals a poignant narrative. Rural adolescents, grappling with mental health concerns, beckon our attention. Within these remote communities, we witness high prevalence rates of depression, anxiety, hyperactivity, and even thoughts of self-harm.

Depression stands out prominently among the challenges faced by these young souls, reiterating a concerning trend seen across Asian countries.

Intriguingly, social anxiety appears to cast a deeper shadow over females, hinting at the intricate interplay of genetics and environment. Hyperactivity emerges as a pronounced concern, eclipsing global averages. Equally disconcerting are the elevated rates of suicidal ideation, outstripping figures reported in other Asian nations.

In this complex tapestry of mental health, gender plays a pivotal role. Females grapple more acutely with depression, emotional struggles, and various anxiety disorders. Conversely, males wrestle with hyperactivity, conduct issues, and peer conflicts. However, the specifics vary among studies. As adolescents' journey through the labyrinth of time, the spectres of depression, generalized anxiety, panic disorders, and suicidal thoughts loom larger. Social anxiety, intriguingly, finds its stronghold in early and middle adolescence. Alongside these mental health tribulations, comorbid conditions weave a complex tapestry.

The school's nature can cast a long shadow on the mental health canvas. Government school students bear a heavier burden of depression,



even as anxiety disorders seem to tiptoe lightly among their ranks. Family dynamics, such as parental discord and harsh parenting, intertwine with the mental health narrative. Within the community, joint families harbour a higher prevalence of depression and social anxiety. Socioeconomic disparities amplify mental health struggles, with academic pressures and unsupportive school environments as silent antagonists. Yet, amidst these challenges, protective factors stand resolute. Supportive families and schools, the embrace of extracurricular activities, and the calming practice of yoga offer solace. Conversely, the pitfalls of tobacco use, life's adversities, and the digital maelstrom deepen the abyss of depression and anxiety.

As we mark this World Mental Health Day, let us recognize the profound need for accessible mental health care for rural adolescents in India. Early identification, treatment, and community collaboration are the keystones of progress. Together, let us champion psychosocial care, tailor-made interventions, and the power of mental health education. Through sports, yoga, and recreational pursuits, let us nurture resilient minds.

This World Mental Health Day, let us join hands to guide rural adolescents away from the shadows of anti-social behaviours and despair, painting a brighter future with hope, understanding, and compassion.



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**References:**

Rajkumar, E., Julia, G., Sri Lakshmi K., N.V. et al. Prevalence of mental health problems among rural adolescents in India: A systematic review and meta-analysis. *Sci Rep* 12, 16573 (2022). <https://doi.org/10.1038/s41598-022-19731-2>

# Navigating the Complexity of Treatment-Resistant Depression: Insights from Clinical Practice

As clinicians dedicated to the well-being of our patients, the enigma of Treatment-Resistant Depression (TRD) casts a profound shadow over our practice. Informed by recent research, we strive to shed light on this complex condition and its management, acknowledging the pioneering work of McIntyre and colleagues in their comprehensive paper on TRD.

Defining TRD is an initial challenge. We recognize the absence of a universally accepted definition and the resulting heterogeneity in its conceptualization. Nevertheless, we endorse the widely adopted definition recognized by the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA) – an inadequate response to at least two antidepressants despite rigorous treatment trials and adherence. Recent estimates suggest that approximately 30% of individuals with Major Depressive Disorder (MDD) meet these criteria. Yet, we appreciate the nuance that not all TRD cases are truly resistant; some stem from inadequate trials or non-adherence to treatment, an insight gleaned from current research.

This brings us to the critical issue of prevalence. Research findings, as articulated by McIntyre and colleagues, suggest a baseline of 30% in controlled settings. However, the real-world prevalence is likely higher due to barriers such as knowledge gaps, limited access, and the complex nature of illness presentations.

Their approach to managing TRD is informed by recent breakthroughs. They acknowledge the efficacy of treatments like intravenous ketamine and intranasal esketamine when combined with antidepressants. This integrated second-generation antipsychotics, particularly the olanzapine-fluoxetine combination, act as adjuncts for partial responders. Neurostimulation therapies, including repetitive transcranial magnetic stimulation (TMS) and electroconvulsive therapy (ECT), have found a valuable place in our toolbox. Additionally, psychotherapies, especially when added to conventional antidepressants, have shown promise in providing symptomatic relief.

Pharmacological frontiers, as elucidated in recent research, open new avenues. We explore novel treatments, including psychedelics, ketamine

derivatives, and glutamatergic agents, with the aim of tailoring therapies to individual patients. We recognize the potential of pharmacogenomic testing, albeit not as a routine assessment, to aid in cases of poor medication tolerability. Digital psychiatry, a burgeoning field, holds promise for TRD management, aligning with the research discussed. We anticipate regulatory approvals of innovative treatments targeting depression's neurobiological underpinnings. These advances, coupled with refined neurostimulation techniques, offer hope in reducing the burden of TRD.

