Journal of Clinical and Biomedical Sciences

"Frameworks in Competency-Based Education: Competencies, Learning & Assessment,"

12th and 13th January 2026, ICHPE, SDUAHER, Kolar-563103

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About Sri Devaraj Urs Academy of Higher Education and Research (SDUAHER)

In the year 1984, a group of dedicated and like-minded visionaries headed by Sri R L Jalappa, a champion of the Cooperative movement in the state of Karnataka established the Sri Devaraj Urs Educational Trust for Backward Classes with the focus on provisioning of Medical Education and Social Services. The Ministry of Human Resource Development, Government of India conferred 'Deemed to be University' status to the Sri Devaraj Urs Academy of Higher Education and Research under Section 3 of UGC Act 1956 on 25th May 2007 (vide letter No. F.9-36/2006- U 3(A) dated 25th May 2007). The lush green campus of the University is spread over an area of more than 72 acres of land and houses the medical college, hospital, administrative offices, University and affiliated departments, canteens, and hostels. Currently, the University has Faculty of Medicine, Faculty of Allied Health and Basic Sciences, College of Nursing, College of Physiotherapy and College of Pharmacy.

About University Centre for Health Professions Education (UCHPE)

University Centre for Health Professions Education (UCHPE) was established in April 2020 with a mandate from the Academy to function as a Teaching Learning Centre and conduct Faculty training programs. The Centre aims at providing E-Courses in Basic Educational technology topics for faculty & residents & certificate courses in Health Professions Education. The vision of UCHPE is to promote quality healthcare delivery through excellence in health professions education by being a hub for faculty mentoring for capacity building and academic resource centre.

About the Virtual International Conference on Health Professions Education (ICHPE)

The Virtual International Conference on Health Professions Education, scheduled on **12th and 13th January 2026**, warmly welcomes educators, clinicians, researchers, and academic leaders from across the globe. This virtual conference provides a dynamic platform for scholarly exchange, enabling participants to engage in critical discussions and share best practices in health professions education beyond geographical boundaries.

The conference theme, *"Frameworks in Competency-Based Education: Competencies, Learning & Assessment,"* focuses on the integration of established national and international CBME frameworks into curriculum design, teaching–learning strategies, and assessment systems. Emphasis is placed on aligning competencies with authentic learning experiences and robust assessment methods to ensure the development of competent, ethical, and socially accountable health professionals.

This academic event also honours the enduring educational legacy of **Shri R. L. Jalappa**, a visionary leader whose lifelong commitment to education has empowered individuals and uplifted communities. His emphasis on equity, access, and ethical leadership continues to inspire excellence and innovation in health sciences education. Guided by these values, the conference seeks to foster reflective practice, collaboration, and meaningful educational reform.

We invite all participants to actively engage in this virtual forum, contribute their expertise, and join a community dedicated to advancing competency-based education with purpose, integrity, and impact.

Key Messages

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Message from Honourable Chancellor, SDUAHER

Shri G H Nagaraja

Dear colleagues, distinguished guests, and participants,

It is a pleasure to welcome you to the Virtual International Conference on Health Professions Education. This conference brings together health professions educators and leaders to share insights and best practices in advancing educational excellence. The theme, "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," highlights the importance of integrating CBME frameworks into curriculum design, teaching–learning processes, and assessment strategies to ensure the development of competent and socially responsive health professionals.

Inspired by the enduring legacy of Shri R. L. Jalappa, this conference reflects a commitment to quality, equity, and ethical leadership in education. Through expert deliberations and collaborative discussions, this virtual platform offers an opportunity to reflect, innovate, and strengthen health professions education.

I wish you a productive and enriching conference. Thank you, and welcome.

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Message from Vice President, SDUET

Shri Rajendra J

Honoured guests, respected educators, and dear participants,

It is my pleasure to welcome you to the International Conference on Health Professions Education. This conference provides a valuable platform to reflect on and advance contemporary approaches in health professions education through shared dialogue and collaboration. Guided by the theme "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," we come together to explore how CBME frameworks can be effectively integrated into curriculum design, teaching–learning processes, and assessment systems. As healthcare continues to evolve, aligning education with clearly defined competencies is essential to preparing capable, ethical, and socially accountable professionals.

This conference is inspired by the enduring educational vision of Shri R. L. Jalappa, who believed in education as a powerful force for individual and societal progress. His emphasis on quality, access, and purposeful learning continues to guide our efforts in strengthening health professions education. Over the next two days, I encourage you to engage actively, share experiences, and contribute to meaningful discussions that will shape resilient and relevant educational practices. Thank you for your commitment, and I wish you a productive and enriching conference.

Message from the Secretary, SDUET

Shri Hanumantha Raju K G

Esteemed guests, valued speakers, and committed participants,

I am pleased to welcome you to the Virtual International Conference on Health Professions Education. This conference serves as an important platform for educators, clinicians, and academic leaders to engage in meaningful dialogue on advancing health professions education in response to evolving healthcare needs. Aligned with the theme "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," the conference focuses on integrating CBME frameworks into curriculum planning, teaching–learning strategies, and assessment systems. As educators, our responsibility extends beyond content delivery to ensuring that graduates demonstrate clearly defined competencies essential for safe, ethical, and effective professional practice.

Inspired by the enduring educational vision of Shri R. L. Jalappa, this conference reflects a commitment to quality, equity, and purposeful education. Through expert discussions and collaborative exchange, this forum encourages the sharing of ideas and experiences that can strengthen competency-driven and outcome-oriented educational models. I encourage all participants to actively engage, collaborate, and contribute to shaping meaningful and sustainable practices in health professions education. Welcome to the conference, and thank you for being part of this important academic conversation.

Message from the Chief Administrative Officer, SDUAHER

Dr. D V L N Prasad

Dear distinguished guests, respected colleagues, and participants,

It is a pleasure to welcome you to the International Conference on Health Professions Education. This conference provides a valuable forum for educators, clinicians, and academic leaders to engage in meaningful discussions on strengthening health professions education in a rapidly evolving healthcare landscape. Guided by the theme "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," the conference focuses on the effective integration of CBME frameworks into curriculum design, teaching–learning processes, and assessment strategies. Emphasis is placed on aligning educational outcomes with clearly defined competencies that ensure graduates are prepared for safe, ethical, and effective professional practice.

Inspired by the enduring educational vision of Shri R. L. Jalappa, this conference reflects a commitment to quality, equity, and purposeful learning. Through scholarly exchange and collaborative dialogue, participants are encouraged to share experiences, explore innovations, and contribute to strengthening competency-driven educational models. I wish you an engaging and productive conference experience. Thank you for your commitment to advancing health professions education, and welcome.

Message from the Honourable Vice Chancellor, SDUAHER

Dr. B Vengamma

Dear friends, colleagues, and participants,

I extend a warm welcome to you to the International Conference on Health Professions Education. It is a privilege to come together on this academic platform dedicated to dialogue, collaboration, and advancement in health professions education.

Centered on the theme "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," this conference highlights the importance of aligning educational frameworks with clearly defined competencies, effective learning strategies, and robust assessment practices. As healthcare education continues to evolve, competency-based approaches play a critical role in preparing graduates who are skilled, ethical, and responsive to societal needs. This conference is inspired by the enduring educational vision of Shri R. L. Jalappa, whose commitment to education as a means of empowerment and social progress continues to guide our academic values. Through shared learning and scholarly exchange, this gathering offers an opportunity to reflect, innovate, and strengthen educational practices across health professions. I encourage all participants to engage actively, share perspectives, and contribute to meaningful discussions. Thank you for being part of this conference, and I wish you a rewarding and impactful experience.

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Message from the Registrar, SDUAHER

Dr. Muninarayana C

Dear guests, esteemed faculty, and participants,

It is my pleasure to welcome you to the International Conference on Health Professions Education. This conference brings together educators, clinicians, and academic leaders to engage in meaningful discussions aimed at strengthening health professions education in a rapidly evolving healthcare environment. The theme, "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," invites us to examine how competency-based education frameworks can be effectively integrated into curriculum design, teaching–learning processes, and assessment systems. Emphasis on clearly defined competencies, learner-centered approaches, and robust assessment is essential to preparing graduates for safe, ethical, and effective professional practice.

Inspired by the enduring educational vision of Shri R. L. Jalappa, this conference reflects a commitment to quality, equity, and purposeful education. Through the exchange of ideas and innovations, participants are encouraged to explore strategies that enhance competency-driven and outcome-oriented education. I wish you a productive and engaging conference experience. Thank you for your participation, and welcome.

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Message from the Dean, Faculty of Medicine (FoM)

Dr. K Prabhakar

Dear esteemed guests, faculty members, and participants,

It is with great pleasure that I welcome you to the International Conference on Health Professions Education. This conference brings together educators, clinicians, and academic leaders committed to advancing excellence and innovation in health professions education. The theme of this conference, "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," addresses a critical need in contemporary healthcare education. As educators, we are entrusted with the responsibility of ensuring that our graduates are not only knowledgeable but also competent, ethical, and capable of meeting the evolving demands of healthcare systems. Integrating competency-based education frameworks into curriculum design, teaching–learning processes, and assessment practices is central to achieving this goal.

This conference reflects the commitment of Late Shri Jalappa by providing a platform for dialogue, reflection, and collaboration aimed at strengthening outcome-oriented and learner-centered education. I encourage all participants to actively engage in the sessions, share insights, and contribute to meaningful discussions over the next two days. I hope this conference proves to be a rewarding experience, fostering professional growth and impactful educational practices. Thank you for your participation, and I wish you a successful and enriching conference.

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Message from the Dean, Faculty of Allied Health and Basic Sciences (FAH&BS)

Dr. Dayanand C D

Respected guests, esteemed faculty, and dear participants,

A warm welcome to all of you to the International Conference on Health Professions Education. This conference offers an important platform for educators, clinicians, and academicians to engage in meaningful dialogue on advancing health professions education in response to evolving healthcare needs.

The theme, "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," is particularly relevant for allied health and basic sciences, where strong foundational knowledge must be aligned with clearly defined competencies, effective learning strategies, and appropriate assessment methods. Competency-based approaches enable us to bridge scientific principles with clinical and professional practice, ensuring graduates are prepared to meet real-world healthcare demands.

Inspired by the enduring educational vision of Shri R. L. Jalappa, this conference reflects a commitment to quality, collaboration, and socially responsible education. It provides an opportunity to explore innovative teaching methodologies, interdisciplinary approaches, and assessment strategies that support learner-centered and outcome-oriented education.

I encourage all participants to actively engage in the sessions, share experiences, and collaborate across disciplines. May this conference foster meaningful insights and contribute to strengthening health professions education. Thank you for being part of this academic gathering, and I wish you a productive and enriching conference experience.

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Message from the Organizing Chairman (Director UCHPE)

Dr. Vinutha Shankar M S

It gives me great pleasure to welcome you to the Virtual International Conference on Health Professions Education, being held on 12th and 13th January 2026. This conference brings together educators, clinicians, researchers, and academic leaders from diverse disciplines to engage in meaningful discussions on advancing health professions education.

The theme, "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," underscores the need to align educational frameworks with clearly defined competencies, effective learning strategies, and robust assessment methods. As healthcare systems evolve, integrating competency-based approaches is essential to preparing graduates who are competent, ethical, and responsive to societal needs. This conference is inspired by the enduring educational vision of Shri R. L. Jalappa, whose commitment to quality, equity, and purposeful education continues to guide our academic initiatives. Through keynote addresses, panel discussions, workshops, and scholarly presentations, the conference aims to promote reflection, innovation, and collaboration across health professions. I extend my sincere gratitude to the organizing committee, speakers, reviewers, and participants for their valuable contributions. I encourage all delegates to actively engage in the sessions and take advantage of this virtual platform to share knowledge and build meaningful collaborations.
I wish you a productive, enriching, and successful conference.

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Message from the Organizing Secretary

Dr. Shoba M V

It is my privilege to welcome you to the Virtual International Conference on Health Professions Education, scheduled on 12th and 13th January 2026. This conference has been carefully planned to provide a collaborative platform for educators, clinicians, and researchers to share experiences and best practices in health professions education.

The conference theme, "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," reflects the growing need to align curricula, teaching–learning strategies, and assessment systems with clearly defined competencies. Through expert deliberations, panel discussions, and scholarly presentations, this event aims to promote meaningful integration of CBME frameworks across health professions.

I sincerely thank the organizing committee, speakers, reviewers, and participants for their support and contributions. I encourage all delegates to actively engage in the sessions and make the most of this virtual academic forum. I wish you a productive and enriching conference experience.

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Message from the Organizing Secretary

Dr. Sarulatha H

On behalf of the organizing committee, I am delighted to welcome you to the Virtual International Conference on Health Professions Education on 12th and 13th January 2026. This conference brings together professionals from diverse health disciplines with a shared commitment to advancing educational quality and outcomes.

With the theme "Frameworks in Competency-Based Education: Competencies, Learning & Assessment," the conference focuses on strengthening competency-driven approaches that enhance learner development and accountability in health professions education. The sessions have been thoughtfully designed to encourage reflection, innovation, and practical application of CBME principles. I extend my heartfelt appreciation to all speakers, delegates, and organizing team members for their enthusiastic participation and support. I hope this conference fosters valuable learning, meaningful interactions, and lasting professional connections.

Program Schedule

Day 1 – 12th January 2026

9:00 AM - 9:30 AM Registration

9:30 AM - 12:30 PM Workshop 1

"Frameworks for Simulation Design and Measurement"

Dr. Shailaja S

Professor, Department of Emergency Medicine, Father Muller Medical College, Mangalore.

Coordinator: **Dr Ashwini NS**

Prof, Dept. of Anatomy, SDUMC

9:30 AM - 12:30 PM Workshop 2

"Assessment matters: Frameworks for evaluating competencies in health profession students"

Dr. Vimal Kumar

Professor of Surgery, PSG Institute of Medical Sciences and Research, Coimbatore

Dr. Rachmadya Nur Hidayah

Department of Medical Education and Bioethics, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

Dr Vinutha Shankar

Director, UCHPE

Mr. Lokheshwar S

Asst Prof, Dept. of Speech Pathology 7 Audiology, SDUAHER.

Coordinator: **Dr Ashwini K Shetty**

Prof, Dept. of Physiology, SDUMC

12:30 PM - 1:30 PM Symposium

The Holistic clinician : Integrating communication, ethics, and professionalism

Dr. Annette Uwinzea

Associate Professor of Human Genetics, School of Medicine and Pharmacy, College of Medicine and Health Sciences, University of Rwanda.

Dr. Praveen Iyer

Additional Professor of Anatomy, King Edward Memorial Hospital and Seth Gordhandas and Sunderdas Medical College, Co-Director, GSMC FAIMER Regional Institute, Mumbai, Maharashtra, India.

Dr. Kavana G Venkatappa

Professor and HOD, Department of Physiology, Haveri Institute of Medical Science, Haveri, Karnataka

Moderator: **Dr. Raja Parthiban S.R**

Professor and HOD, Department of Pathology, MVJ Medical College and Research Hospital, Bangalore, Karnataka

Co-ordinator: **Dr Hemalatha A**

Dept of Pathology, SDUMC

1:30 PM - 4:00 PM Paper Presentation

6.30 PM - 7.30 PM Plenary

"ACGME frameworks for competency - based assessment : Sharing best practices"

Dr. Sandeep Khanna

Associate Program Director, Anesthesiology Residency, Anesthesiology Institute, Cleveland Clinic Cleveland, Ohio.

Coordinator : **Dr. KNV Prasad**

Director, CCSS, SDUAHER.

7:30 PM - 8:00 PM Inauguration

8:30 PM - 9:30 PM Keynote Address

"Competency based education: insights for dialogues and learning"

Dr. Deena Hamza

Director, Research & Evaluation, Postgraduate Medical Education

Adjunct Assistant Professor, Department of Medicine, University of Alberta, Canada.

President-Elect, Chair, Canadian Association for Medical Education Foundation

Coordinator: **Dr. Vinutha Shankar**

Director, UCHPE

Day 1 – 13th January 2026

9:15 AM - 10:00 AM Plenary

"Competency framework for IPE and Collaborative practice"

Dr Ciraj Ali Mohammed

Head, Medical Education, National University of Science and Technology

Oman

Moderator: **Dr. Anjali Suresh**

Professor, RLJCOPT,SDUAHER.

10:00 AM - 10:45 AM Plenary

"Redefining clinical skills education: Enhancing performance in Competency based education"

Dr V. N Mahalakshmi

Vice Chancellor, Santhosh Deemed to be University, Ghaziabad, India.

Moderator: **Dr KNV Prasad**

Director, CCSS, SDUAHER."

10:45 AM - 11:00 AM Break

11:00 AM – 1:00 PM Panel Discussion

"Understanding & Adapting competency frameworks"

Dr. Sudha Ramalingam

Director Research and Innovation, Director, PSG FAIMER Regional Institute, Prof and Head, Community Medicine, PSG Institute of Medical Sciences and Research, Coimbatore

Dr. Anand R

Professor of Respiratory Medicine, Co-ordinator, Medical Education Unit, Kasturba Medical College, Mangalore (Constituent college of MAHE, Manipal)

Dr. Joana Froes Braganca

Associate Professor, Department of Obstetrics and Gynecology, Faculty of Medical Sciences, State University of Campinas-UNICAMP, Brazil

Moderator: **Dr. Nachiket Shankar**

Professor & HOD (Medical Education), St. John's Medical College, Bangalore.

Coordinator: **Dr T.N Suresh**

Co-ordinator, MEU, SDUMC

1:00 PM - 1:30 PM Lunch Break

1:30 PM - 3:30 PM Workshop 3

"Integrating global competency Frameworks (CanMEDS, ACGME, NMC) into PG assessment design"

Dr Chandra M Thipanna

Associate Professor of Medicine, Indiana university school of Medicine, Indianapolis

Dr. Vinutha Shankar

Director, UCHPE

Dr. KNV Prasad

Director, CCSS, Professor, Dept of Pediatrics, SDUMC

Dr Naveen Kumar Inbaraj PT

Asst Prof, RLJCOPT,SDUAHER.

Coordinator: **Dr Usha G Shenoy**

Associate Prof, School of AHS, SDUAHER

3:30 PM - 4:30 PM Valedictory address

"From Awareness to Expertise: Enabling Educators to Acquire and Apply CBE Frameworks"

Dr. Sucheta Dandekar

Prof of biochemistry and medical education, Era's Lucknow medical college

President AHPE

Dr. Jyotsna Sriranga

PhD Scholar, School of Health Professions Education, Maastricht University,

Director and CEO, Urja- Catalysts for Transformation; Hon Secretary- AHPE

Moderator : **Dr. Rashmi G**

Professor, Dept. of Ophthalmology, SDUMC.

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Brief CV and Presentation notes of invited speakers

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Dr. Sucheta P. Dandekar

Professor & Head of the Department of Biochemistry at the Seth G.S. Medical College & K.E.M. Hospital, Mumbai

She is a Professor of Biochemistry at Era's Lucknow Medical College, Lucknow, and also serves as Adjunct Faculty at the Manipal Academy of Higher Education. She is a FAIMER Fellow (Philadelphia, 2010) and holds an International Fellowship in Medical Education (IFME). She has completed a Master's in Health Professions Education (MHPE) from Keele University, United Kingdom.

She is a Past President of the Association of Clinical Biochemists of India and currently serves as the President of the Academy of Health Professions Educators. She is a Global Faculty Member and Project Advisor at the International FAIMER Institute, Philadelphia, and also contributes as faculty at FAIMER Regional Institutes. In recognition of her contributions to medical education, she has been awarded the International Fellowship in Medical Education (IFME).

Her areas of expertise include Biochemistry and Clinical Biochemistry, Medical and Health Professions Education, and Academic Leadership and Faculty Development.

Dr. Jyotsna Sriranga
MDS, MHPE (SHE, Maastricht University), FAIMER Fellow, R-FACE Fellow
Director and CEO, Urja- Catalysts for Transformation

She is the Director and CEO of Urja – Catalysts for Transformation and also serves as the Secretary and Co-founder of the Mythri Foundation. She is currently a PhD Scholar (2025–ongoing) at the School of Health Professions Education, Maastricht University. She holds a Master's degree in Health Professions Education from Maastricht University, Netherlands (2021–2023) and is a FAIMER Fellow with Fellowship in Competency-Based Education (2023). She completed her BDS and MDS in Public Health Dentistry from RGUHS in 2010 and also holds a Postgraduate Diploma in Bioethics, Human Rights, and Health Law. In addition, she has completed the UNESCO Bioethics Chair program (2021–2022) and a Certificate in Social Accountability – Towards Unity for Health (2020).

She currently serves as the Honorary Secretary of the Academy of Health Professions Educators, India (2023–present). She is an External Consultant to the Faculty of Dentistry, Bharati Vidyapeeth University, Maharashtra (2022–present) and works as a Project Advisor and Faculty member at the PSG-FAIMER Regional Institute, Coimbatore (2023–present). She has also served as Guest Faculty at MFILIPE, Manipal Academy of Higher Education (2024). From 2021 to 2024, she was a Trainer for the Certificate Course in Health Professions Education conducted by the Indian Prosthodontics Society. She has additionally contributed as a Consultant and Rapporteur for defining the roles, responsibilities, and competencies of Indian Public Health Dentists under the Indian Association of Public Health Dentistry (2021–2022).

Her areas of expertise include Health Professions Education consultancy, Public Health teaching, and academic administration.

Annette Uwineza, MD, PhD.

Associate Professor of Human Genetics, School of Medicine and Pharmacy, College of Medicine and Health Sciences, University of Rwanda.

She is an Associate Professor of Human Genetics in the School of Medicine and Pharmacy at the College of Medicine and Health Sciences, University of Rwanda. A medical doctor, she holds a PhD in Medical Sciences (Human Genetics) from the University of Liège, Belgium, and is an International FAIMER Fellow (2021). She is currently an ARISE Fellow and a recipient of the prestigious L'Oréal–UNESCO For Women in Science Young Talents Award for Sub-Saharan Africa (2021). Her research focuses on the genetic basis of neurodevelopmental and rare diseases in Rwandan children. She has published extensively, secured competitive funding, and leads collaborative initiatives to strengthen genomic medicine, diagnostics, and capacity building in Africa.

Prof. V N Mahalaxmi
Hon. Vice Chancellor,
Santosh Deemed to be University, Delhi NCR, India
MBBS, MS(Gen Surgery), MCH(Ped Surgery)
FAIMER fellow, Harvard Macy fellow,
Advanced Courses in Medical Education and Simulation Based Learning

Madam currently serves as the Vice Chancellor of Santhosh Deemed to be University, Delhi NCR, Madam is the Vice Chancellor of Santhosh Deemed to be University, Delhi NCR, India, and a distinguished academician and pediatric surgeon. She holds an MBBS from Kilpauk Medical College with multiple distinctions and gold medals, an MS (General Surgery) from JIPMER, and an MCh (Pediatric Surgery) from Madras Medical College, securing top national ranks. Her credentials include FRCS (Glasgow), FAIMER Fellowship, and the Harvard Macy program. With over two decades of experience, she has served as Controller of Examinations and Dean in multiple capacities. A national expert in curriculum development and simulation, she has pioneered skill labs, led national committees, authored numerous publications, received several awards, and is deeply committed to competency-based, interprofessional, and technology-enhanced medical education.

Dr. Ciraj Ali Mohammed

Head of Medical Education and Professor of Microbiology at the College of Medicine and Health Sciences (COMHS), National University of Science and Technology (NU), Sultanate of Oman

Dr. Ciraj is the Head of Medical Education and Professor of Microbiology at the College of Medicine and Health Sciences, National University of Science and Technology (NU), Sultanate of Oman. He holds a PhD, a Master's in Medical Microbiology, and a Master's in Health Professions Education with distinction from Keele University, specializing in assessment and accreditation. He is the founding Director of the MAHE-FAIMER International Fellowship Program and a Fulbright Visiting Scholar at Florida International University, Miami. An International Fellow in Medical Education, he has received prestigious awards including the American Society for Microbiology Early Career Award and the UNESCO Award for International Educators. Dr. Ciraj has led and coordinated over 200 faculty development programs globally.

Prof. Sandeep Khanna
Assistant Professor of Anesthesiology
Associate Program Director, Anesthesiology Residency
Clinical Competency Chair, Anesthesiology (Residency)
Cleveland Clinic Lerner College of Medicine of Case Western Reserve

He completed MBBS and MD (Anesthesiology) from JIPMER and is a Diplomate of the American Board of Anesthesiology, as well as a Fellow of the American Society of Anesthesiologists (ASA). He has received several prestigious awards, including the Selvi Carmela Lebeau Gold Medal in Anesthesiology from Pondicherry University in 2006, the Michael J. deUngria, MD Award in 2014 from the Anesthesiology Institute at Cleveland Clinic, and the Teaching Staff and Innovator of the Year award for 2016–17 at the Anesthesiology Institute, Cleveland Clinic. He was also conferred the Scholarship in Teaching Award by Case Western Reserve University for the period 2019–2024. His areas of expertise include cardiac and general anesthesia, airway management, perioperative outcomes, and faculty development, with a strong focus on competency-based assessment and professional development of anesthesiology residents.

Dr. Sudha Ramalingam

Director, R&I, Director, PSG FAIMER Regional Institute,
Prof & Head, Community Medicine, PSGIMS&R, Coimbatore

- **Masters in Health professions Education** from Keele University, UK.
- **Two Postdoctoral fellowships** in Molecular genetics and Genetic Epidemiology at Stanford Medical School, Stanford University and Pritzker School of Medicine, University of Chicago, USA .
- She was a Fulbright visiting scientist at the Harvard School of Public health where she worked in the area of Environmental Epigenetics. She is also board certified in Lifestyle Medicine
- International Fellowship in Medical Education (**IFME**) by FAIMER in 2017
- **Faculty for the iFACE program**, IFI, Philadelphia.
- Recipient of the Best teacher and Motivator award, Institute award for excellence in Medical Education by PSG IMSR
- **Best Researcher award by TN Dr MGR Medical university**.

DR. Nachiket Shankar

Professor and Head, Department of Medical Education and Convener, Nodal Centre

Professor, Dept. of Anatomy, St. John's Medical College, Bangalore

2015-2017: M.Sc. (Health Professions Education), Maharashtra University of Health Sciences

2012-2014: PG Diploma in Health Professions Education, KLE University, Belgaum

An editor for the book titled “Gray’s Clinical Photographic Dissector of the Human Body” published by Elsevier in 2025. This is the 3rd South Asian Edition.

Reviewer for the latest edition (2018) of Cunningham's Manual of Practical Anatomy Volumes 1 and 10 publications

Dr. Anand R

Head of the Department of Medical Education, Professor in the Department of Respiratory Medicine, Kasturba Medical College (KMC), Mangalore

He serves as Associate Dean and Deputy Director of Quality and Compliance and is a core faculty member of the MAHE-FAIMER International Institute of Leadership in Interprofessional Education (MFIILIPE). He has completed the ACME and FAIMER Competency-Based Education (FACE) programs conducted by FAIMER, Philadelphia, USA. A recipient of the Good Teacher Award at KMC, Mangalore on five occasions, he has played a pivotal role in implementing quality management systems within his institution. He also serves as an assessor for national and international accreditation bodies. He has authored 45 publications in reputed national and international journals, reflecting his strong commitment to quality assurance, medical education, and academic scholars

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Dr. Deena Hamza

Director, Research & Evaluation, PG Medical Education, Adjunct Assistant Professor, Department of Medicine, President-Elect, Canadian Association for Medical Education Chair, Canadian Association for Medical Education Foundation University of Alberta.

Dr. Deena Hamza is a respected leader and scholar in medical education, dedicated to advancing research, evaluation, and academic excellence in postgraduate training. As Director of Research & Evaluation at the University of Alberta, she strengthens residency education through evidence-based practices and educational scholarship. Nationally, as President-Elect of the Canadian Association for Medical Education and Chair of the CAME Foundation, she plays a pivotal role in shaping the future of health professions education through leadership, collaboration, and mentorship.

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Dr. Kavana G. Venkatappa

Professor & Head, Department of Physiology, Haveri Institute of Medical Sciences

Professional Role: Professor & Head, Department of Physiology, Haveri Institute of Medical Sciences **Education:** MBBS, MD Physiology, M-FIILIPE (FAIMER)- MAHE Manipal, PG Diploma in Bioethics & Medical Ethics (PGDBEME), Advanced Course in Medical Education, MBA-Hospital Management, IIPM, Lucknow, Advanced PG Diploma in Clinical Research & Medical Writing, Digital Graphics, Certified in Quality assurance system (CQAS), Certified in Clinical Skills and Simulation (CCSS), Diploma in Fine Arts

Key Achievements: Gold Medal' in MD Physiology University Examination, SDU, Kolar. - 'Jury Choice Award' @ MEDUCON, JIPMER 2021. - 'Venus International Healthcare Award (VIHA) 2024' as an Outstanding Researcher in the field of Medical Specialty (Physiology), Chennai. - Indian Medical Association (IMA), Karnataka State Branch has bestowed 'Teacher's Day Award' 2024. - 'National Teacher's Day Award' 2024 powered by NFED, Coimbatore. - 'Best Oral Paper Award' @ ICON IPEC, MUCM, Malaysia; - Excellence in Education Award 2025 by Masters Professional Academy, Coimbatore; - 'Bharath Education Excellence Award (BEEA) 2025' as 'Uttama Adhyapika', Hyderabad. - Nominated as Distinguished Fellow of NFED (National Foundation for Entrepreneurship Development)

Expertise Areas: Medical Education, Medical Ethics, Occupational Health, Public health, Disability Competencies

Dr. Praveen B Iyer
Professor (Additional) Anatomy, Seth G S Medical College & KEM Hospital, Mumbai

Dr. Praveen B. Iyer is an accomplished academician and medical educationist with over 19 years of undergraduate and 14 years of postgraduate teaching experience in Human Anatomy. He completed his MBBS from Grant Medical College and MD in Anatomy from Seth G. S. Medical College, Mumbai, where he was awarded the Gold Medal at Mumbai University. He also holds a DNB in Anatomy and is an International FAIMER Fellow (Philadelphia).

Currently serving as Professor (Additional) of Anatomy at Seth G. S. Medical College, Dr. Iyer is a recognized PhD guide under MUHS and has been actively involved in faculty development initiatives as Convenor of the NMC Nodal Centre and Co-Director of the GSMC FAIMER Regional Institute. He has contributed significantly to medical education reforms as a Member of multiple National Medical Commission task forces related to competency-based medical education.

Dr. Iyer has served in various academic and examination roles across reputed universities and the National Board of Examinations. With several national and international publications and

book chapters to his credit, he continues to contribute actively to advancing medical education and assessment practices in India.

Dr . Raja Parthiban. S. R

Professor & Head of the Department of Pathology at MVJ Medical College & Research Hospital

Professional Role: Professor & Head of the Department of Pathology at MVJ Medical College & Research Hospital

Education: MBBS, MD- Pathology

Key Achievements: Member of the Medical Education Unit, at MVJ Medical College, Founder member & Past Treasurer of The Academy of Pathology,

Excutive committee member of KCIAPM and IAME, Board of studies member for Adichunchungiri University, Passion for teaching, with a goal to simplify pathology for undergraduates and postgraduates

Expertise Areas: Pattern and Image analysis, Neuropathology, Infectious disease, Dermatopathology, Liver pathology & Breast pathology

Dr. Shailaja.S

Professor Emergency Medicine, Father Muller Medical College

Member – MEU, Skills and Simulation Research, Code Blue, Code Yellow, Quality Manager NABH, Course Coordinator – EMT

She is a Professor of Emergency Medicine at Father Muller Medical College and has been a faculty member since 2008. She is actively involved as a member of the Medical Education Unit, Skills and Simulation Research, Code Blue and Code Yellow teams, and serves as Quality Manager for NABH and Course Coordinator for the EMT program. He is a certified instructor in BLS, ACLS, PALS, and ATLS. She holds an MBBS, MD, and is a FAIMER Fellow (2016, PSG Coimbatore). She has published in national and international journals and has expertise in anesthesia and pain management, medical education, simulation research, and disaster management.

Dr. Chandra Mohan Thippanna

Associate Professor & Internist, Indiana University School of Medicine, Indianapolis, Indiana University School of Medicine, Indianapolis

He has worked in premier institutions including Papworth Hospital, Cambridge, and the Cleveland Clinic. He completed a Master's in Medical Education (MEd) in September 2019 and has extensive teaching experience as a Problem-Based Learning instructor, preceptor for nurse practitioners, and facilitator of flipped classrooms and simulation-based education. His responsibilities include patient care, teaching medical students and residents, and coordinating subspecialty care. He is ABIM certified (August 2016), ECFMG certified (December 2011), and holds MRCP (Pulmonary Medicine, April 2012) and MRCP (UK, November 2006) qualifications from the Royal College of Physicians of London.

As a panelist for the session *"Continuous Professional Development: Opportunities and Significance in Empowering Educators,"* he will highlight the importance of lifelong learning for academic professionals. He will emphasize structured CPD programs to strengthen teaching, research, and professional growth, discuss innovative and interprofessional approaches, and stress the role of ethics in education and research, drawing on his experience as Chairperson of the Yenepoya Ethics Committee.

Workshop: -1
Frameworks for Simulation Design and Measurement

Date:-12-1-2026

Time :- 9.30- 12.30PM

Resource person : Dr. Shailaja S, Professor, Dept. of Emergency Medicine, Father Muller Medical College, Mangaluru

The session was conducted as an online workshop with a plenary presentation followed by breakout-room activities, and included an icebreaker and introductions, discussion on terminology and curriculum integration, a simulation design activity in breakout groups, a short break, deliberation on assessment and evaluation frameworks, and a concluding wrap-up session.
Objectives

By the end of the workshop participants would be able to:

Identify different frameworks used to design simulation scenarios and skill sessions.

To Select and apply appropriate frameworks/models for designing or assessing simulation-based education (SBE).

The resource person conducted an engaging online workshop focusing on frameworks used in simulation-based education. The session introduced key simulation terminologies and highlighted strategies for integrating simulation into competency-based curricula. Through interactive breakout-room activities, participants applied design frameworks to develop simulation scenarios aligned with defined learning outcomes. The workshop also addressed assessment and evaluation approaches in simulation, including formative and summative

methods. The session effectively blended theory with hands-on application, enabling participants to gain practical insights into designing, implementing, and assessing simulation activities in health professions education.

Workshop -2

On Assessment Matters – Frameworks For Evaluating Competences In Health Professions Education

Date: 12.1.2026

Time: 9.30-12.30 PM

Speakers:

1.Dr. Vimal Kumar Govindan PSG institute of Medical Sciences , Coimbatore
2.Dr. Rachmadya Nur Hidyah the University of Gadjah Mada, Indonesia
3.Dr. Vinutha Shankar MS , SDUAHER, Kolar
4.Dr. Lokeshwar S, SDUAHER, Kolar

The workshop focused on discussing assessment frameworks and methods in medical education, particularly within competency-based medical education (CBME). Dr.Vimal focused on evaluating competencies in the medical curriculum, particularly discussing the shift from a traditional curriculum to competency-based medical education (CBME) in 2019. Participants explored challenges in the current assessment system, including an overemphasis on summative assessments at the expense of formative assessments, the need for more workplace-based and objective structured assessments, and assessment overload for both faculty and students.

Dr. Rachmadya provided insights into programmatic assessment, emphasizing its alignment with CBME principles and the importance of using multiple low-stakes assessment methods to gather data points over time.

Dr. Vinutha discussed various assessment models, including the RIME framework, and highlighted the need for holistic evaluation of medical students.

Dr. Lokesh demonstrated how electronic portfolios (e portfolios) can be used to document and assess students' progress and achievements. Participants shared their experiences and challenges with implementing programmatic assessment and e Portfolios in their institutions, particularly in resource-limited settings.

The discussion underscored the importance of developing a structured assessment framework that supports meaningful learning and provides credible, equitable decision-making for high-stakes outcomes.

SYMPOSIUM

"The Holistic Clinician: Integrating Communication, Ethics, and Professionalism"

Date: 12.1.2026

Time: 12:30–1:30 PM

Speakers

Dr. Annette Uwinzea – Associate Professor of Human Genetics, School of Medicine and Pharmacy, College of Medicine and Health Sciences, University of Rwanda

Dr. Kavana G. Venkatappa – Professor and Head, Department of Physiology, Haveri Institute of Medical Sciences, Haveri, Karnataka

Dr. Praveen Iyer – Additional Professor of Anatomy, King Edward Memorial Hospital and Seth Gordhandas Sunderdas Medical College; Co-Director, GSMC FAIMER Regional Institute, Mumbai, Maharashtra, India

Moderator: Dr. Raja Parthiban S.R. – Professor and Head, Department of Pathology, MVJ Medical College and Research Hospital, Bengaluru, Karnataka

Coordinator: Dr. Hemalatha A. – Professor, Department of Pathology, SDUMC, Kolar

Summary of the Symposium

Following a brief introduction by Dr. Hemalatha A., Dr. Raja Parthiban S.R. introduced the speakers and emphasized the importance of integrating communication, ethics, and professionalism in undergraduate medical education.

The symposium examined three interlinked pillars of medical education—ethics, professionalism, and communication—and presented them as essential clinical competencies. Across sessions, the speakers highlighted a recurring challenge: learners may acquire theoretical knowledge of ethical principles and communication frameworks, yet struggle to apply them consistently in real clinical environments. The discussion therefore focused on how curricula and faculty practices can help bridge this theory–practice gap.

Ethics

Dr. Annette Uwinzea discussed the difficulty of embedding medical ethics meaningfully within training. She argued that ethics teaching must be practice-oriented and grounded in clinical scenarios encountered in day-to-day practice. Using examples from genetic counselling, she illustrated how enthusiasm for academic output (for example, publishing an interesting case) can overshadow core obligations to patients—such as communicating results to families first and obtaining appropriate consent for photographs and case reports. She emphasized that ethical competence is strengthened through supervision and faculty role modeling, as learners often internalize observed behaviours more strongly than theoretical instruction.

Professionalism

Dr. Kavana G. Venkatappa addressed professionalism through the lens of Professional Identity Formation (PIF) as a broader and more durable goal than checklist-based professionalism. She emphasized developing doctors who consistently demonstrate integrity, accountability, altruism, excellence, and humanism. Drawing on Wenger's communities of practice (engagement, imagination, and alignment), she highlighted the value of mentoring, reflective practice, and socialization within clinical teams. The "Alex" case—of a trainee efficient in completing discharge summaries but faced with a vulnerable patient afraid to go home—was used to contrast rule-following professionalism with identity-based professionalism.

Communication

Dr. Praveen Iyer presented communication as a foundational clinical skill closely linked to patient satisfaction, adherence, and medicolegal safety. He emphasized that communication must be explicitly taught and assessed, and noted that "communication is also a procedural skill." He highlighted the National Medical Commission framework through the AETCOM module, discussed existing gaps in largely theoretical teaching, and described methods to bridge these gaps through structured training and practice.

Conclusion

The symposium concluded that effective teaching of ethics and communication depends less on faculty personality (introvert vs. extrovert) and more on commitment, practice-based teaching, and consistent role modeling, ultimately aimed at improving patient care.

Dr. Raja Parthiban S.R. moderated the Q&A session, addressing questions from the audience directed to the speakers.