In closing, the clinician's perspective on TRD is ever-evolving, informed by the dedication of researchers like McIntyre and colleagues. As we continue to integrate these insights into our practice, we strive to alleviate the suffering of our patients, working tirelessly towards the day when TRD's shadow recedes, allowing them to find hope and healing.

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## Dedicated reading:

McIntyre RS, Alsuwaidan M, Baune BT, Berk M, Demyttenaere K, Goldberg JF, Gorwood P, Ho R, Kasper S, Kennedy SH, Ly-Uson J, Mansur RB, McAllister-Williams RH, Murrrough JW, Nemeroff CB, Nierenberg AA, Rosenblat JD, Sanacora G, Schatzberg AF, Shelton R, Stahl SM, Trivedi MH, Vieta E, Vinberg M, Williams N, Young AH, Maj M. Treatment-resistant depression: definition, prevalence, detection, management, and investigational interventions. *World Psychiatry*. 2023 Oct;22(3):394-412. doi: 10.1002/wps.21120. PMID: 37713549; PMCID: PMC10503923.



## Dr. Krupa Shankar. S - A Medical Maverick

In the ever-evolving world of healthcare, there exists a constellation of medical stars. Today, we train our spotlight on one such luminary: Dr. Krupa Shankar. S. Join us as we embark on a captivating journey through the life and achievements of this remarkable medical professional.

In the heart of Coimbatore, you'll find Dr. Krupa Shankar. S, a medical virtuoso whose credentials are as impressive as his dedication. Dr. Shankar's academic journey reads like an adventure novel. He embarked on this path in August 2008 at VMKVMC, Salem (TN Dr. MGR Medical University) for his MBBS. His next chapter unfolded at PSG IMSR, Coimbatore, culminating in October 2013, where he achieved his MD in General Medicine. But the story didn't stop there. In February 2018, the next milestone was achieved at the Adyar Cancer Research Institute, Chennai, as he completed his DM in Medical Oncology. He then pursued a Master of Health Sciences in Diabetology, recognized by the Indian government and conferred by Annamalai University (DDE). Additionally, he holds the coveted IAPSC certification in Palliative Care.

Dr. Shankar's expertise in General Medicine has illuminated his path. His academic endeavours and publications shine as beacons of knowledge. Dive into his world with an evaluation of lipid profiles in anaemic patients, or discover an intriguing case of reversible myelopathy with megaloblastic anaemia in his E-journal Case Report. He ventured into the realm of systemic hypertension following JNC-7 guidelines in his Clinical Audit. At the 68th APICON in 2013, witness his insights into Levosimendan. Join him in exploring an enteric fever case masquerading as acute pancreatitis in his Case Report. He's not just a scholar; he's a quiz champion, securing the 1st prize in inter-collegiate competitions and even securing the 4th place in the Tamil Nadu level inter-collegiate Haematology quiz competition in 2013.

In the realm of Medical Oncology, Dr. Shankar's brilliance knows no bounds. He stole the show at the 36th ICON in Lucknow, revealing the prevalence of MDR organisms in paediatric leukaemia patients with the Best Poster & Oral Presentation. His victory in COLONGITUDE in Chennai speaks volumes, and he clinched 4th place at COPE (CI WIA) in February 2017 as an ISMPO Gold Medallist. His international publication on multi-drug resistant organisms in



paediatric leukaemia patients is a testament to his dedication. It graces the pages of the prestigious "Pediatr Blood Cancer," a journal with an impressive impact factor of 2.6. Dr. Shankar also delves into the realm of rare entities with an E-journal on follicular dendritic cell sarcoma. His journey is enriched by experiences as an Assistant Professor at the Adyar Cancer Research Institute, Chennai, and at PSG Institute of Medical Sciences & Research, Coimbatore.

Today, Dr. Shankar wears multiple hats as the Director & Consultant Medical Oncologist at NSR CanKure Center, Coimbatore. He also imparts knowledge as a visiting faculty member at Karpagam Faculty of Medical Sciences & Research, Coimbatore, and Ganga Hospital and Vedanayagam Hospital, Coimbatore. His relentless quest for knowledge continues. As Principal Investigator, he explores newer prognostic indicators for lymphomas. As Co-Principal Investigator, he delves into a Phase II Randomized Controlled Trial for Paclitaxel-Associated Acute Pain Syndrome. Additionally, he collaborates on a Prospective Trial of Bendamustine, Pomalidomide, and Dexamethasone in Relapsed Multiple Myeloma. And not to forget, he pioneers a groundbreaking "mini-OPD" regimen for controlling nausea and vomiting in cisplatin-treated patients. For those eager to collaborate or seeking more information, reach out to Dr. Venkatraman Radhakrishnan, a trusted colleague. He's a Professor in the Department of Medical Oncology at Adyar Cancer Institute (WIA), Chennai, and can be reached at 9498082771 or via email at [venkynd@gmail.com](mailto:venkynd@gmail.com).