The symposium concluded with a vote of thanks by **Dr. Hemalatha A.**, acknowledging the speakers and participants

PANEL DISCUSSION
TOPIC: "Understanding & Adapting competency frameworks"
DATE: 13-1-2026
TIME : 11am to 1pm
COORDINATOR: Dr. TN Suresh , Co-ordinator, MEU,SDUMC.
MODERATOR: Dr. Nachiket Shankar , Professor & HOD (Medical Education) , St. John's Medical College, Bangalore.
Panelist :

1.Dr. Sudha Ramalingam Prof & Head, Community Medicine, PSG Institute of Medical Sciences and Research, Coimbatore

2.Dr. Anand R , Head of the Department of Medical Education, Professor in the Department of Respiratory Medicine, Kasturba Medical College (KMC), Mangalore

3.Dr. Joana Froes Braganca , Faculty of Medical Sciences, State University of ampinas-UNICAMP, Brazil

Objectives of the Panel Discussion
- Exploring the basis of competency-based frameworks in medical education.
- Discussing the adaptation of these frameworks to suit local contexts specifically in India and Brazil.
- Analyzing the challenges in the local adaptation of these frameworks and proposing possible solutions.
- Predicting the future of CBME in the light of rapid changes in the educational environment.

Subsection 1 - The blueprint of trust: decoding global competency frameworks (15+5 minutes)
- Focus: Defining the core concepts and the shift from time-based to outcome-based education

Subsection 2 - The 'glocal' pivot: adapting global standards to local needs (15+5 minutes)
- Focus: The "glocalization" process, adapting Western frameworks (ACGME/CanMEDS) to Indian and Brazilian realities.

Subsection 3 - The friction of implementation: moving beyond the 'tick-box' culture" (30+10 minutes)
- Focus: Practical challenges, assessment fatigue, and resource constraints.
- Subsection 4 - The 2030 horizon: AI, precision, and the future of assessment (15+5 minutes)
- Focus: Future trends, technology, and regulatory changes.

Panel discussion ended with interaction with Panel members. Dr. Suresh Thanked all members for the active discussion.

Workshop -3
"Integrating global competency Frameworks (CanMEDS, ACGME, NMC) into PG assessment design"

Date: 13.1.2026

Time: 1.30-3.30 PM

Speakers

1.Dr Chandra M Thipanna Associate Professor of Medicine, Indiana university school of Medicine, Indianapolis

2.Dr. Vinutha Shankar Director, UCHPE

3.Dr. KNV Prasad Director, CCSS, Professor, Dept of Pediatrics, SDUMC

4.Dr Naveen Kumar Inbaraj PT Asst Prof, RLJCOPT, SDUAHER.

A faculty development workshop titled **"Integrating Global Competency Frameworks (CanMEDS, ACGME, NMC, NCAHP) into PG Assessment Design"** was conducted with the objective of orienting faculty to global competency-based medical education (CBME) principles and their application in postgraduate assessment. The sessions were delivered by **Dr. Chandra M. Thipanna, Dr. K. N. V. Prasad, and Dr. Naveen Kumar Inbaraj (PT)**, and the workshop was **coordinated by Dr. Usha G. Shenoy**.

The workshop provided an overview of **different international and national competency-based curricula**, including **CanMEDS**, **ACGME competencies**, **National Medical Commission (NMC)** framework, and **National Commission for Allied and Healthcare Professions (NCAHP)** guidelines. The speakers highlighted the **common competency domains across these curricula**, such as medical expertise, communication, collaboration, professionalism, leadership, and lifelong learning, and explained how these shared domains allow integration across disciplines despite contextual differences.

Emphasis was placed on **integrating global competency frameworks with the local CBME program context**, ensuring alignment with institutional goals and regulatory requirements. The **core components of CBME** were discussed in detail, with special focus on **programmatic assessment**, including its principles, rationale, and longitudinal approach to assessment.

Faculty members were oriented to **naming competencies clearly and selecting appropriate assessment tools** for each competency. Practical examples were used to demonstrate **different ways of assessing competencies**, especially through workplace-based assessments. Various **assessment**

plans were discussed, illustrating how programmatic assessment supports formative feedback and informed summative decisions.

The workshop also highlighted key transferable competencies such as **critical thinking, communication, collaboration, creativity and innovation, and character**, reinforcing their importance across all curricula. Overall, the workshop enhanced participants' understanding of designing **robust, competency-driven PG assessment frameworks** that are globally aligned, contextually relevant, and learner-centred.

Abstracts of paper presentation

Journal of Clinical and Biomedical Sciences

Assessing the Perception of Self-Directed Learning Among First-Year MBBS Students: A Study from a Medical College in Northeast India

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Introduction: With the Application of Competency-Based Medical Education (CBME) in India, Self-Directed Learning (SDL) has developed as a key pedagogical approach to enhance medical students' autonomy, critical thinking, and lifelong learning skills. However, research on first-year MBBS students' perceptions of SDL, particularly in Northeast India, remains limited.

Objective: To assess Phase I MBBS students' perceptions of SDL and evaluate its impact on their learning outcomes at Churachandpur Medical College, Manipur.

Methods: A cross-sectional study was conducted among 86 Phase I MBBS students of 2024-2025 Batch. The study included three SDL sessions on "Physiology of the Autonomic Nervous System," with pre-test and post-test evaluations. A validated self-administered questionnaire measuring SDL capabilities across four domains was used. Data were analysed using SPSS Version 21, and Wilcoxon Signed-Rank tests were employed for pre and post-test comparisons.

Results: The mean pre-test score was 7.59 ± 2.63, while the mean post-test score was 11.40 ± 1.39 ($p < 0.001$), demonstrating a significant improvement in knowledge of the SDL topic. SDL scores ranged from 58 to 96, with 75% of students demonstrating high SDL ability. Students expressed strong intrinsic motivation (Mean = 4.58 ± 0.49) but reported challenges in self-monitoring and written communication.

Conclusion: SDL significantly enhanced students' knowledge acquisition and promoted self-regulated learning. While students demonstrated high motivation, targeted interventions are necessary to improve self-monitoring and communication skills. There is a need for integrating structured SDL strategies into medical curricula, particularly in resource-limited settings like Manipur.

Key words: Self-Directed Learning, Medical Education, Competency-Based Medical Education, First-Year MBBS, Northeast India

Journal of Clinical and Biomedical Sciences

Acquisition of Adaptive learning skill in Post-graduate Medical Education- A concept beyond competency

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Introduction: Learning in Medical is really outpacing the knowledge that can be gained during designated medical training. It is required to keep pace with expanding of new information rapidly. Medical training period and curricula have limitations so there should be as approach that can change the learning attributes and make conceptual change that can develop lifelong learning skill in Doctors. Adaptive learning mainly concerns with meta-cognition ability and application of knowledge at learning stage. Incorporation of new information is also required at certain stage of learning. This study aimed with developing concept of adaptive learning in post graduates in Pathology Department to make them lifelong learner and increase learning prospective.

Methodology: A quantitative study to perform by case based learning in post graduates(18) second year of Pathology Department. Detailed Case content was delivered initially. Students were divided in teams and different case scenario was given to each team of topic which is already covered by lecture. Discussion was conducted with the panel of faculties and each team has to represent their findings. Questionnaire divided into many sections given to students to observe the change perception. Feedback on learning attitudes will be taken from students.

Conclusion: Learning is not just acquiring competency of what is in curriculum but it is beyond this and to understand the ability of gain knowledge lifelong. Such adaptation in learning is required for the future doctors.

Journal of Clinical and Biomedical Sciences

An observational and interventional study to assess change in quality of Histopathology requisition forms filled by PG students of various clinical departments of a tertiary care hospital using Case Based Discussion as Teaching Learning technique

Dr. Ashwini Khadatkar Ghodake
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Introduction: Case Based discussion(CBD) is widely used modality for teaching worldwide. Use of CBDs in filling Histopathology Requisition forms (HRFs) which are very crucial in providing information for appropriate & timely reporting can be studied since not much data is seen in the literature. Inadequately filled HRFs by PGs hampers quality of Reporting. CBDs can help them be aware of filling it correctly & improve on reporting due to lack of history, it might help decrease TAT & better patient care.

Methodology:70 students pursuing Clinical PGs (7 groups of 10 students each) who gave consent were enrolled. IEC/SRC obtained -27/09/2023.Pre-test was conducted for all students using 15(MCQs).The Case based scenarios were used specific to that speciality. CBDs were devised based on the findings of Preintervention audit of compliance. Post-test was conducted using the same MCQs. Students were requested to fill up the feedback to assess level of Motivation, Importance & knowledge in filling HRFs after CBDs. Feedback from the Pathologists regarding effectiveness of CBD as Intervention (TL method) was obtained. Preintervention Audit: We analysed total of 100 HRFs submitted in surgical Histopathology dept of teaching hospital over a period of 1month(August2023) to assess the degree of compliance of HRF & findings were noted. Intervention in the form of CBDs as teaching learning method was done. Postintervention: HRFs were analysed again (Randomization100) in the month of October 2023 & degree of compliance was noted

Results & Conclusion: Case Based Discussions for filling HRFs is a impactful teaching- learning tool for teaching PGs which increased knowledge, Importance & Motivation of filling appropriate HRFs & was highly significant in Post-test as compared to Pretest. Result of Post Intervention audit of compliance was markedly better & significant. All Pathologists posted in Histopathology during this study reported good level of improvement in filling of HRFs by PGs post CBDs in that month

Keywords: Case based discussion, Histopathology Requisition forms HRFs, Turn-around Time, Teaching Learning method

Journal of Clinical and Biomedical Sciences

The Pen and the Mind: Comparing the impact of poetry and traditional learning methods on medical students' reflective writing and empathy development

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Background: Empathy is a critical part of medical practice and studies show that there is a decline in empathy during medical training. Poetry as a Narrative medicine tool has shown promise in the increment of reflective capacity and emotional awareness. This study aimed to compare the depth of student reflections when exposed to poetry vs traditional psychiatry teaching and to also assess the changes in self-reported empathy levels in both the groups.

Methods: 24 students from IIIrd MBBS, were randomized into 2 groups and received 3 sessions of Poetry and Traditional Teachings each. Students wrote reflections at the end of every session and also empathy was evaluated on Jefferson Scale for Empathy (JSE) at different times during the study. Total 6 teachers were involved and every teacher took one traditional and one poetry session. Mixed-method approach combining quantitative and qualitative data was used.

Results: The total group showed a 9.10% increase in JSE scores from baseline to after 6 sessions, indicating an overall improvement in empathy scores. Though statistically not significant, percentage improvement in self-awareness of empathy is more in poetry sessions. Qualitative data is currently under progress.

Conclusion: Overall empathy improvement seen in all students as they have mentioned in reflection writing and also on JSE scores. Poetry can be used as one of the pedagogical tools to teach, cultivate and enhance empathy among health care professionals.

Key words: Empathy, reflective writing, medical students, poetry.

Journal of Clinical and Biomedical Sciences

A Flashcards – Based Edutainment Approach for Bioethics Education In Dentistry

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Introduction: Education can be effective when combined with entertainment making it edutainment and this includes, drama, flashcards, board games, etc. Flashcards are handy, valuable, useful, and easy to carry at various locations.

Aim: The aim of this study is to use flash card designed for clinical undergraduate student to learn bioethics and its application.

Settings and Design: Experimental double-blinded study was conducted to use educative flashcards on Bioethics and its application, designed for clinical undergraduate student.

Material and Methods: Participants were divided into three groups, Group 1 was traditional teaching method where classes was taken for 1 hr, for Group 2 only flashcard s were given, and for Group 3 classes was taken and flashcards were given. After a week, semi constructed pretested questionnaire was given to all the participants.

Statistical Analysis: Data were collected, coded and fed in SPSS (IBM version 23) for further analysis.

Results: Nearly 43.3%, 13.3% and 30% of them from Group 1, 2 and 3, respectively, thought that professionalism was same as bioethics ($P<0.05$, $X2=5.599$). Nearly 86.7%, 96.7% and 100% of them from Group 1,2 and 3 respectively knew it was important to highlight the cost involved before taking consent for any procedure ($P<0.05$, $X2=5.506$). Only, 53.3%, 53.3% and 86.7% of them from Group 1, 2 and 3 respectively knew, that there is an ethical committee in this institution.

Conclusion: Participants from Group 2 and 3 have fairly more knowledge compared to participants from Group 1 where majority of the answer were not right.

Journal of Clinical and Biomedical Sciences

Moral Mode of Education in Nursing: A Review of Ethical Frameworks, Teaching Approaches, and Moral Sensitivity Development

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Department of General Medicine, Pramukhswami Medical College, Bhaikaka University, Karamsad–388325, Anand, Gujarat, India.

Objectives: This review aimed to examine foundational moral development theories relevant to nursing education; identify traditional and contemporary ethics-teaching models; explore factors influencing moral sensitivity among nursing students; evaluate evidence-based educational interventions that enhance ethical competence; and highlight challenges and future directions in moral education.

Methods: A systematic review was conducted in accordance with PRISMA 2020 guidelines. Electronic databases including PubMed, Scopus, CINAHL, and Google Scholar were searched for English-language literature published between 2000 and 2025. Grey literature such as theses and reports was also reviewed. Studies addressing moral education, ethics teaching strategies, or moral sensitivity in nursing were eligible. Following screening and full-text assessment, 62 studies met the inclusion criteria. Data were extracted independently by two reviewers, and study quality was appraised using CASP, JBI, and MMAT tools. A thematic synthesis approach was employed due to methodological heterogeneity.

Results: The review found that classical moral development theories—particularly those proposed by Piaget, Kohlberg, and Gilligan—continue to underpin ethics education in nursing. Contemporary pedagogical approaches, including simulation-based learning, problem-based learning, reflective practice, debate, and digital platforms, demonstrated consistent positive effects on ethical reasoning and moral sensitivity. Moral sensitivity was influenced by personal values, cultural context, clinical exposure, mentorship quality, and emotional intelligence. Key challenges included inconsistent curriculum integration, limited faculty preparedness, cultural variability in ethical norms, and difficulties in assessing ethical competence.

Implications: The findings underscore the need for longitudinal integration of ethics across nursing curricula, greater emphasis on experiential and reflective learning, and systematic faculty development in ethics education. Incorporating emerging technologies such as virtual reality and AI-supported simulations, along with a focus on global health ethics and cultural humility, may strengthen future-ready ethical competence among nursing graduates.

Keywords: ethical education; nursing students; moral development; moral sensitivity; simulation; reflective practice

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Journal of Clinical and Biomedical Sciences

Specialty Preferences Until Phase III MBBS Translate into Their Final Choice for Postgraduation: A Longitudinal Study

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Background: Almost every medical student aspires to do a postgraduation degree of their choice. A longitudinal study that captures their preferences during MBBS until they join postgraduation could provide useful information to understand this complex decision. Our objective was to analyze the influence of specialty preferences at various stages of their MBBS course in their final choice for postgraduate seat selection.

Methods: We used a validated and published questionnaire developed by us in our previous studies. We collected data from one batch of medical students on demographic information, their first, second, third preferences for a specialty and three least likely preferences at each phase of the MBBS course. The study was approved by the Institutional Review Board. All participants were enrolled into the study after obtaining a written informed consent.

Results: Out of the 100 eligible students in the batch, 18 refused to participate or withdrew from the study. Complete data on specialty preferences at all time points were available for 60 participants. Data analysis was done for 28 students out of 37 students from the batch who joined our institution for postgraduation last year. We found that 50% (n = 14) of these students chose their specialty for postgraduation which were indicated as their first, second, or third preferences on at least one of the three time points. The remaining students (n=11) chose a specialty that did not feature in any of their preferences and a few students (n=3) had joined the postgraduate degree in a specialty which featured in their list of non-preferences on at least one occasion.

Conclusion: We found that the final choice made by our students for their postgraduation was their preference in the first three years of their MBBS course in half of the students in this study.

Key words: Medical students; Career choice; Longitudinal study

Journal of Clinical and Biomedical Sciences

MD Biochemistry Program: Linking Competencies to Professional Roles

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Background: The curriculum for MD Biochemistry is vast ranging from basic molecular aspects of health and disease. The training program is variable with respect to the departments and faculty members present in an institution. In this concept paper, I would like to provide a general overview for competency-based training in MD Biochemistry course.

Methods: The first step is to identify and define the various roles of a qualified professional in MD Biochemistry. The next attempt is to provide training, conduct assessments, and provide feedback based on the identified roles. In each of the roles, specific skills can be identified which can be categorized as fundamentals, theory essentials, practical essentials, and advanced skills.

Results: The essential roles to be performed by a qualified professional in MD Biochemistry include to be a medical teacher, to be a laboratory professional, to be able to communicate and discuss with the clinicians at the interface of laboratory and patient care, to be a basic science researcher capable of conducting and critically appreciating biomedical literature, to be aware of the different requirements in resource-constrained settings, and to be able to function as an administrator in helping to run the academic and clinical laboratory sections of Biochemistry.

Conclusion: The graded approach in training in various roles will provide a guideline for trainees to acquire the knowledge and skills during their course. It will also facilitate in developing a professional identity and focus areas for their future practice.

Key words: Biochemistry; Medical students; Postgraduate; Curriculum; Competencies

Journal of Clinical and Biomedical Sciences

Assessing Digital Adoption for Competency-Based Dental Education: A UTAUT Model Survey of Indian Dental Students

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Background: Digital technologies are transforming dental education by enhancing learning, assessment, and clinical practice. Their successful adoption depends on user acceptance, which the Unified Theory of Acceptance and Use of Technology (UTAUT) effectively evaluate, and on aligning these tools with Competency-Based Dental Education (CBDE) to support outcome-driven curricula.

Objectives: To assess acceptance and readiness for the application of digital technologies among Indian dental students using the UTAUT model, and to explore how this readiness can support the implementation of Competency-Based Dental Education (CBDE) in undergraduate dentistry.

Materials and method: A cross-sectional survey was conducted among I to IV BDS students in India using a pre-validated 31-item closed-ended descriptive and UTAUT-based questionnaire to assess perceptions of digital learning tools and their relevance to competency-oriented training. Data analysis focused on six UTAUT constructs: performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), behavioural intention (BI), and usage behaviour (UB), and their implications for integrating digital tools into CBDE-aligned teaching and assessment.

Results: The study included 506 Indian dental students (281 females, 81 males; mean age 21.6 ± 1.8 years). Instructional preferences showed that 36.8% favoured interactive PowerPoint, 32.4% preferred diverse digital tools, and 18.7% chose traditional chalk-and-talk methods. Mean scores for all UTAUT constructs exceeded 3.5, indicating positive attitudes towards technology; BI (4.28 ± 0.68) and PE (4.20 ± 0.70) were highest, suggesting strong motivation and perceived learning benefits. EE (3.99 ± 0.78) and SI (3.92 ± 0.79) reflected favourable perceptions of ease of use and peer/faculty influence, while FC (3.65 ± 0.84) highlighted institutional gaps in infrastructure and support. UB (4.04 ± 0.73) confirmed frequent engagement with digital tools, indicating good potential for embedding them into CBDE activities such as skills training, formative feedback, and competency tracking.

Implication of the Research: Results demonstrated high acceptance and frequent use of digital tools, indicating strong readiness to engage with technology-enhanced, competency-oriented learning environments. Strengthening institutional FC and intentionally mapping digital resources to defined competencies can support effective implementation of CBDE in undergraduate dental curricula.

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Journal of Clinical and Biomedical Sciences

Skill Mastery Journey: Assessment of Skill Competence Retention across Phases in Medical Education

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Background: Competency-Based Medical Education (CBME) emphasizes the early acquisition and certification of essential clinical skills through structured training and assessment. Although CBME has been implemented nationwide, there is limited evidence on the longitudinal retention of these certifiable skills as students' progress through different phases of the MBBS curriculum. Moreover, insights into how students and faculty perceive the skill certification programme are essential to judge its educational value and practical feasibility. Evaluating long-term skill retention alongside stakeholder perceptions can provide critical evidence to refine CBME strategies, strengthen continuity of skill training, and enhance the effectiveness of competency-based assessment across phases of medical education.

Methods: A cross-sectional study was conducted among undergraduate medical students and teaching faculty at Sri Siddhartha Institute of Medical Sciences & Research Centre. Skill retention was assessed using four OSCE stations; blood pressure recording, tracheal position assessment, fine touch examination, and biceps jerk elicitation—using structured checklists. Perceptions were obtained through a validated Likert-scale questionnaire administered electronically. Data were analysed using one-way ANOVA with Tukey's post-hoc test ($P < 0.05$).

Results: Eighty-eight students participated. Significant decline in retention was observed for blood pressure recording, fine touch sensation, and biceps jerk elicitation across senior batches ($P < 0.05$), indicating progressive decay of psychomotor skills with increasing time since certification. Retention of tracheal position assessment remained comparatively higher, suggesting that simpler or predominantly tactile skills may be more stable. Students reported improved motivation, confidence, and preparedness for clerkship. Faculty supported the programme's alignment with CBME goals but highlighted limitations such as inadequate time, manpower, and resources for repeated assessments.

Conclusion: Skill certification enhances CBME outcomes, but long-term retention especially of complex psychomotor and affective competencies declines without structured reinforcement. Sustained competence requires periodic practice, continuous feedback, and stronger institutional support.

Keywords: CBME, OSCE, skill certification, clinical competence, medical education, skill retention.

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Journal of Clinical and Biomedical Sciences

Use of AI-based Learning Tools Among MBBS Students: Awareness, Usage Patterns, and Perceptions – A Cross-sectional Study

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Background: Digital learning tools are increasingly being used by medical students to support academic activities. NMC CBME 2024 guidelines support the use of technology & AI in medical education right from the Foundation Course of MBBS students. However, limited evidence exists on how undergraduate medical students perceive and use these tools within the Indian medical education context.

Objectives: This study aimed to assess awareness, patterns of use, perceptions, and perceived challenges related to technology-assisted learning tools among MBBS students.

Methods: A cross-sectional study was conducted using a structured, self-administered online questionnaire among MBBS students. We collected information on demographic characteristics, awareness of learning tools, frequency and purpose of use, student perceptions assessed using a 5-point Likert scale, and perceived barriers or concerns. Skip logic was incorporated so that participants responded only to relevant sections. Interim analysis of the responses received to date was performed using descriptive statistics.

Results: Interim analysis included 104 responses. Most participants reported having regular access to internet-enabled devices (88.5%). Awareness of AI use in education was high (98.1%), and a large proportion were aware of AI tools used specifically for medical education (88.5%). ChatGPT and Google Gemini were the most commonly recognized tools. Majority respondents (92.4%) use AI-based learning tools for academic purposes, commonly for clarifying concepts, summarizing study material, answering MCQs, and assisting research. Overall perceptions towards AI-based tools were largely positive, particularly regarding understanding complex topics and academic improvement. However, concerns about accuracy of information, ethical issues, and over-reliance were frequently reported.

Conclusions: The interim findings suggest that technology-assisted learning tools are well integrated into students' academic routines and are generally perceived as helpful. The concerns expressed highlight the need for structured guidance, faculty involvement, and clear academic policies to encourage appropriate and responsible use. Final analysis will be completed prior to presentation.

Key words: Medical education, Competency-based medical education, Artificial intelligence, Undergraduate medical students, Learning tools

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From Objectives to Outcomes: Evaluating Alignment Frameworks in Competency-Based Medical Education

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Background: Competency-Based Medical Education (CBME) emphasizes outcome-oriented training through clearly defined competencies, learner-centered educational strategies, and appropriate assessment methods. Effective implementation of CBME requires alignment between intended competencies, teaching–learning activities, and assessment tools. However, evidence regarding such alignment at the institutional level remains limited.

Methods: A cross-sectional descriptive study was conducted among undergraduate medical students and faculty members at a medical college in central India. Data were collected using a structured, pre-validated questionnaire assessing awareness of competencies, teaching–learning methods, and assessment practices. Curriculum documents, lesson plans, and assessment blueprints were reviewed using a checklist to examine competency mapping. Descriptive statistics were used for quantitative data, and thematic analysis was applied to open-ended responses

Results: Most faculty and students demonstrated adequate awareness of defined competencies. Active learning methods such as case-based discussions and skills-based training were commonly used. However, assessment practices were predominantly traditional, with limited utilization of workplace-based assessment tools and entrust able Professional Activities. Partial misalignment was observed between certain competencies and their corresponding assessment methods.

Conclusion: While foundational elements of CBME are in place, gaps persist in aligning competencies with assessment strategies. Strengthening faculty development and adopting programmatic assessment approaches may enhance alignment and effective CBME implementation.

Key words: Competency-Based Medical Education; Learning Frameworks; Assessment Alignment; Undergraduate Medical Education

Journal of Clinical and Biomedical Sciences

Autonomy versus Collaboration: A Crossover Study Comparing Jigsaw and Self-Directed Learning in Undergraduate Medical Physiology

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Background: Competency-based medical education requires a shift from passive lectures to active learning. Self-Directed Learning (SDL) and the Jigsaw Method (JM) are prominent strategies in this domain. SDL fosters autonomy and reflection, whereas the JM emphasises collaboration and peer teaching. Evidence comparing these strategies in undergraduate physiology is limited. This study evaluates the comparative effectiveness of SDL and JM for knowledge acquisition and student perceptions.

Methods: We conducted a quasi-experimental crossover study at an Indian medical college, involving 88 first-year MBBS students divided into two batches (A and B). 'Ascending Tracts' and 'Sleep Physiology' were the topics for Phase 1 and Phase 2, respectively. In Phase 1, Batch A underwent SDL while Batch B participated in JM; in Phase 2, the batches crossed over. All sessions were standardised and facilitated by the same faculty. We assessed knowledge gain using 10 pre-test and 10 post-test questions per session. Engagement, autonomy, and retention were measured using a validated 5-point Likert scale. Data analysis utilised ANOVA for academic scores and the Wilcoxon signed-rank test for perception data.

Results: SDL scores increased from 8.9 ± 2.1 to 13.6 ± 2.4 ($p < 0.001$). JM scores improved from 9.1 ± 2.3 to 14.0 ± 2.2 ($p < 0.001$). Both strategies significantly improved post-test scores, but the difference between SDL and JM was not statistically significant ($p = 0.18$). Learner perception scores favoured JM, with higher median scores for engagement (4.7 vs 4.0), overall learning experience (4.5 vs 3.5), and perceived retention (4.3 vs 4.0) (all $p < 0.05$). Perceived autonomy scores were comparable. 69% of students preferred JM for future sessions.

Conclusion: SDL and the JM are equally effective in improving short-term knowledge of medical physiology. JM offers additional advantages in learner engagement and collaborative learning. A blended approach may optimise the teaching of physiology.

Keywords: Competency-Based Medical Education; Active Learning; Self-Directed Learning; Jigsaw Method; Medical Physiology; Undergraduate Medical Education

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Effectiveness of an Eisenhower Matrix–Based Reflective Learning Model (ERLM) in Enhancing Self-Regulated Learning Among phase 2 MBBS Students: An Educational Intervention

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Background: Medical students experience significant academic overload while adapting to competency-based medical education. Although reflective learning is emphasized, students often lack structured tools for prioritization and meaningful reflection. Existing reflective practices are frequently unstructured and descriptive, limiting their impact on learning behavior and self-regulation. This study introduces an Eisenhower Matrix–Based Reflective Learning Model (ERLM) designed to integrate task prioritization with structured reflection.

Methods: This quasi-experimental pre–post educational study was conducted among second-year MBBS students. ERLM was developed as a digital intervention using an online platform where students categorized academic and clinical tasks using the Eisenhower Matrix and completed structured reflections based on the Gibbs–Schön reflective cycle. Weekly templates were submitted through Google Classroom. A preliminary needs-assessment questionnaire received 101 responses, supporting the relevance of the intervention. Participants underwent a four-week ERLM intervention. Outcome measures included the Self-Regulated Learning Scale (SRLS), Time Management Behaviour Scale (TMBS), Perceived Stress Scale (PSS-10), and academic MCQs.

Results: As the study is ongoing, results are presented as expected outcomes. ERLM is anticipated to improve self-regulated learning and time-management behaviours, enhance reflective depth, and reduce perceived academic stress. Improved academic engagement and positive student acceptability of the digital ERLM platform are also expected.

Conclusion: ERLM represents a novel, student-friendly educational framework integrating prioritization with structured reflection. It has the potential to enhance self-directed learning behaviours and reflective practice in undergraduate medical education. Further analysis will determine its effectiveness and scalability across institutions.

Key Words: Reflective learning; Eisenhower Matrix; Self-regulated learning; Medical education; Time management

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From Theory to Competency: A Comparative Assessment of Pharmacovigilance Awareness Among MBBS Students Under MCI and CBME Curricula

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Introduction: Pharmacovigilance is integral to ensuring medication safety, and is emphasized in India's Competency-Based Medical Education (CBME) curriculum for undergraduate medical students to enhance adverse drug reaction (ADR) awareness and reporting via the Pharmacovigilance Programme of India (PvPI). This study evaluated if the awareness generated among medical students was higher in the CBME curriculum, versus the erstwhile MCI curriculum.

Objectives: To assess and compare the knowledge and attitudes regarding pharmacovigilance between undergraduate medical students following Competency-Based Medical Education (CBME) curriculum versus Medical Council of India (MCI) curriculum.

Methods: A prospective cross-sectional study was conducted among 145 MBBS students at a medical college hospital, in March 2023 . Participants were of two groups: CBME batch (2019 & 2020 admission; n=67) and MCI batch (2017 & 2018 admission; n=78). Data was collected using a pre-validated 18-item questionnaire, consisting of 13 knowledge-based and 5 attitude-based questions, following informed consent. Descriptive statistics and unpaired t test were employed in statistical analysis.

Results: Knowledge – CBME group achieved significantly higher knowledge scores (mean = 8.56 ; SD= 2.40) compared to the MCI group (mean =7.17 ; SD= 2.00); and applying unpaired t test, p value was 0.00021, denoting a very highly significant difference between the groups. Attitudes – Attitude scores were higher in the CBME group (mean=4.12; SD=1.26) than the MCI group (mean=3.27 ; SD=1.85); and significant difference between the groups was obtained from unpaired t test, with p value, 0.0019.

Implications: CBME curriculum appears more effective than the erstwhile MCI curriculum in enhancing pharmacovigilance awareness and fostering positive attitudes towards ADR reporting. These gains, despite potential retention biases in senior students, are relevant , considering the importance of pharmacovigilance and active participation in the Pharmacovigilance Programme of India (PvPI) which are instrumental for safe and rational prescribing by these students when they start practicing medicine as future doctors.

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Impact of Academic Ambience among Medical Students using the DREEM Questionnaire in the Department of Pharmacology, SABVMCRI

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Background: The educational environment plays a crucial role in shaping medical students' learning experiences, motivation, and academic performance. Systematic evaluation of this environment is essential for identifying strengths and areas requiring improvement. The Dundee Ready Education Environment Measure (DREEM) is a validated tool widely used to assess students' perceptions of the educational climate in medical institutions.

Objectives: To assess the educational environment among second-year MBBS students of the 2024 batch in the Department of Pharmacology at Shri Atal Bihari Vajpayee Medical College and Research Institute using the DREEM questionnaire, and to identify specific strengths and problem areas.

Methods: A cross-sectional, questionnaire-based observational study was conducted among MBBS students aged ≥18 years. All eligible students were invited to participate through census-based voluntary sampling. The validated 50-item DREEM questionnaire was administered electronically after obtaining informed consent. Responses were scored according to standard DREEM guidelines. Descriptive statistics were used to summarize total and domain-wise scores.

Results: A total of 144 students completed the questionnaire. The mean total DREEM score was 142.2 ± 15.7 out of 200 with a score range of 101 – 179, indicating a learning environment that is more positive than negative. High scores were observed in domains related to students' perceptions of teachers and academic self-perception, reflecting knowledgeable faculty and a supportive learning approach. Areas with comparatively lower scores included stress management and certain aspects of the learning atmosphere, suggesting scope for targeted improvements.

Conclusion: The overall educational environment perceived by second-year MBBS students in the Department of Pharmacology was favourable. However, specific domains require focused interventions to further enhance student well-being and learning effectiveness. Periodic assessment using DREEM can guide continuous quality improvement in medical education.

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Faculty Practices and Perspectives towards Formative Assessment in Competency-Based Medical Education: A Mixed-Methods Study from Delhi, India

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Background: Formative Assessment (FA) is a cornerstone of Competency-Based Medical Education, driving deeper learning, reflective practice, and progressive competency development. However, translating FA into effective practice requires aligned frameworks, faculty readiness, learner engagement, and strong institutional support. This study aims to assess prevailing practice patterns of Formative Assessment among faculty in government medical colleges affiliated with the University of Delhi and to explore faculty-perceived implementation challenges while identifying feasible strategies to strengthen effective FA implementation within the CBME framework.

Methods: A convergent mixed-methods study was conducted among 223 faculty from government medical colleges affiliated with the University of Delhi. Quantitative data were collected using a structured, pre-validated questionnaire assessing FA practices, frequency of implementation, feedback use, and perceived barriers, and were analyzed using descriptive statistics. Qualitative data were obtained through Key Informant Interviews with purposively selected faculty, transcribed verbatim, and thematically analyzed independently by two reviewers to ensure rigor and credibility.

Results: A total of 223 faculty participated (mean age 38.6 ± 7.9 years; mean teaching experience 7.8 ± 6.6 years). Regular implementation of FA was reported by 53.2% of faculty, whereas only 41.8% consistently provided feedback. Although 55.2% had undergone faculty development related to FA, considerable variability persisted in conceptual understanding and authentic application of FA tools. Qualitative analysis identified four dominant domains: curriculum-related constraints, resource limitations, attitudinal and learner-engagement challenges, and training gaps, with time constraints emerging as the most frequently cited barrier. Faculty recommended institutional SOPs, scheduled FA integration, innovative assessment tools, involvement of senior residents, and strengthened faculty development initiatives to enhance implementation.

Conclusion: This study highlights the need for stronger institutional frameworks, scheduled integration of FA into routine teaching, and targeted faculty development to ensure meaningful implementation within CBME. Strengthening feedback culture and leveraging innovative assessment approaches can enhance learner engagement, improve competency attainment and advance the quality of undergraduate medical education.

Keywords: Formative Assessment; Feedback; Faculty; Competency-Based Medical Education; Mixed-Methods Study

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Evaluation of Post-Assessment Remedial Training for Competency-Based Biochemistry Assessment in for Medical Undergraduates in Haveri district of Karnataka in India: A Mixed-Methods Study

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Background: Competency-Based Medical Education (CBME) under NMC Annexure 9 emphasizes reasoning questions and case-based MCQs in Biochemistry assessments, yet first-year MBBS students often struggle with these higher-order formats. Post-assessment remedial training addresses this gap. For addressing learning gaps, post-assessment remedial training specifically targeting Biochemistry's reasoning (Q3: 5×3 marks) and case-based MCQs is needed. No prior studies from Haveri Institute of Medical Sciences or similar resource-limited settings have psychometrically validated structured questionnaires to evaluate such remedial interventions' effectiveness, alignment with NMC/RGUHS patterns, perceived learning gains, teaching processes, and satisfaction essential for institutional adoption and scalability across Indian medical colleges. This study aimed to assess the effectiveness of post assessment remedial training using a structured student feedback questionnaire assessing remedial training on reasoning questions and case scenario based MCQs in Biochemistry for first-year MBBS students.

Methods: Cross-sectional mixed-methods study among 106/150 (71%) first-year MBBS students (2024-25 batch) at Haveri Institute of Medical Sciences following remedial sessions on reasoning (Q3: 5×3 marks) and case-based MCQs. A 13-item, 4-domain Likert questionnaire (Assessment Alignment, Learning Gain, Teaching Process, and Satisfaction) was administered anonymously. Data analyzed in SPSS: Cronbach's α and descriptive statistics. Thematic analysis of open-ended responses (n=92) was performed.

Results: Respondents were 52.8% male (n=56), 47.2% female (n=50); 69.8% aged 20-22 years. Excellent reliability (Cronbach's α=0.962). All domains scored ≥4.05/5.0 (SD 0.57-0.64), with 80-82% Agree/Strongly Agree rates. Highest item: Q13 "Recommend to juniors" [36(34.0%) SA, 52(49.1%) A]. Qualitative thematic analysis identified key strengths including PCT tests (32% of responses) and group activities (28%), with primary suggestions for improvement encompassing more MCQs (35%) and earlier session scheduling (24%).

Conclusion: The validated questionnaire confirms remedial training's high perceived value for NMC/RGUHS-aligned Biochemistry assessments. Strong recommendation rates (83%) support institutional adoption. Mixed-methods findings inform scalable interventions for CBME implementation across Indian medical colleges.

Key words: Remedial Teaching, Case-Based Learning, Clinical Reasoning.

Journal of Clinical and Biomedical Sciences

Development, Validation, and Evaluation of the effectiveness of Immersive Learning Based Toolkit– A Mixed Method study

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Background: Conventional lecture-based teaching in dentistry often limits student engagement and long-term retention, particularly for psycho-social topics such as child behavior management, which require the development of soft skills. Immersive learning offers experiential environments that can enhance understanding by translating abstract concepts into meaningful clinical contexts. This study evaluated the effectiveness of an immersive-learning-based module for teaching the influence of parenting styles on child behavior in dental practice.

Methods: A mixed-methods study design was employed. The quantitative component followed a quasi-experimental approach, while the qualitative component involved focus group discussion. After obtaining ethical approval, a multidisciplinary stakeholder team was constituted. Needs assessment was done to identify the aspect of pediatric dentistry curriculum that can be delivered through the immersive learning based toolkit. Prior to the development of the immersive learning content, story board was developed. CVI values based on expert's response to questions indicating face validity was determined. The criteria having CVI values less than 0.5 were revised. Based on the validity of the storyboard, the immersive learning content was developed. Two immersive modules from the SKIL (Self-directed Knowledge Acquisition through Immersive Learning) toolkit, representing different parenting styles in pediatric dental setup were developed and implemented among 30 third-year BDS students. Knowledge acquisition was assessed using post-intervention test. Qualitative data were analyzed thematically by conducting Focused Group discussion with 8 students.

Results: Post-intervention assessments showed knowledge acquisition among participants. 80% of the students scored above 80% indicating the effective knowledge acquisition through the module. Thematic analysis identified enhanced understanding through immersion, effective integration of theory with clinical practice, emotional and cognitive engagement, and peer learning as major contributors to learning effectiveness. Students reported improved comprehension of complex psycho-social and communication-related concepts relevant to pediatric dental practice.

Conclusion: The findings support the integration of immersive learning tools into undergraduate dental curricula to foster experiential learning and soft skill development

Key words: Immersive Learning, Soft skills, Technology Integration

Journal of Clinical and Biomedical Sciences

Embedding Competency Based Education in Applied Nutrition Practical Examinations: An OSCE Framework

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Background: Competency-Based Education (CBE) emphasizes the assessment of learners ability to apply knowledge, clinical reasoning, and decision-making in authentic contexts. In applied nutrition education, traditional practical examinations often focus on factual recall and procedural tasks, limiting assessment of higher-order competencies. Objective Structured Clinical Examination (OSCE) offers a structured and standardized approach to competency-based assessment across multiple domains of nutrition practice.

Objective: To evaluate student performance across predefined applied nutrition competencies using an OSCE-based assessment framework and to examine competency-wise performance patterns across postgraduate batches.

Methods: A competency-based OSCE was implemented for postgraduate applied nutrition practical examinations involving 100 students across two academic batches. The OSCE comprised 20 structured stations, each of 4–5 minutes duration, designed around simulated clinical and public health nutrition scenarios. Stations assessed core applied nutrition competencies including nutrition screening and risk stratification, anthropometric interpretation, biochemical assessment, dietary assessment, maternal and child nutrition, neonatal care, and application of dietary standards. Performance was evaluated using standardized checklist-based scoring aligned with predefined competencies. The OSCE was mapped to the "Shows How" level of Miller's Pyramid and assessed higher-order cognitive domains of application, analysis, and evaluation as per Bloom's taxonomy. Scores were analysed descriptively.