Dr. Krupa Shankar. S is more than a medical professional; he's a beacon of innovation and compassion. His journey is a testament to the unrelenting pursuit of excellence in the world of healthcare. As we unveil his story today, we eagerly await the chapters he'll write in the future. Stay tuned for more from this medical maverick.

# Navigating Osteoporosis Treatment Amidst the COVID-19 Challenge

In the world of healthcare, we often face unforeseen challenges that test our resilience and adaptability. The COVID-19 pandemic was one such challenge that sent shockwaves through the healthcare system. On this World Osteoporosis Day on October 20th, we delve into a recent study conducted by University of California Davis, USA, shedding light on how the pandemic affected the treatment of newly diagnosed osteoporosis patients.

Osteoporosis, a silent but debilitating condition, weakens bones and increases the risk of fractures. It is vital to diagnose and treat it promptly to maintain patients' quality of life. Timely pharmacologic treatment can be a lifeline for those grappling with this condition. Micaela et al., embarked on a research journey that involved examining 1,189 patients aged over 50 who had received a diagnosis of osteoporosis using dual-energy x-ray absorptiometry (DXA) screening at a single academic institution. Patients with prior osteoporosis diagnoses were excluded from the study.

## Comparing Two Eras: Pre-Pandemic vs. Pandemic:

The researchers divided the patients into two cohorts: those diagnosed between March 1, 2018, and January 31, 2020 (the pre-pandemic cohort), and those diagnosed between March 1, 2020, and January 31, 2022 (the pandemic cohort). They explored factors such as age, sex, race, ethnicity, ordering providers (primary vs. specialty), and the types of pharmacological agents prescribed.

Intriguingly, the study revealed that the pre-pandemic cohort had a higher percentage of White patients. However, the treatment initiation rates within six months of diagnosis were consistent across both cohorts, standing at a somewhat concerning 40.5%.

When it came to the types of medications prescribed, bisphosphonates emerged as the dominant choice in both cohorts, accounting for 89% in the pre-pandemic group and 82.1% in the pandemic cohort. Surprisingly, despite the upheaval caused by the COVID-19 pandemic, it did not appear to significantly affect the rates of osteoporosis

treatment initiation. Both cohorts demonstrated similar timelines for treatment initiation (46 days in the pre-pandemic cohort versus 45 days in the pandemic cohort). This study's insights prompt us to consider broader factors influencing treatment decisions, irrespective of the pandemic. Patient demographics, healthcare provider preferences, and systemic factors play pivotal roles in the journey of patients newly diagnosed with osteoporosis.

## The Road Ahead:

As we reflect on these findings on World Osteoporosis Day, it's clear that our commitment to addressing osteoporosis remains unwavering. The study by Micaela White and team underscores the importance of further research to unravel the intricate web of factors that influence the treatment of newly diagnosed osteoporosis patients. Amidst the turbulence of the COVID-19 pandemic, our mission to provide timely and effective treatment for osteoporosis remains paramount. Let this research serve as a catalyst for discussions and actions that will empower healthcare providers to better serve those in need.



## References:

White M, Hisatomi L, Villegas A, Pina D, Garfinkel A, Agrawal G, et al. (2023) Impact of COVID-19 pandemic on pharmacologic treatment of patients newly diagnosed with osteoporosis. *PLoS ONE* 18(9): e0291472

## Meet the Doctors



**Dr Kalyan Uppaluri** is the co-founder and the owner of GenepowerRx Personalized medicine clinic and research institute, He did his medical training at the prestigious Gandhi Medical College. He then moved to the United States, where he specialized in Internal Medicine at the McLaren Hospital, Michigan. He also got a degree in Medical Genomics from Ivy league Institute, Stanford University and pursued Cancer research at Wayne State University.



**Dr Hima Challa** graduated from Gandhi Medical college and was among top few in her batch. She specialized in Internal Medicine at St. Joseph Mercy Oakland, Michigan in United States. She graduated in Medical genomics from the Ivy league Institution of Harvard Medical School. She also holds a master's in nutrition science from the Texas Women University and in integrative medicine from Arizona University.

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