Results: Mean OSCE scores ranged from 68% to 82% across stations. Higher performance was observed in stations assessing dietary standards application and anthropometric interpretation (78–85%). Lower scores were noted in biochemical data interpretation, nutrition risk stratification, and clinical decision-making stations (60–65%). Similar performance patterns were observed across both batches, supporting consistency of the framework.

Conclusion: The OSCE-based framework provided a feasible and effective approach for embedding competency-based assessment in applied nutrition practical examinations. OSCE facilitated authentic evaluation of higher-order cognitive and clinical reasoning skills and offers a replicable model for nutrition and allied health

Key words: Competency-Based Education, Objective Structured Clinical Examination, Nutrition Assessment

Journal of Clinical and Biomedical Sciences

Effect of Gamified Learning on Knowledge and its Acceptance among Undergraduate Medical Students

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Background: The integration of information and communication technology into the educational process enables learners to access a wide range of learning resources. Teachers face challenges in the classroom to create motivation and active participation in learning. Gamified learning can help students become more focused and lead to a deeper level of understanding. Although gamification and gamified learning are relatively new approaches in e-learning that have increased with the development of new technologies, very few studies have highlighted the effectiveness of this approach in India. Hence, this study is chosen.

Aim and objectives: This study aims to assess the effect of gamifying Physiology classes on the knowledge, satisfaction, and feedback on using gamified apps among undergraduate medical students.

Methodology: This Quasi-experimental study was done among first-year medical students aged ≥ 18 years. 250 students were divided into 4 groups with 62/63 students in each group. Two groups were randomly selected as the study group. A validated pretest questionnaire was used to assess their knowledge on the chapters - General Physiology and Blood. Gamification tools like Socrative, crossword puzzles, Slido, and Google Forms were used while teaching. Post-test marks and feedback about the session and response to the gamification acceptance questionnaire were collected. The other two groups act as control, where pretest marks, post-test marks, and feedback were collected following a routine class without using gamification apps.

Results: Continuous variables were expressed as mean ± SD. Paired and unpaired t-tests were used for comparison within and between groups, respectively. There is a significant increase in knowledge in both groups. The study group's knowledge significantly increased(P <0.001) over the control group. The level of satisfaction was also considerably high (P = 0.02) in the study group. Gamification acceptance score was 90.24 ± 10.72, and 60% had prior exposure to gamification. Thematic analysis showed that students were interested in gamification and needed more sessions. Slido was the most preferred tool.

Conclusion: Gamifying medical education enhances students' understanding of the subject. It increases their level of satisfaction and acceptance. These types of gamifying tools can be used in lecture classes to make them more interactive and engaging.

Key words: Acceptance, Gamification, Knowledge, Quasi experimental

Journal of Clinical and Biomedical Sciences

Embedding Empathy in Dental Training: Outcomes of a Geriatric-Focused Educational Intervention

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Background: Empathy and a positive attitude play a crucial role in effective dental care, especially while treating geriatric patients. Empathic behaviour improves patient trust, reduces anxiety, and enhances treatment outcomes. However, studies indicate a decline in empathy as dental students advance in their training, and the Indian BDS curriculum lacks structured empathy training.

Methods: Following ethical approval, 73 IV BDS students were randomly allocated into a control group (n=36) and an intervention group (n=37). Baseline attitude levels were assessed using Kogan's Attitudes Towards Old People (KAOP) scale. The intervention group underwent a structured training module comprising lectures, group discussions, and student–patient interactions focusing on age-related changes and empathy, while the control group received no intervention. Attitude scores were reassessed immediately and two months after the intervention. Data were statistically analysed.

Results: The intervention group showed a statistically significant improvement in mean attitude scores compared to the control group both immediately and at two-month follow-up ($p < 0.001$).

Conclusion: The empathy and attitude-building training module significantly improved dental students' attitudes towards geriatric patients. Empathy is a teachable skill and can be effectively incorporated into the undergraduate dental curriculum to promote patient-centred geriatric care.

Educational Impact: The training module enhanced students' understanding of empathy, refined their attitude towards geriatric patients, and encouraged patient-centred communication in dental practice.

Keywords: Empathy, Training, BDS

Journal of Clinical and Biomedical Sciences

A Survey on the Utilization of Digital Tools in Teaching, Learning, and Assessment among Physiotherapy Students and Educators

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Background: Physiotherapy education requires students to acquire extensive theoretical knowledge and clinical skills. With the growth of technology and the rapid shift during the COVID-19 pandemic, digital tools such as learning management systems, video conferencing, simulations, and assessment platforms have become integral. However, evidence on their adoption, effectiveness, and challenges remains limited.

Methods: A cross-sectional online survey was conducted (April–June 2025) among physiotherapy students and educators across India. A total of 344 participants (124 educators, 220 students) completed a validated questionnaire covering demographics, tool usage patterns, facilitators and barriers, and perceptions of digital integration. Descriptive statistics, chi-square tests, and correlation analyses were performed; open-ended responses were thematically analyzed.

Results: Digital tool use was widespread. The most frequently reported categories were learning management systems (36.3%), video conferencing platforms (12.2%), online assessment platforms (11.6%), and virtual simulations (8.7%). Mean frequency of use was 2.21 (SD = 1.25), and perceived effectiveness was 3.27 (SD = 0.99). No significant correlation was found between frequency and effectiveness (Spearman's r = –0.15, p = 0.128). Qualitative findings highlighted institutional support, faculty training, and access to platforms as facilitators, while poor infrastructure, limited skills, and resistance to change were barriers.

Conclusion: Digital tools are widely adopted in physiotherapy education, but effectiveness depends more on integration and support than frequency of use. Strengthening infrastructure and digital literacy is essential to enhance their impact.

Keywords: Physiotherapy education; Digital tools; Learning management systems; Video conferencing; Online assessment; Barriers and facilitators; India

Journal of Clinical and Biomedical Sciences

Using Standardized Patients to Support Early Clinical Transition in Dental CBME: A Qualitative Study of Student Experiences

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Background: The transition from preclinical training to clinical postings in the third year of undergraduate dental education poses challenges for students, particularly in history taking and patient communication. Competency-Based Medical Education (CBME) advocates early, structured, and safe learning opportunities to develop these foundational competencies. Standardized patient (SP) encounters provide a protected environment where learners can practice clinical interactions before engaging with real patients.

Aim: To explore third-year dental students' experiences of a standardized patient–based learning framework introduced at entry to clinical training, using clinical scenarios to support competency development in history-taking and communication.

Methods: An exploratory qualitative study was conducted among third-year undergraduate dental students during their initial clinical postings. Students participated in sequential standardized patient encounters: an irreversible pulpitis case involving a carious mandibular molar, and an Ellis Class IV fracture of a maxillary central incisor. Both scenarios were competency-mapped to CBME domains and aligned with Miller's Pyramid at the "Shows How" level. Data were collected through focus group discussions and written reflective narratives. Transcribed data were analysed using thematic analysis.

Results: Students described the standardized patient encounters as authentic, low-threat learning experiences that facilitated structured history taking and improved confidence in patient communication. Exposure to different clinical contexts enabled learners to recognize progression in their questioning strategies, adaptability in communication, and integration of clinical information. The reflective process also generated constructive feedback on areas for improvement in the design and implementation of the SP framework.

Conclusion: The use of multiple standardized patient encounters at the entry to clinical training provides an effective CBME-aligned framework for developing foundational communication and history-taking competencies in dental students. A qualitative approach is essential to capture learner experiences and inform iterative refinement of standardized patient models for early clinical education.

Keywords: Competency-Based Education, Standardized Patients, Early Clinical Exposure, Communication Skills, Qualitative Study

Journal of Clinical and Biomedical Sciences

From Stage to Simulation: Using Stanislavski's Acting Techniques for Training Healthcare Staff as Simulated Patients and their Standardization

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Background: Simulated Patients (SPs) are essential for assessment in health professions education, but their effectiveness depends on realism, authenticity, and standardization. Many institutions, particularly in resource-limited settings, face challenges in recruiting professional actors. This study aimed to evaluate the effectiveness of a training program based on Stanislavski's Acting techniques to prepare hospital staff as simulated patients and standardization.

Methods: A mixed-methods pre–post study was conducted at a tertiary care institution to train hospital staff as SPs using Stanislavski-based acting techniques, including tempo–rhythm, relaxation and circle of attention, 'Magic If,' inner life development, voice modulation, improvisation, and physical action-based characterization. Twenty-two participants completed baseline assessment, and twelve completed the full training and post-assessment. Outcomes included knowledge score (range: 0–100%), self-confidence rating (range: 20–100), and performance quality measured using SIMU-ACT (range: 0–100%). Standardization was evaluated through repeated portrayal performance. Non-parametric analyses were applied.

Results: Participants had no prior acting or SP training experience. Median knowledge scores improved significantly from 62.5% (IQR 62.5–75) to 87.5% (IQR 75–100; p = 0.0037). Self-confidence increased from 55.5 (IQR 48–60) to 65 (IQR 56–76, p = 0.589). SIMU-ACT scores improved markedly from 40.3% (IQR 22.2–51.9; 100% failure rate) to 80.5% (IQR 71.4–88; 0% failure rate; p = 0.0022). Repeat performances demonstrated strong standardization, with median repeat SIMU-ACT score of 86.7% (IQR 80.6–90.8) and a median difference of 4.5% (IQR 1.4–7). Participants reported that Stanislavski techniques enhanced realism, reduced anxiety, and supported consistent portrayal.

Conclusion: Stanislavski-based training effectively prepared non-clinical hospital staff to function as realistic and standardized SPs, demonstrating significant improvements in knowledge, performance quality, and consistency. This approach offers a feasible, cost-effective strategy for building institutional SP capacity and strengthening simulation-based education, particularly in resource-limited contexts.

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Revisiting Small-Group Teaching: Do Jigsaws Fit Better Than Seminars For Active Minds In Small Groups?

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Background: In recent decades, medical education has undergone significant transformation, with a progressive shift towards learner-centered pedagogical approaches. With advancements in educational technology, several innovative cooperative learning methods have been experimented to enhance learning effectiveness in small group teaching (SGT) environments. Despite increasing evidence supporting cooperative learning in medical education, studies related to direct comparisons between jigsaw and peer assisted group seminars remain limited

Methods: A total of 150 final year MBBS students were included in the study. Few exam relevant core competencies in obstetrics and gynecology were selected. Students were divided into two groups (Group A and B) based on the marks obtained in internal assessment ensuring equal distribution of potential and advanced learners in both the groups. Students in Group A were further divided into batch of five for peer assisted group seminars wherein students discuss the assigned topic within allocated batch and present followed by faculty-facilitated discussion. Jigsaw cooperative learning method was employed for Group B. Learning outcomes were assessed using pre and post-intervention assessment. Following this, a pre-validated questionnaire was administered to study the students' perception about usefulness and their willingness for extension of such cooperative learning strategy to other topics

Results: Comparison of assessment scores revealed better performance among students who participated in jigsaw session (16.7 + 2.81) compared to those in group seminar (15.67 + 2.67). Perceptions obtained on a Likert scale showed statistically significant difference in median scores and favored extension of Jigsaw for small group teaching sessions

Conclusion: Since positive outcomes are reported towards this collaborative approach a blend of lectures along with such cooperative learning sessions can be considered for optimal accomplishment of competencies by young graduates

Key words: Final year MBBS, Peer assisted seminar, Jigsaw

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A Comparative Study on the Effectiveness of Workshop-Based versus Traditional Practical Modules in Teaching Maitland Mobilization to Physiotherapy Students

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Background: Maitland mobilization is one of the most widely used techniques in musculoskeletal physiotherapy. Recent pedagogical advances draw attention to the approaches that are of a more structured nature and focus upon the learner such as workshop-based modules. There's still a noticeable lack of research that directly compares different teaching methods for Maitland mobilization. Therefore the aim of this study was to compare the effectiveness of traditional hands-on teaching versus a structured workshop-based approach in teaching Maitland mobilization to physiotherapy students.

Method: This study included 60 third-year Bachelor of Physiotherapy (BPTh) students who voluntarily participated after providing informed consent. Ethical approval was obtained from the Institutional Review Board. All participants attended a one-hour theoretical lecture on Maitland mobilization before being randomly assigned into four equal groups (A–D) using a crossover design. Groups A and D received workshop-based training for upper extremity techniques and traditional practical sessions for lower extremity techniques, while Groups B and C received the reverse. Performance was evaluated one week post-intervention using an Objective Structured Practical Examination (OSPE) and a multiple-choice questionnaire (MCQ).

Results: Both methods were effective for knowledge acquisition, with no major differences in cognitive test scores. However, workshop-based modules significantly outperformed traditional practical modules in OSPE scores, student satisfaction, and perceived learning outcomes. Students rated workshops higher for clarity (mean 4.62 vs. 2.77, $p < 0.001$), engagement (mean 4.73 vs. 2.71, $p < 0.001$), confidence in practicing skills (mean 4.19 vs. 2.74, $p < 0.001$), and overall learning effectiveness.

Conclusion: Workshop-based modules provide superior outcomes compared to traditional practical teaching for Maitland mobilization, particularly in psychomotor skill acquisition, learner engagement, and confidence.

Key words: Maitland Mobilization, Workshop-based module, Objective Structured Clinical Examination, Physiotherapy students, and Pedagogical Approach.

Journal of Clinical and Biomedical Sciences

Feed-Forward Assessment and Peer Marking: A Formative Strategy to Improve Academic Performance in Allied Health Education

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Background: In the Indian context, particularly in allied health education, assessment practices are predominantly summative. Many students enter professional courses with limited exposure to academic writing and feedback practices, which further contributes to poor outcomes. Formative strategies such as feed-forward assessment and peer marking have the potential to clarify expectations, enhance feedback literacy, and promote self-regulated learning.

Objectives: To evaluate the effectiveness of feed-forward assessment combined with peer marking in improving academic performance and to explore student perceptions of these formative strategies among first-year physiotherapy (BPT) students.

Methods: This quasi-experimental interventional study was conducted among 40 BPT students. Baseline academic performance was assessed using marks obtained in the first and second internal assessments of Physiology. The intervention consisted of five structured sessions of assignment writing, peer marking, and feedback discussions conducted after completion of didactic teaching for selected systems. Students worked in small groups to frame answers, evaluate peer assignments using standard references, and receive feedback from peers and faculty. Post-intervention academic performance was assessed using model examination scores. Student perceptions regarding the intervention were collected using a semi-structured questionnaire comprising Likert-scale and open-ended questions.

Results: There was an improvement in post intervention exam scores (37±19) compared to pre-intervention internal assessment scores (34±19) but was not statistically significant. Good agreement was observed between peer-awarded and faculty-awarded marks, indicating improved understanding of assessment standards. Perception analysis revealed enhanced clarity of expectations, improved academic writing skills, increased confidence, and positive attitudes towards peer learning and feedback.

Conclusion: Feed-forward assessment combined with peer marking is an effective formative strategy to enhance academic performance, feedback literacy, and learner engagement among first-year BPT students. Qualitative feedback highlighted reduced assessment-related anxiety and improved engagement with learning. Incorporating such approaches early in professional training may better prepare students for summative assessments and lifelong learning.

Key words: Feedforward assessment, Peer marking, formative, assessment

Journal of Clinical and Biomedical Sciences

Frameworks Outcome-Based vs Competency-Based Education in Ayush: A Comparative Educational Analysis

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Background: The evolving expectations from health professionals and the growing emphasis on social accountability have prompted Ayush education to re-examine its curricular frameworks. Traditionally anchored in outcome-based education (OBE), Ayush curricula are increasingly engaging with competency-based education (CBE) to better prepare graduates for authentic clinical practice. This comparative educational analysis explores the conceptual and practical distinctions between OBE and CBE within the Ayush context.

Methods: A comparative framework mapping approach was employed, supported by narrative synthesis of contemporary health professions education literature. OBE and CBE models were analysed across philosophical orientation, curriculum design, teaching–learning strategies, and assessment practices, with reference to learner-centredness, workplace-based assessment, and responsiveness to community healthcare needs relevant to Ayush systems.

Results: OBE demonstrated strengths in curricular structure and clarity through predefined learning outcomes and summative assessment, yet showed limited alignment with real-world clinical performance. CBE emerged as a more integrative model, encompassing knowledge, clinical skills, communication, professionalism, and ethical practice. Concepts such as Entrustable Professional Activities, milestone-based progression, and programmatic assessment showed strong potential to bridge classical Ayush knowledge with contemporary healthcare expectations. Faculty preparedness and assessment standardization were identified as key implementation challenges.

Conclusion: While OBE provides a foundational curricular framework, CBE offers a more comprehensive, clinically meaningful, and practice-oriented approach for Ayush education. A phased, context-sensitive transition towards CBE may better support the development of competent, accountable, and practice-ready Ayush graduates.

Key words: Ayush education; competency-based education; outcome-based education; health professions education; assessment frameworks

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A Comparative Evaluation of Technology Assisted and Non technological Gamified Learning on Knowledge of Early Childhood Caries Prevention among Undergraduate Dental Students

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Background: Traditional lectures inadequately engage dental undergraduates. Gamification promotes active learning, but evidence comparing technology-assisted and non-technological gamification learning approaches in ECC education needs to be explored. This study compares the effectiveness of technology-assisted and non-technological gamified learning on ECC prevention knowledge among undergraduate dental students.

Methods: A quasi-experimental study will be conducted among 3rd-year undergraduate dental students randomly assigned to: (1) Technology-Assisted Gamification (digital quizzes, scenario-based polls, leaderboards) or (2) Non-Technological Gamification (card/board games, role-play, puzzles). Both groups will receive identical ECC prevention content. Knowledge gain will be measured using validated pre- and post-test MCQs. Student engagement and perceptions will be assessed via a Likert-scale questionnaire. Station scoring will be standardized and outcomes will be mapped to Kirkpatrick Levels 1 and 2. Data will be analysed using paired and independent t-tests ($p < 0.05$).

Results: Results indicated that that technology-assisted gamification was more effective in improving knowledge than non-technical gamification. TAG group reported significantly better perceived improvement in understanding of ECC preventive strategies compared with the NTG group.

Conclusion: Gamification enhanced learning however, digital gamification yielded superior outcomes in terms of student test score success compared to non-digital. To gain a more comprehensive understanding of the long-term effects of gamification, further studies are recommended.

Key words: Early Childhood Caries, Gamification, Dental Education, Technology-Assisted Learning, Competency-Based Education.

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Need Assessment for Developing a Viva Question Randomization Software

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Background: Viva voce examinations are an essential component of assessment in medical and health sciences education. However, conventional viva practices often suffer from inconsistency in question difficulty, examiner bias, and lack of standardization, raising concerns about fairness and reliability. Digital solutions that enable systematic randomization of questions may help overcome these limitations.

Methods: A cross-sectional, questionnaire-based need-assessment survey was conducted among medical teachers involved in conducting viva voce examinations. The survey explored current viva practices, perceived challenges, and expectations regarding a proposed Viva Question Randomization Software.

Results: A total of 242 faculty members participated in the survey, representing a range of teaching and examination experience. Current major challenges were "Difficulty in covering the syllabus uniformly" and "Unequal question difficulty". Most respondents (4.46±0.93 on a 5-point Likert scale) acknowledged that a software that generates randomized viva questions would be useful, and they would like to use such a software if made available (4.29±1.08 on a 5-point Likert scale). Key anticipated benefits included "equalized question sets for each student," "topic-wise question grouping," and "difficulty level-wise questions access."

Conclusion: The findings indicate a perceived need for a viva question randomization software in medical education. Faculty members recognize its potential to enhance the uniform distribution of questions from all chapters. These results provide empirical support for the development of a user-oriented, evidence-based digital tool to improve oral assessment practices in health professions education.

Keywords: viva voce; oral assessment; medical education; question randomization; educational software; need assessment

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Adoption of AI-Assisted Learning Tools Among First-Year MBBS Students: Opportunities and Concerns in a CBME Curriculum

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Background: Artificial intelligence (AI)–assisted learning tools are increasingly used by medical students; however, evidence regarding their adoption, perceived usefulness, and ethical concerns within a Competency-Based Medical Education (CBME) framework remains limited.

Methods: A descriptive cross-sectional survey was conducted among first-year MBBS students at a rural medical college in South India. An anonymous, validated online questionnaire assessed demographics, digital access, awareness and patterns of AI use, perceived usefulness, concerns, training needs, and open-ended feedback. Descriptive statistics were applied, and qualitative responses were analysed using thematic content analysis.

Results: Of 200 eligible students, 142 participated (response rate 71%); 28.9% were males and 71.1% tools was universal, and all respondents reported academic use.
AI tools were primarily used for summarizing notes, understanding difficult concepts, exam preparation, writing assignments, and generating practice questions. 73.9% agreed or strongly agreed that AI facilitated faster understanding of complex topics, 69.7% reported improved exam preparation, and 69.0% felt AI supported self-directed learning in CBME. Confidence in learning was enhanced in 59.1% of students. However, only 54.9% agreed that AI-generated information was generally accurate.
Ethical concerns were prominent: approximately two-thirds of students expressed concerns about misleading information, reduced critical thinking, plagiarism, and data privacy. 72.5% strongly supported need for faculty-developed guidelines, and 62.0% favoured formal introduction of AI into CBME curriculum. Open-ended responses emphasised AI as a time-efficient, supportive learning aid, while cautioning against overdependence and advocating structured faculty guidance.

Conclusion: AI-assisted learning tools are widely adopted and positively perceived among first-year medical students. Thoughtful integration into CBME, supported by faculty guidance, ethical frameworks, and targeted training, is essential to maximise educational benefits while mitigating risks.

Key words: AI-Assisted Learning, Educational Technology, Medical Students, Self-Directed Learning, Digital Health Education, Ethics

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Innovative Quiz-Based Formative Assessment in AETCOM: Ethics and Professionalism Competencies Among Third-Year MBBS Students

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Background: Competency-Based Medical Education (CBME) requires assessment of ethics, professionalism and communication alongside clinical knowledge and skills. The Attitude, Ethics, and Communication (AETCOM) curriculum aims to develop these competencies; however, feasible assessment strategies during routine teaching are often limited. Interactive quiz-based formative assessments can integrate assessment with learning, provide immediate feedback, and generate objective analytics that help educators understand learner performance and areas requiring reinforcement. This study aimed to assess the ethics and professionalism competencies of third-year MBBS students using an innovative quiz-based formative assessment in AETCOM, and to evaluate the acceptability and identify learning gaps using student feedback and item difficulty/time metrics derived from quiz analytics.

Methods: A cross-sectional descriptive educational evaluation was conducted during a scheduled AETCOM session for third-year MBBS students at a tertiary care teaching institution. A quiz-based formative assessment aligned with AETCOM ethics and professionalism competencies was administered using an online interactive platform (Wayground). Quiz analytics captured overall accuracy, score, correct/incorrect/unattempted responses, item-wise correctness, and time taken. Immediately after the session, students provided structured feedback using a five-point Likert scale on engagement, usefulness, relevance to clinical practice, and reinforcement of learning, along with brief suggestions. Data were analysed using descriptive statistics and the Qualitative Analysis Thematic approach.

Results: A total of 229 students participated. The mean overall quiz accuracy was approximately 81%, indicating satisfactory understanding of assessed AETCOM competencies. Item-wise analysis demonstrated variability in performance, with lower correctness observed in questions requiring higher-order ethical decision-making. Feedback indicated high acceptability of the quiz-based assessment, with mean Likert scores exceeding 4.3/5 across engagement, usefulness and relevance, and more than 95% of participants preferred similar assessments in future AETCOM sessions. Student suggestions commonly emphasised increased engagement and the value of immediate feedback into 4 themes by Qualitative analysis.

Conclusion: Innovative quiz-based formative assessment is a feasible and well-accepted approach to assess AETCOM ethics and professionalism competencies among undergraduate medical students. Quiz analytics can highlight learning gaps and support assessment-for-learning within the CBME framework.

Key words: AETCOM; Competency-Based Medical Education; Ethics Education; Professionalism; Formative Assessment; Medical Education

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Enhancing Surface Marking Competence Using Horizontally Aligned Practical Teaching in Phase 1 MBBS students: A Crossover Study

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Background: Surface marking is an essential clinical skill for accurate palpation and interpretation of medical images. However, undergraduate medical students often demonstrate poor competence in surface anatomy. Many innovative teaching strategies require additional instructional time, limiting their routine implementation in an already crowded curriculum. Horizontally aligned teaching that integrates disciplines within existing practical sessions may provide a feasible alternative.

Objectives: To evaluate the effectiveness of horizontally aligned Anatomy Physiology practical teaching in improving surface marking competence among Phase 1 MBBS students and to explore student perceptions.

Methodology: This crossover study was conducted during routine Anatomy and Physiology practical sessions. The intervention included surface anatomy of the head and neck and lower limb. Anatomy surface marking was integrated with relevant Physiology components palpation of peripheral arterial pulses for the lower limb, and palpation of the common carotid artery, superficial temporal artery, and assessment of jugular venous pulse for head and neck. Group A received aligned teaching for head and neck topics and conventional teaching for the lower limb, while Group B received aligned teaching for the lower limb and conventional teaching for head and neck topics. Baseline competence was assessed before the intervention using a structured checklist evaluating anatomy surface marking and related physiology practical skills. The same checklist was used for post-intervention and crossover assessments.

Results: One hundred and fifty students participated. Pre post data were available for 107 students, while crossover and paired analyses included up to 130 students. Baseline competence was low (median score 3.0; IQR 1.0–5.0). Post-intervention scores improved significantly (median 8.0; IQR 6.5–9.5; $p < 0.001$). Aligned teaching produced significantly higher scores than conventional methods during both crossover phases ($p < 0.001$).

Conclusion: Horizontally aligned Anatomy Physiology practical teaching significantly improves surface marking competence and supports integrated learning without increasing curricular burden.

Keywords: Surface Anatomy, Clinical Examination, Curriculum Integration, First-Year Medical Students, Anatomy Education.

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QR Code–Enabled Feedback for Skill Lab Mannequin Utilisation: Outcomes from a Large Undergraduate Cohort

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Objectives: Skills laboratories play a critical role in competency-based undergraduate medical education, with the National Medical Commission (NMC) mandating exposure to defined mannequins and procedures. Despite this, structured mechanisms to monitor utilisation, learner satisfaction, and quality improvement in skills labs are limited, particularly in institutions managing large student cohorts. This study describes the implementation and analysis of a QR code–based feedback system to monitor skills laboratory utilisation and learner perceptions.

Methods: A descriptive observational study was conducted in a central skills laboratory catering to approximately 250 third-year and 250 fourth-year MBBS students. A QR code–based feedback tool was introduced across all mannequins mapped to NMC requirements. Feedback was collected immediately after each session between February and August 2025. The tool assessed four domains—learning outcome, equipment satisfaction, process satisfaction, and perceived usefulness—using a 5-point Likert scale. Session counts, participant numbers, departmental utilisation, monthly trends, and low-rating events (≤2) were analysed.

Results: A total of 97 skills lab sessions were conducted, generating 2,553 learner responses. Mean ratings were high across all domains: learning outcome (4.40), equipment satisfaction (4.23), process satisfaction (4.39), and usefulness (4.45). Utilisation increased steadily from 1 session (20 participants) in February to 22 sessions (572 participants) in August. General Medicine accounted for the highest utilisation, followed by Paediatrics, General Surgery, and Obstetrics & Gynaecology. Eleven sessions (11%) recorded at least one rating ≤2, most commonly related to equipment or process issues. Equipment satisfaction showed progressive improvement over time, suggesting responsiveness to early feedback.

Implications for practice: QR code–based feedback provides a simple, scalable approach to monitor skills lab utilisation, learner satisfaction, and quality indicators in large undergraduate cohorts. Beyond documenting compliance with regulatory requirements, this system enabled identification of actionable deficiencies and supported continuous quality improvement in skills-based training.

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Development and Evaluation of Virtual Reality (VR) Module on Heart's Blood Supply as a Pedagogical Tool in Teaching & Learning Anatomy for First year medical students

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Background: With the development of digital and immersive technologies in anatomy education, virtual reality (VR) has emerged as a game-changing pedagogical tool. Despite encouraging findings, there are still very few specialized virtual reality modules designed for the complex heart's blood supply, which is fundamental in clinical cardiology and surgery. The objective of this study is to design, develop and evaluate a VR module on heart's blood supply for teaching & learning Anatomy for first year medical students.

Methods: The study was conducted in the Virtual Reality lab of a tertiary care hospital attached medical college. The study participants included 250 phase 1 undergraduate medical students. The development of the virtual reality (VR) module on the blood supply of the heart was undertaken in four sequential phases: data acquisition, image processing and 3D reconstruction, VR integration, and validation. Coronary angiographic datasets were sourced from the Department of Radiology with all identifying patient information removed. The reconstructed 3D models were imported into the Immersive Touch® platform, which allows immersive, haptic-enabled interactions. Traditional teaching-learning sessions were followed by VR lab teaching-learning sessions. A pre & post tests were conducted. The effectiveness of the VR module was evaluated using Kirkpatrick's level 1 and level 2.

Results: More than 90% of students obtained marks above 70% in the post-test. The difference between pre- and post-test scores was statistically significant, indicating a significant improvement in knowledge after the intervention. The feedback from first-year MBBS students following their VR lab visit was overwhelmingly positive.

Conclusions: The present study's results are highly consistent with broader literature, affirming the efficacy of VR in enhancing anatomical knowledge, especially for complex three-dimensional structures and spatial relationships. Virtual reality is a valuable and powerful supplementary tool for modern anatomy education and can be used for a large group of students.

Key words: Virtual reality, anatomy education, immersive

Journal of Clinical and Biomedical Sciences

Development of a validated interprofessional Elderly care teaching module to enhance the interprofessional competencies among health care professionals

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Background: Elderly care demands a holistic, patient-centered approach that integrates expertise from multiple health professions. However, conventional healthcare education often emphasizes discipline-specific knowledge with limited focus on collaborative practice. Essential soft skills such as teamwork, communication, cultural competence, and ethical decision-making are frequently underrepresented. Interprofessional education (IPE) provides a platform for students from diverse health professions to learn with, from, and about each other, thereby fostering teamwork and improving care outcomes. Recognizing the high prevalence of anxiety, falls, diabetes, and hypertension among older adults, this study aimed to design and validate an interprofessional teaching-learning module to enhance healthcare professionals' competencies in elderly care.

Methodology: A quasi-experimental study was conducted in the Department of Forensic Medicine and Toxicology at KLE Homoeopathic Medical College, involving 70 students from Medicine, Dentistry, Physiotherapy, Psychiatry, Homoeopathy, Nursing, and Nutrition. The module addressing anxiety, falls, diabetes, and hypertension in the elderly was developed with expert input, validated, and pilot-tested. Evaluation included a validated pre–post multiple-choice questionnaire, interprofessional case scenarios and ICCAS score assessing collaboration, communication, shared decision-making, and holistic care planning.

Results: The module demonstrated strong content validity (CVI = 0.92) and high internal consistency and reliability (Cronbach's alpha = 0.868). Post-intervention and ICCAS analysis revealed a significant improvement in scores ($p = 0.001$), indicating its effectiveness in enhancing students' interprofessional knowledge and competencies.

Conclusion: In conclusion, the validated interprofessional module on anxiety, falls, diabetes and hypertension in elderly, significantly improved collaboration, communication, and understanding among healthcare students. This approach offers a sustainable, replicable model to prepare future professionals for the complex, team-based challenges of elderly care.

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What drives Adoption of Three-Dimensional Anatomy Learning Application among Undergraduate Medical Students? -An exploration using domestication theory

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Background: Three-dimensional anatomy applications are a potentially valuable complementary resource for learning anatomy. However, we found that our I year medical undergraduate students, despite being digital natives and the similar app interface, varied greatly in using an institutionally purchased 3D anatomy learning app. Hence, we undertook an exploration of the usage trends of the app and elicited factors that determine adoption of a 3D app for learning Anatomy through the lens of the Domestication theory.

Methods: We undertook an exploratory mixed methods study in a single institution. Universal sampling was carried out among all 150 I year medical undergraduates. In the first phase, participants filled an online questionnaire containing details of app usage. Following this, participants with high, low and discontinued usage of the app participated in a semi-structured Focus Group Discussion (FGD) for more comprehensive information. Deductive thematic analysis was carried out independently by two researchers to categorise responses.

Results: Majority of participants (65.4%) reported that they used the app, while 29.4% had used it initially but later discontinued usage, and only 5.1% had never used it. Regarding frequency, most participants reported either low usage (43.4%) or average usage (41.2%), with only a small percentage indicating high usage (5.1%). The categories could be sorted into themes based on the four dimensions of the domestication theory and findings suggest that while initial exploration is happening, sustained and confident usage needs improvement.

Conclusion: Factors related to academic gain, ease of access, support and pedagogical inclusion of activities are essential to learner adoption of technology. The factors that participants shared under the appropriation, objectification, incorporation and conversion spotlight that objectivation and incorporation are chief areas to improve adoption of learning applications. However, the domestication theory falls short of addressing individual learner motivation and behaviour in determining adoption.

Key words: 3D Interactive app, Domestication theory, Anatomy, Medical Education

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What Makes Bioethics Education Effective for Decision Making Skills? Playact or Case Based Debate Discussion: The Perception of Medical Undergraduate Student

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Introduction: Bioethics education is a critical component of undergraduate medical training, aiming to prepare future physicians to navigate complex moral dilemmas in clinical practice. Traditional didactic lectures often fall short in fostering ethical reasoning and decision-making skills, prompting educators to explore interactive pedagogies such as case-based discussions, debates, and role-playing activities to enhance moral competence and active engagement. This study investigates whether interactive educational strategies specifically playact (role-play enactment) and case-based debate discussions are perceived by medical undergraduate students as more effective than conventional methods in improving ethical decision-making skills. It seeks to compare student perceptions of learning effectiveness, critical thinking development, and decision-making confidence across these two approaches.

Methods : A mixed-methods cross-sectional design was used to collect data from undergraduate medical students exposed to both teaching strategies within a AETCOM modules. Questionnaire surveys measured students' self-reported decision-making confidence and perceived learning gains. Qualitative feedback was obtained through focus group discussions exploring students' lived experiences of playact and case-based debate sessions. Institutional AETCOM curriculum frameworks and student perceptions were analyzed to assess educational impact.

Results: 210 students' responses were analyzed and the majority of students demonstrated good to very good levels of ethical decision-making competence, with overall scores indicating effective conceptual understanding of patient autonomy and ethical principles. Teaching modalities incorporating playact and case-based debate discussions received significantly higher perception scores compared to conventional didactic lectures, particularly in domains of engagement, clarity, and application to real-life clinical scenarios.

Conclusion: Learner-centered, participatory teaching strategies enhance ethical understanding and decision-making preparedness. Early exposure to such methods during Phase II training may better equip students to navigate ethical challenges during clinical postings and future medical practice. The higher scores observed in the playact plus debate group further suggest that combining experiential enactment with structured analytical discussion may offer additive educational benefits.

Keywords: Bioethics, playact, debate, AETCOM

Journal of Clinical and Biomedical Sciences

Developing an Integrated Curriculum for Alcohol Use Disorder: A Competency-Based Approach for Undergraduate Medical Students in India

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Background: Alcohol Use Disorder (AUD) is a major public health problem globally and in India, contributing substantially to morbidity, mortality, and social harm. Despite this burden, undergraduate medical education in India has limited structured, competency-based training in AUD, resulting in gaps in screening, early intervention, counselling, and stigma reduction. Strengthening undergraduate training is essential to prepare future physicians for frontline identification and management of AUD.

Objectives: To develop an integrated, competency-based curriculum module on Alcohol Use Disorder for final-year MBBS students in India, aligned with national CBME requirements and grounded in established medical education frameworks.

Methods: Kern's six-step approach to curriculum development was used, incorporating problem identification, literature review, targeted learner needs assessment, formulation of competencies and learning objectives, selection of multimodal educational strategies, and planning for implementation and evaluation. Content was derived through literature review, curriculum mapping, and interdisciplinary faculty consultation. Assessment strategies were blueprint-mapped to competencies using formative tools and structured summative assessments. Evaluation planning was guided by Kirkpatrick's four-level model.

Results: The outcome was a fully developed, competency-mapped curriculum module comprising clearly defined learning objectives across cognitive, psychomotor, and affective domains; multimodal teaching–learning methods; aligned assessment blueprints for MCQs and OSCEs; a feasible one-day implementation plan; and a structured evaluation framework. The module is designed for phased pilot implementation in final-year MBBS students with scope for iterative refinement.

Conclusion: This curriculum offers a systematic and scalable approach to strengthening AUD education within undergraduate medical training. By improving knowledge, clinical skills, and attitudes, it has the potential to enhance early detection, reduce stigma, and support task-sharing approaches in addressing alcohol-related harm in India.

Key words: Alcohol use disorder; Undergraduate medical education; Competency-based curriculum; Kern's six-step approach; Medical education.

Journal of Clinical and Biomedical Sciences

Enhancing Competency-Based Postgraduate Pathology Education Through an Innovative Faculty Development E-Course to develop Entrustable Professional Activities

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Introduction: Competency-Based Medical Education (CBME), mandated by India's National Medical Commission (NMC), requires postgraduate pathology programs to ensure trainees achieve well-defined competencies. Entrustable Professional Activities (EPAs) are tasks that help bridge this gap. They bundle multiple competencies into a few concrete, real-world, profession-specific observable tasks that faculty can directly assess and formally entrust to the postgraduates. However, faculty expertise in concept and creation of EPAs remain scarce in India.

Objective: This study aimed to address this gap by designing and delivering a pioneering e-course with dual goals: (1) to build faculty capacity in understanding, EPAs, and (2) to collaboratively formulate a set of validated EPAs aligned with NMC's CBME curriculum.

Methods: The e-course was structured using the ADDIE instructional design model (Analysis, Design, Development, Implementation, and Evaluation). Conducted entirely online, the format made it feasible for faculty from diverse medical colleges and regions to participate. Over five months and five modules, participants engaged in a flipped-classroom approach that combined asynchronous preparatory materials with live interactive sessions. Faculty and participants collaboratively identified critical EPAs through a virtual Nominal Group Technique, and performed peer validation using structured checklists.

Results: Nineteen faculty members enrolled, with 18 completing the program. The process resulted in a validated list of 27 rotation-specific core EPAs for postgraduate pathology. Sixteen complete EPA descriptions were drafted, four underwent structured peer validation during the course, and a post-course cohort of 11 participants continues to advance EPA validation—demonstrating ownership of the product and sustainability through building community of practice.

Conclusion: This first-of-its-kind e-course globally not only achieved its goal of building faculty expertise in developing and validating Entrustable Professional Activities. It also served as a proof of concept for our program theory. Grounded in the unique needs of the Indian context—where CBME is still emerging this innovation demonstrated how globally aligned educational models can be brought home through innovative local adaptations giving strength to the concept of 'glocalization'

Journal of Clinical and Biomedical Sciences

From Linear Slides to Integrated Thinking: Evaluating NotebookLM-Based Mind Mapping in Undergraduate Dental Education

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Background: Dental education requires effective strategies to integrate complex conceptual and clinical knowledge. While concept mapping has been widely used to promote meaningful learning, it may impose high cognitive load. AI-supported strategies such as NotebookLM-based mind-mapping may enhance learning efficiency and clinical reasoning.

Objective: To compare the effectiveness of a NotebookLM-assisted mind-map teaching strategy with traditional concept mapping on knowledge acquisition, retention, clinical reasoning, and cognitive load among undergraduate dental students.

Methods: A randomized controlled educational trial was conducted among Bachelor of Dental Surgery students at Jouf University. Participants were randomly allocated to a NotebookLM mind-map group (n = 42) or a traditional concept mapping group (n = 41). Both groups received identical learning objectives, instructional materials, and learning time. Outcomes included pre-test, immediate post-test, delayed retention test, case-based clinical reasoning scores, perceived cognitive load, and student satisfaction. Data were analyzed using ANCOVA with baseline scores as covariates.

Results: Baseline pre-test scores were comparable between groups (NotebookLM: 41.6 ± 8.9 vs. Concept Mapping: 42.3 ± 9.1; $p = 0.72$). The NotebookLM group demonstrated significantly higher immediate post-test scores (78.4 ± 7.6 vs. 71.2 ± 8.3; $p < 0.001$) and superior retention at 4 weeks (74.1 ± 7.9 vs. 66.5 ± 8.6; $p < 0.001$). Clinical reasoning scores were also significantly higher in the NotebookLM group (16.8 ± 2.1 vs. 14.9 ± 2.4 out of 20; $p = 0.002$). Students using NotebookLM reported lower perceived cognitive load (Paas scale: 4.1 ± 1.2 vs. 5.6 ± 1.4; $p < 0.001$) and higher overall satisfaction scores (4.5 ± 0.6 vs. 3.8 ± 0.7 on a 5-point Likert scale; $p < 0.001$).

Conclusion: The NotebookLM-based mind-map teaching strategy was significantly more effective than traditional concept mapping in improving knowledge acquisition, long-term retention, clinical reasoning, and learner experience. Structured integration of AI-assisted mind-mapping may represent a valuable advancement in dental education pedagogy.

Keywords: Dental education; Mind mapping; Concept mapping; Artificial intelligence; NotebookLM; Cognitive load; Clinical reasoning

Journal of Clinical and Biomedical Sciences

Problem-Based Learning in Physiotherapy: Development and Implementation of a Structured Training Module for Faculty

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Objectives: Problem-Based Learning (PBL) is increasingly recognized as an effective pedagogical strategy for promoting critical thinking, clinical reasoning and self-directed learning in health professions education. Physiotherapy faculty play a pivotal role in facilitating PBL environments, however, many lack structured training in PBL facilitation and implementation. This study aimed to (1) develop an evidence-informed PBL training module for physiotherapy faculty (2) implement the module through a structured training program and (3) evaluate its effectiveness in enhancing faculty knowledge, facilitation competence and readiness to implement PBL.

Methods: The study was conducted in two phases. In Phase I, a comprehensive PBL training module was developed through literature review, expert consultation and review of physiotherapy clinical training needs. Content validation was undertaken by a panel of 9 experts in physiotherapy education. In Phase II, a pre-experimental one-group pretest–posttest design was employed. Seven physiotherapy faculty members participated in a two-day training workshop that included interactive lectures, case-based discussions, facilitator role-play and assessment practice. Baseline and post-intervention knowledge were measured using a structured questionnaire. Faculty facilitation skills were assessed by students during practice sessions using Dolmans' Short Tutor Evaluation Questionnaire.

Results: The developed module demonstrated robust validity, with a Content Validity Index (CVI) of 0.91 across all domains. Mean post-test knowledge scores (14.25 ± 2.10) were significantly higher than pre-test scores (9.83 ± 3.95), with a mean difference of 4.42 ($p = 0.02$), indicating substantial improvement in knowledge. Student evaluation using Dolmans' questionnaire reflected high levels of faculty facilitation competence, with mean ratings above 3/5 across clarity of guidance, stimulation of critical thinking, engagement and constructive feedback domains.

Implications: Participants indicated positive experiences with the PBL module, noting that the well-designed content, effective facilitation and interactive practical sessions significantly enhanced its overall value.

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Self-Directed Learning Readiness and Its Association with Competency Attainment in Biochemistry among MBBS Students -A Cross sectional Analytical study

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Background: Competency-Based Medical Education (CBME) emphasizes learner autonomy and lifelong learning, with self-directed learning (SDL) as a key strategy. However, learners vary in their readiness for SDL, and evidence linking self-directed learning readiness (SDLR) to actual competency attainment, particularly in pre-clinical subjects like Biochemistry, is limited.

Objectives: To assess self-directed learning readiness among MBBS students and determine its association with competency attainment in Biochemistry.

Methods: An analytical cross-sectional study was conducted among 150 first-year MBBS students. SDLR was assessed using the validated Fisher Self-Directed Learning Readiness Scale. Competency attainment was measured using a composite score derived from a blueprinted knowledge assessment, an eight-station Objective Structured Practical Examination (OSPE), and case-based application assessment. Data were analysed using correlation and multiple linear regression.

Results: The mean SDLR score was 147.9 ± 14.2, indicating moderate to high readiness. The mean composite competency attainment score was 74.3 ± 9.6. SDLR showed a significant positive correlation with competency attainment ($r = 0.46$, $p < 0.001$). Among SDLR domains, self-management demonstrated the strongest association ($r = 0.49$, $p < 0.001$). Students in the high SDLR tertile achieved significantly higher competency scores than those in the low SDLR tertile (81.2 ± 8.4 vs 67.5 ± 8.2; $p < 0.001$). SDLR emerged as an independent predictor of competency attainment on regression analysis.

Conclusion: Higher self-directed learning readiness is associated with better competency attainment in Biochemistry. Early identification of students with low SDLR and provision of structured SDL support may enhance learning outcomes under CBME.

Keywords: Self-directed learning readiness; competency-based medical education; Biochemistry; OSPE; undergraduate medical education

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Self-Perceived Competence of Interns in Western Maharashtra: A Cross-Sectional Study

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Background: Medical education has evolved through years. From the traditional time-limited blocks of coursework with assessment by high stake examination , it has now a structured competency-based approach. These competencies are defined for each subject over the entire course of medical education and assessed from time to time. The training is now based on DOAP- Demonstrate, observe, assist and perform method of teaching. However, the question remains that is the Indian medical graduate (IMG) feels competent to face the challenges of medical practice? To understand the perception of students a study was planned with the aim of assessing competence of interns in completing various core competencies.

Methods: A cross- sectional study was designed for the interns of a medical college in Western Maharashtra. Data was collected using a structured, pre validated questionnaire which consisted of 100 competencies listed by National Medical council for medicine surgery and allied subjects, and were grouped with respect to areas of patient care .A scoring system was developed to indicate feels competent, can perform the task with assistance and not competent.

Result: Data was analysed for 147 completely filled forms. Total score of individuals ranged between 69 to 221, with average score of 133.3 ± 30.9. Analysis was further done to pinpoint areas where students were less confident. Areas where maximum students felt less than 50% competent were recording and medical examination, while more number of students who felt more than 75% competent were for surgical first aid.

Conclusion: As very few students felt competent enough to perform the task on their own, emphasis should be given on perform part of DOAP method of medical education, so that students are ready to provide basic medical services.

Key words: Competencies, Self – Perceived competence, Medical students.

Journal of Clinical and Biomedical Sciences

Plastinated models: Innovative teaching-learning adjunct in Anatomy

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Background: The medical students of the newer generation are more enthusiastic and explorers when it comes to acquiring knowledge, especially through the world wide web (www) & multi-media. To increase their motivation and enhance anatomy learning various methodologies have been introduced in recent years like problem-based learning, virtual reality surgical simulators, and computer-based learning methods. One such innovative technique is Plastination. Plastinates have become one of the revolutionary innovations in medical education and have become ideal tutoring tool in other fields like pathology, obstetrics, radiology and surgery.

Objectives: The primary objective of this study was to assess the perception and utility of plastinated model as a novel educational tool among medical undergraduate students.

Materials & Methods: Small group Quasi-experimental study was done using questionnaires with a 5-point likert scale. Perception regarding the utility of this silicon cast and Plastinate model as learning tools in Anatomy was assessed among 70 medical students of our medical school.

Results*:* it was found that 72.7% (n=24) of pre-clinical and 75.6% (n=28) of clinical students agreed that plastinates can be utilized as an additional supplement tool along with the dissected specimens for learning anatomy. 93.9% (n=31) of pre-clinical and 83.7% (n=31) of clinical students agreed that plastinates can be included in the medical curriculum. 75.7% (n=25) of pre-clinical and 67.5% (n=25) of clinical students agreed that plastinates can accelerate their anatomical knowledge.

Conclusion: Plastinated Silicon models can be utilized to study various vascular patterns of different viscera in intricate details. Such an innovative low-cost, high-impact novel educational tool can be adopted for future research of vascular studies. We can conclude that plastinates can be useful only as an adjunct tool along with the wet specimens for learning anatomy.

Key words: plastination; anatomy; medical education.

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Perception of Undergraduate students of a Medical College about the Family Adoption Programme in Nashik District: A Cross-Sectional Study

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Introduction: The National Medical Commission has initiated the Family Adoption Programme (FAP) in an attempt to produce medical graduates with a community health perspective so that all residents will have access to the medical professionals and thereby will help to attain the national health goals[1].It seeks to improve health equity by giving Indian Medical Graduates an opportunity of hands on learning. The programme will help medical students to become better communicators, comprehend dynamics of rural areas, recognize illnesses and devise solutions to raise the standards of rural households[2]

Methods: This cross-sectional study was conducted over a period of six months in a medical college in Nashik district, Maharashtra. Medical undergraduate students of Phase I, Phase II, and Phase III Part I were the participants in the study. Universal sampling method was applied for selecting the participants. Data was collected using a predesigned, pretested, semi-structured questionnaire through Google forms. Data analysis was performed using appropriate statistical software, and results have been expressed as proportions, means, and standard deviations.

Results: A total of 337 out of 360 (93.61%) participants were studied. Advantages perceived by students were improvement of their knowledge about disease profiles in rural communities, enhanced understanding of community dynamics and the local healthcare delivery system, identification of health problems among family members, their holistic development as future physicians, and gaining hands-on experience in learning attitude, ethics, and communication skills.
Overall, the findings suggest that while logistical and academic concerns were minimal, managing expectations of beneficiary families remains an important area requiring attention for effective implementation of FAP.

Conclusion: The Family Adoption Programme is well accepted and educationally beneficial. Orientation of students and families, clear role definition, and regular faculty supervision can address challenges such as over-expectations. Improved logistical support, scheduling clarity, and periodic feedback will strengthen implementation and promote effective community-based learning in undergraduate medical education.

Key words: Family Adoption Programme, Medical Undergraduate Students, rural communities

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Role of Classical Language Competencies in AYUSH Education: Outcomes of an NCISM-Designed Competency-Based Dynamic Curriculum in Ayurveda, Unani, Siddha, and Sowa-Rigpa

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Introduction: AYUSH systems preserve their theoretical foundations, clinical principles, and epistemological integrity. Sanskrit in Ayurveda (BAMS), Arabic and Urdu in Unani (BUMS), Tamil in Siddha (BSMS), and Bhoti in Sowa-Rigpa (BSRMS) are indispensable for understanding original medical texts and applying authentic system-specific terminology in clinical practice. Strengthening functional language competence.

Methods: NCISM-designed Competency-Based Dynamic Curriculum (CBDC) for classical languages with RWSL in undergraduate BAMS, BUMS, BSMS, and BSRMS programs. The curriculum was examined for structured alignment from Programme Outcomes (POs) to Course Outcomes (COs), teaching–learning activities, and assessment strategies. Language competencies were operationalized through the Reading, Writing, Speaking, and Listening (RWSL) framework. Curriculum mapping focused on the integration of RWSL skills with academic learning, clinical exposure, documentation practices, and communication, with assessments designed to evaluate applied and functional language use.

Results: The CBDC enabled systematic development of language competencies relevant to academic understanding and clinical application. Learners demonstrated improved engagement with original classical texts, clearer articulation of concepts using authentic terminology, and enhanced ability to document and communicate clinical information accurately. Integration of RWSL skills within clinical contexts supported better correlation between textual knowledge and patient care across all four AYUSH systems, while maintaining linguistic and cultural specificity.

Conclusion: The NCISM-designed CBDC effectively embeds classical language competencies within undergraduate AYUSH education. Aligning RWSL-based language learning through PO–CO-LO mapping and assessment in ASU programs, the CBDC strengthens conceptual clarity, clinical precision, and preservation of traditional medical knowledge. Sustained implementation of this framework is essential for maintaining academic rigor and clinical authenticity.

Key words: CBDC; Sanskrit; Arabic-Urdu; Tamil; Bhoti; RWSL

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Digital Professionalism Across Cultures: New Competencies for a Hybrid Healthcare World

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Objectives: In this review, we seek to reconceptualise digital professionalism as a cross-cultural, measurable competence within health professions education. Although digital professionalism is increasingly 'recognised', current competence frameworks often reflect culturally specific assumptions about communication norms, professional boundaries and ethical conduct. This article addresses this gap by examining how cultural context shapes professional practice in digital and hybrid healthcare settings and by proposing a framework aligned with competency-based education principles.

Methods: A conceptual narrative review was conducted, drawing on literature on established concepts such as professionalism and competence frameworks, as well as new literature emerging in the context of digital health, medical education and cross-cultural studies. The review focused on telemedicine, social media learning tools, learner–educator interactions online (in voice threads and blogs), digital professional identities, and the ethical challenges associated with artificial intelligence. The cultural dimensions (values, power distance, language, societal expectations and healthcare system contexts) were analysed. Competency-based education and programmatic assessment principles were used to develop the framework.

Results: Our review describes an organisation with these competences and uses knowledge, skills, attitudes, and professional identity within a formalised framework for cross-cultural digital professionalism. The toolkit pinpoints domain-independent, observable behaviours and entrustable professional activities. Curriculum integration and assessment are discussed beyond the checklist, with strategies such as reflective practice, narrative assessment, and longitudinal feedback.

Implications: Incorporating intercultural digital professionalism into health professions education has significant implications for curriculum, faculty development, assessment, and accreditation. It is critical to prepare digitally competent, ethically sound, and culturally responsive graduates who will ensure safe, just, and professional practice across hybrid health systems.

Conclusion: Students presented with varying perceptions and honest feedback that could be used to enhance the practice of reflective training in the institute.

Keywords: Digital Professionalism, Cross-Cultural Competence, Professional Identity

Journal of Clinical and Biomedical Sciences

Effect of Structured Active Recall Interventions During Didactic Lectures on Student Engagement and Learning Outcomes Among First-Year MBBS Students: An Educational Interventional Study

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Background: Traditional didactic lectures often promote passive learning, leading to declining student engagement and suboptimal knowledge retention. Structured Active Recall (SAR) is an evidence-based instructional strategy that promotes retrieval practice and learner interaction.

Aim: To compare the effect of Structured Active Recall–integrated lectures with traditional didactic lectures on student engagement and learning outcomes among first-year MBBS students.

Methods: A randomized, mixed-methods educational interventional study was conducted among 150 first-year MBBS students. Participants were randomly allocated into intervention (SAR) and control (traditional lecture) groups. Engagement was assessed using the validated Student Engagement in Schools Questionnaire (SESQ), and learning outcomes were measured using standardized pre- and post-session MCQ tests. A crossover design was employed to ensure ethical parity. Statistical analysis was performed using paired and independent t-tests, with $p < 0.05$ considered statistically significant.

Results: Post-intervention SESQ scores showed statistically significant improvement in 7 of 11 engagement domains ($p < 0.05$), with notable gains in cognitive and affective engagement. Mean MCQ scores demonstrated significant improvement following SAR sessions compared to traditional lectures ($p < 0.001$).

Conclusion: Structured Active Recall significantly enhances student engagement and learning outcomes in undergraduate medical education. Incorporating SAR into routine didactic lectures is feasible, scalable, and well-aligned with Competency-Based Medical Education (CBME).

Keywords: Active recall, Student engagement, Medical education, SESQ, CBME

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Impact of Classroom Assessment Techniques on Cognitive Outcomes and Learning Behaviour in Competency-Based Medical Education

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Background: Competency-Based Medical Education (CBME) emphasizes continuous formative assessment and feedback to foster learner-cantered competency development. Classroom Assessment Techniques (CATs) are brief, interactive tools designed to monitor learning during classroom sessions. Their role in shaping medical students' cognitive outcomes and learning behaviours within CBME remains underexplored.

Objectives: To evaluate the effectiveness of CATs in enhancing cognitive skills and learning behaviour among first-year medical undergraduates in a competency-based curriculum.

Methods: A crossover randomized controlled trial was conducted among 125 first-year medical students at a tertiary teaching institution in northeastern India. Participants were randomized into intervention and control groups. The intervention group engaged in four structured small-group sessions incorporating CATs (3-2-1 strategy, memory matrix, application article, and Recall–Discuss–Connect–Summarize [RDCS]), while the control group received traditional small-group teaching. Knowledge acquisition was assessed using a validated 30-item MCQ tool aligned with Bloom's taxonomy. Pre- and post-test scores were analysed using paired and independent t-tests. After a one-month washout, groups were crossed over.

Results: In Phase 1, the intervention group showed a significant improvement in mean post-test scores compared to pre-test scores (14.49 ± 6.62 vs. 24.71 ± 7.83; $P = 0.001$), whereas the control group's improvement was non-significant. Similar findings were observed in Phase 2, with significantly higher knowledge gains in the intervention group (mean gain: 11.42; $P = 0.001$). CATs fostered active engagement, self-reflection, and peer collaboration, contributing to improved learning outcomes.

Conclusions: CATs significantly enhance cognitive skills and knowledge acquisition in CBME compared to traditional teaching. Their integration into routine teaching can strengthen formative assessment, promote self-directed learning, and support competency development in medical education.

Keywords: Classroom Assessment Techniques; Competency-Based Medical Education; Formative Assessment; Cognitive Skills; Medical Education

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Unlocking student engagement: Jigsaw classroom Versus Flipped class room in Medical Physiology education

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Background: Active learning strategies have gained prominence in medical education and among these, the Jigsaw classroom model and the Flipped classroom approach are widely implemented.
To compare the impact of Jigsaw classroom, Flipped classroom (FC), and Didactic Lecture-Based Teaching (DBT) on academic performance, student engagement, and learner perception among first-year MBBS students studying physiology.

Methods: A quasi-experimental study was conducted among 250 first-phase MBBS students at NRI Institute of Medical Sciences, Visakhapatnam, from November 2025 to December 2026. Students were randomly allocated into three groups: FC (n=83), Jigsaw (n=83), and DBT (n=84). Teaching was delivered over 8 weeks using standardized, difficulty-matched physiology topics. Pre-validated teaching materials—including videos, flowcharts, diagrams, and structured reading resources—were shared for the FC group 48 hours prior. For the Jigsaw group, a brief orientation and diagrammatic procedural guide were circulated beforehand. All students received pre-test, post-test, and 8-week retention tests. Data were analyzed using SPSS v29. One-way ANOVA with Tukey's post hoc test was used to compare mean scores across the three groups.

Results: The Jigsaw group showed the highest immediate learning gain with significantly higher post-test scores than FC and DBT ($p<0.05$). Long-term retention was greatest in the FC group ($p=0.048$). DBT showed consistently lower performance than both active learning groups. Feedback indicated that Jigsaw enhanced peer learning and teamwork, while the Flipped classroom improved engagement and pre-class preparedness.

Conclusion: Both Jigsaw and Flipped classroom methods effectively enhance learning in physiology. Jigsaw strengthens conceptual clarity through collaborative learning, whereas FC promotes independent, self-paced learning with superior retention. A blended approach may optimize educational outcomes in medical physiology.

Key words: jigsaw classroom, flipped class room, medical physiology

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Effect of Eating and Drinking Water During Classroom Teaching on Academic Performance Among MBBS Students: A Comparative Study

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Background: Classroom behaviours such as eating or drinking during lectures are increasingly common among medical students. However, their impact on academic performance remains underexplored in medical education settings.

Objectives: To assess and compare academic performance among MBBS students who drank water, and those who consumed food during classroom teaching compared to controls.

Methods: This comparative study included 150 MBBS students, of whom complete data were available for 141 students. Participants were categorized into three groups based on in-class practices: control group (no eating or drinking), water-drinking group, and eating group. Academic performance was assessed using multiple-choice questions (MCQs), short answer (SA) questions, total score, and percentage score. Descriptive statistics were calculated, and group comparisons were performed using one-way analysis of variance (ANOVA).

Results: The control group demonstrated higher mean scores across MCQs, SA questions, total score, and percentage score compared to the water-drinking and eating groups. However, one-way ANOVA revealed statistically significant differences with higher scores among control group compared to eating group for MCQ scores ($p = 0.019$) and total scores ($p = 0.028$). Short answer scores showed overlapping distributions and were interpreted descriptively. There was no statistical difference in score of water drinking group with other 2 groups.

Conclusion: various habits during lectures may cause deviation from sustained attention and cause cognitive distraction or cognitive overload. While drinking water maintains hydration, which favours cognition and memory retention, eating during class may impair learning. Minimizing in-class distractions may support better learning outcomes.

Limitations: Small sample size, single exposure.

Key words: Medical education; classroom behaviour; eating during class; hydration; academic performance; MBBS students

Journal of Clinical and Biomedical Sciences

Exploring Physiotherapy Student's Perception about Reflective Writing: A Mixed-method Study

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Background: Reflection is an active meta-cognitive process of reviewing, analysing and evaluating experiences in order to inform future actions. Enhancing reflective thinking in students is known to improve their critical thinking, problem solving ability, clinical reasoning, making them self-directed learners thereby leading to their overall professional development. There is limited empirical evidence of reflective practice in Indian Physiotherapy students. This study aimed to explore the perception of Physiotherapy students about reflective writing, the challenges faced and their facilitators and barriers after undertaking reflective exercises.

Methods: This exploratory study recruited thirty Physiotherapy interns who had participated in reflective writing sessions during the last 10 months of their course. They were interviewed in a group of 5 about their experiences of the reflective writing task along with any suggestions or feedback to improvise. Responses were analysed using thematic analysis and themes were identified. After the interviews, they were also asked to fill a pre-validated self-developed feedback form to explore their facilitators and barriers which was analyzed using descriptive statistics.

Results: Majority of them (83.33%,n=25) perceived that reflective writing helped them to identify their strength and weakness, enriched their expressive ability (90%, n=27), and improved clinical reasoning skills (43.33%,n=13). About 66.67%(n=20) reported that writing reflection after clinical postings was much easier compared to didactic class. Few of them felt it was very monotonous (46.66%, n=14), found it difficult to express thoughts through writing (40%,n=12) and didn't feel motivated (30%, n=9). Almost 70%(n=21) agreed that they would continue the practice of writing reflections as a professional Physiotherapist. Following key themes emerged from interviews: usefulness of reflection, usability of grading rubric, suggestions for implementation and challenges faced.

Conclusion: Students presented with varying perceptions and honest feedback about reflective writing that could be used to enhance the practice of inculcating reflective training in the institute.

Key words: Reflective writing, Physiotherapy student perception, feedback, reflections

Journal of Clinical and Biomedical Sciences

Cine-Medicine in AETCOM: A New Frontier in Medical Education – An Innovative Interpretative Model

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Introduction: Attitude, Ethics, and Communication (AETCOM) form a foundational component of the MBBS curriculum, aimed at shaping professionally competent, empathetic, and ethically responsible physicians. Traditional teaching methods often struggle to fully engage students or simulate real-life dilemmas. Cinema, as a visual narrative medium, offers a dynamic platform for interpreting complex human emotions, ethical conflicts, and doctor–patient interactions, making it a promising tool for AETCOM teaching.

Objectives

1. To evaluate the effectiveness of cinema-based teaching in enhancing understanding of AETCOM competencies among MBBS students.
2. To assess student engagement, reflection, and interpretative ability through cine-medicine scenarios.
3. To compare cinema-assisted sessions with conventional AETCOM teaching methods.

Methods: A mixed-method study was conducted among 3rd-year MBBS students at Sri Ramachndra Medical college and Research Institute. Selected film clips depicting ethical dilemmas, professionalism, empathy, communication failures, and doctor–patient dynamics were screened during structured AETCOM sessions. Students participated in guided reflection, small-group discussions, and interpretative exercises. Pre- and post-session questionnaires assessed knowledge gain, attitude shifts, and perceived relevance. Qualitative feedback was collected through open-ended reflections and focus-group discussions.

Results: Cinema-based AETCOM teaching resulted in significantly improved student engagement and conceptual understanding. Post-session scores showed higher recognition of ethical principles, empathy cues, and communication strategies compared with baseline. Qualitative analysis revealed increased emotional resonance, better recall of scenarios, and deeper interpretation of professional responsibilities. Students reported that cinematic content made ethical dilemmas more relatable and easier to analyse.

Implication: Integrating cinema into AETCOM teaching provides a powerful interpretative model that complements traditional pedagogy. It enhances experiential learning, promotes reflective thinking, and strengthens the development of core professional attributes. This approach can serve as an innovative, scalable method for competency-based medical education, shaping more empathetic and communicative future doctors.

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Journal of Clinical and Biomedical Sciences

Perception and Effectiveness of Role Play in teaching Biochemistry to First-Year MBBS Students

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Background: Biochemistry is often perceived as challenging by first-year MBBS students due to its abstract concepts. Innovative teaching–learning strategies such as role play may enhance student engagement and understanding.

Aim: To evaluate the perception and effectiveness of role play as an innovative teaching–learning tool in biochemistry among Phase I MBBS students.

Objectives: To assess students' perceptions regarding the usefulness, engagement, and enjoyment of role play, and to evaluate its effectiveness in improving understanding, retention, and application of biochemical concepts.

Materials and Methods: This prospective, interventional, cross-sectional study was conducted in the Department of Biochemistry at Dr. Vasantrao Pawar Medical College, Hospital & Research Centre, Nashik, among Phase I MBBS students. Selected theoretical topics were taught using role play. Volunteer students were divided into groups and provided with short scripts (5–10 minutes) depicting biochemical principles. A pre-test using multiple-choice questions was administered before the activity, followed by a post-test and a structured feedback questionnaire. A total of 150 students participated, and 119 students completed the feedback form.

Results: Student perception of role play was highly positive. Among respondents, 79.5% strongly agreed and 17.9% agreed that role play was innovative and worthwhile, while 2.6% were neutral; none disagreed. Similarly, 76.9% strongly agreed and 20.5% agreed that role play enhanced engagement. Learning outcomes improved significantly, with the mean pre-test score increasing from 6 to 10 in the post-test.

Conclusion: Role play is an effective and well-accepted teaching–learning strategy that enhances engagement and conceptual understanding in biochemistry among undergraduate medical students

Journal of Clinical and Biomedical Sciences

Impact of case-based learning on the learning approaches and outcomes of phase I MBBS students

Dr. Moonishaa T.M

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Introduction: Case-based learning (CBL) is an inquiry based teaching-learning method with several educational benefits. Students adopt variable learning approaches like deep, strategic, surface learning, which affects their learning outcomes. Using appropriate educational inputs could positively influence students' learning approach and outcome. This study aimed to evaluate the effect of CBL in influencing students' learning approach and outcomes.

Methods: This quasi-experimental study involved 147 consenting phase I MBBS students. Students' prior learning approaches were determined using pre-validated ASSIST short form questionnaire. Three CBL sessions in Biochemistry topics of clinical relevance were conducted, followed by formative assessments using descriptive HOTS questions and students' response evaluation by SOLO taxonomy based rubric scores. Changes in students' learning approach in the topics taught were reassessed by ASSIST questionnaire after a month. Students' learning approach before and after CBL, their successive CBL scores were compared using appropriate statistical analyses.

Results: Students' assessment scores did not vary much during successive CBL sessions. But their learning approach differed after CBL, with increased deep learning and significant decline in surface learning ($p < 0.05$). Drastic trends in below basic and basic student performance categories were detected between successive CBL sessions ($p < 0.05$), probably due to the difficulty level of CBL-3 topic; while progressively increasing advanced performance showed learning outcome benefits of CBL. Ultimately, 92(62.6%) and 87(59.2%) students showed improvement in deep and surface learning approaches respectively ($p < 0.05$).

Conclusion: CBL is an effective teaching method in preclinical phase for its benefits in transforming deep learning approach and advanced learning outcomes.

Key words: Case-based learning, Learning approach, Learning outcome

Journal of Clinical and Biomedical Sciences

Mindfulness Meditation and Quality of Life: A Correlational Study

Prof. S. Viswanatha Reddy[1], Dr. P. Raja Sekhar[2], B. Satya Jyothi[3]

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Background: Today we are all living in a world with lots of stress and pressure. One has to first understand themselves and then he/she can better understand society. When the mind is in a calm state then anyone can take decisions aptly and think positively. Mindfulness means being in the present moment. Mindfulness involves awareness of what is happening in the external world and internal world. Whatever you are thinking, feeling or sensation, being in the present moment without judgment is called Mindfulness. Most of the mindfulness principles derived from Buddhism even though origins of mindfulness in Hinduism. Buddha taught mindfulness as "ana-pana-sati". Ana means inhaling, Pana means exhaling and Sati equal to awareness which means breath with awareness. Mindfulness-Based Stress Reduction Technique (MBSR) developed by Jon kabat-zinn in 1979. Practicing mindfulness is important because when we practice mindfulness regularly it improves consciousness and further leads to accurate perception which means we can perceive the reality as it is. The present study examines the correlation between quality of life and mindfulness meditation.

Objectives: The main objectives of this study are: To measure the quality of life among mindfulness practitioners and To measure the correlation between mindfulness and quality of life.

Sample: The sample was collected from 126 individuals who are practicing mindfulness meditation regularly from the different meditation centers in and around Rajamahendravaram. A non-probability convenience technique was adopted for this study.

Measures: Two measures were used for this study. 1) Five Facet Mindfulness Questionnaire (FFMQ) developed by Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Measure Mindfulness domains include observation, describing, acting with awareness, non-judgmental inner experience and non-reactivity. 2)Quality of Life questionnaire (WHOQOL-BREF) to measure quality of life domains. Developed by World health organization (WHO) in 1996. The domains include Physical Health, Psychological Health, Social Relationships, Environment.

Findings: It was noted that there is a positive correlation between observing, describing, non-judging of inner experiences and non-reactivity to inner experiences and the domains of quality of life. Acting with awareness domain of mindfulness is not correlated to the domains of quality of life. It was also observed that there is a high correlation among the domains of mindfulness meditation and the domains of quality of life. Practitioners who practice mindfulness meditation daily can improve their quality of life in all aspects.

Key words: Mindfulness Meditation, Quality of Life, Ana-Pana-Sati.

Journal of Clinical and Biomedical Sciences

Best paper presentation awards

Journal of Clinical and Biomedical Sciences

IC-HPE BEST PAPER AWARDS

Sl. No	Code	Title	Presenting Author
1.	OP-05	The Pen and The Mind: Comparing the impact of poetry and traditional learning methods on medical students' reflective writing and empathy development	Dr Preetika Baghel
2.	OP-19	Faculty Practices and Perspectives towards Formative Assessment in Competency-Based Medical Education: A Mixed-Methods Study from Delhi, India	Dr Dilip Srinivas
3.	OP-21	Development, Validation, and Implementation of Immersive Learning Based Teaching Learning Toolkit – A Mixed Method study	Dr. Seema Deshmukh
4.	OP-28	From Stage to Simulation: Using Stanislavski's Acting techniques for training healthcare staff as simulated patients and their standardization.	Dr Ankit Chandra
5	OP-49	Enhancing Competency-Based Postgraduate Pathology Education Through an Innovative Faculty Development E-Course to develop Entrustable Professional Activities	Dr. Rashmi G. Kini
6	OP-60	Digital Professionalism Across Cultures: New Competencies for a Hybrid Healthcare World	Dr Rohini Karunakaran

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Journal of Clinical and Biomedical Sciences

Gudakesha Meditation: Workshop-2026

15th March 2026, Integrative Medicine, SDUAHER, Kolar-563101

Journal of Clinical and Biomedical Sciences

Achieving Mastery of Sleep through Gudakesha Meditation: Workshop Report -2026

The Department of Integrative Medicine, in esteemed collaboration with Gudakesha Trust, Hyderabad, successfully organized a comprehensive and impactful meditation workshop on 15th March 2026, held from 9:00 AM to 1:00 PM at the prestigious R.L. Jalappa Auditorium, Kolar, Karnataka.

The workshop was inaugurated by a distinguished panel comprising Dr. B. Vengamma (Vice-Chancellor, SDUAHER), Dr. Muninarayana C (Registrar, SDUAHER), Chief Guest, Hon'ble Smt. B. S. Jayashree (District Judge, Kolar), Dr. Vijayalakshmi (Principal, SDU College of Nursing), Dr. Koushik C. Principal, School of Law, SDUAHER, Dr. Ashween Bilagi (Head, Department of Integrative Medicine, SDUAHER), Grandmaster Prabhodh Achyutha (Founder, Gudakesha Trust, Hyderabad), and Sri Pradeep M (Gudakesha Trust, Hyderabad), along with other dignitaries, performed the traditional lighting of the lamp.

During the inaugural function, Dr. Muninarayana C, Registrar, SDUAHER, delivered the welcome address. He also shared his personal experience as a yoga practitioner spanning over two to three decades and advised the audience to practice yoga regularly as part of their daily routine. This was followed by the presidential address by Dr. B. Vengamma, Vice-Chancellor, SDUAHER, who emphasized the growing significance of Integrative Medicine in today's healthcare system. Drawing from her vast experience as a neurologist, she highlighted the intricate relationship between the brain, mind, and body. She also discussed how modern lifestyles have contributed to the rise in neurological and stress-related disorders such as anxiety, depression, sleep disturbances, and cognitive decline.

Smt. B. S. Jayashree, Hon'ble 1st Additional Judge, shared her personal journey with Gudakesha Meditation, emphasizing its profound impact on mental clarity, emotional balance, and overall well-being. She mentioned that after beginning the practice, she observed a significant improvement in her sleep pattern, although the duration of sleep reduced, the quality of sleep became much deeper and more refreshing—helping her feel more energetic and focused throughout the day. She further explained how regular meditation enabled her to manage professional stress effectively, enhance concentration in decision-making, and maintain inner calm in a demanding judicial environment. Her inspiring experience encouraged students to adopt Gudakesha Meditation consistently for improved mental resilience, better sleep quality, and holistic well-being.

In addition, she presented an insightful introduction to Grandmaster Prabhodh Achyutha, highlighting his vision, dedication, and contributions to spreading Gudakesha Meditation. She appreciated his efforts in making meditation simple, practical, and accessible to people from all walks of life. Following her introduction, the distinguished panel formally felicitated Grandmaster Prabhodh Achyutha as a mark of respect and appreciation for his valuable contributions. The felicitation ceremony added special significance to the event and was warmly received by all participants.

The highlight of the day was a three-hour intensive session led by Grandmaster Prabhodh Achyutha, Founder of Gudakesha Trust, along with Sri Pradeep M. The Grandmaster introduced participants to a revolutionary one-minute technique designed for immediate stress relief, which was simple, practical, and easy to incorporate into daily life. He provided step-by-step guidance and live demonstrations, enabling participants to experience the technique first hand.

The session was highly interactive, with participants actively engaging in guided meditation practices, breathing techniques, and awareness exercises. The workshop also offered research-backed insights into how meditation supports the management of chronic diseases, enhances emotional stability, and significantly improves concentration and cognitive performance among students.

Furthermore, the speakers emphasized the scientific basis of meditation, explaining its positive effects on the nervous system, hormonal balance, and overall mental health. Real-life examples and case studies were shared to illustrate the transformative impact of consistent practice. The session concluded with an engaging question-and-answer segment, marked by excellent audience interaction. Feedback was collected at the end of the session.

Finally, Dr. Ashween Bilagi, Head of the Department of Integrative Medicine, SDUAHER, delivered the vote of thanks.

Prepared by

Dr. Ashween Bilagi
Asst. Professor & Head
Dept. of Integrative Medicine
SDUAHER

Mrs. Sunitha L
Yoga Therapist/Instructor
Dept. of Integrative Medicine
SDUAHER

Lamp lighting by dignitaries

Welcome address by
Dr. Muninarayana C

Presidential address by
Dr. B. Vengamma, Vice-Chancellor,
SDUAHER,

Smt. B. S. Jayashree, Hon'ble 1st Additional Judge, shared her personal Journey with Gudakesha Meditation,

Grandmaster Prabhodh Achyutha

Sri Pradeep M

Felicitated Grandmaster Prabhodh Achyutha

Meditation practical session with the audience

Vote of thanks. By Dr. Ashween Bilagi

Journal of Clinical and Biomedical Sciences

National Scientific Conclave 2026

"Artificial Intelligence in Biomedical and Health Sciences – A Novel Approach"

6th & 7th February 2026, Research and Development Cell, SDUAHER, Tamaka, Kolar-563101

J Clin. Biomed Sci 2026;16(supplementary issue –1, Jan26 –June-26)

Conference report

Day 1 – 6th February 2026

Event: Invited scientific talk - 1

Time: 9.20 AM to 10.00 AM

Speaker: Dr. Mohan Maruthi Sena, Research Associate, Cancer Institute (WIA), Chennai.

Topic: Basics of AI, Machine learning & Deep learning

Chairpersons:

Dr. Indran Suyambulingam
Professor, Department of Mechanical Engineering,
Alliance University, Bangalore

Dr. P VijayaKarthik
Principal, RLJIT,
Doddaballapura

The speaker highlighted the following points:

- AI is significantly contributing to early detection and screening of various cancers, including breast, lung, and oral cancers.
- Machine learning algorithms enhance the accuracy of radiological image analysis for timely tumor identification.
- Deep learning models are widely used in histopathological image analysis and tumor classification.
- AI supports predictive analytics in oncology by estimating disease progression and treatment outcomes.
- AI-based decision support systems assist oncologists in improving diagnostic precision and therapeutic strategies.
- Natural Language Processing helps in extracting meaningful cancer-related data from medical records for research and clinical use.
- The session also highlighted the importance of ethical considerations such as data privacy, bias, and clinical validation in AI-driven cancer care.

Event: Invited scientific talk - 2

Time: 9.45 AM to 10.30 AM

Speaker: Dr. Sudhir Kumar Kale, Lead Consultant & HOD, Aster CMI hospital, Bangalore.

Topic: Application of AI in Radiodiagnosis

Chairpersons:

Dr. Anil Kumar Sakalecha
Professor & HoD
Dept. of Radio-diagnosis
SDUMC

Dr. Harshith Gowda K B
Consultant Radiologist
Tenet Diagnostics and Kiran PET scan centre
Bengaluru

The speaker highlighted the following points:

- AI enhances the accuracy and efficiency of cancer detection through automated analysis of radiological images such as CT, MRI, PET, and mammograms.
- Machine learning algorithms assist in early identification of tumors, even in subtle or early-stage presentations.
- Deep learning models improve lesion detection, segmentation, and classification in various cancers.
- AI reduces inter-observer variability among radiologists and supports standardized reporting and aids in differentiating benign and malignant lesions with improved diagnostic precision.
- AI-based tools help in the staging of cancer and assessment of tumor progression.
- Integration of AI in radiodiagnosis contributes to faster reporting and improved workflow efficiency in oncology settings.

Event: Invited scientific talk -3

Time: 10.35 AM to 11.45 AM

Speaker: **Dr. K. S. Jagannatha Rao**, Pro-Chancellor, Koneru Lakshmaiah Deemed to be University, Vijayawada, India.

Topic: AI in understanding early biomarkers of Parkinson's disease

Chairpersons:

Dr. Prabhakar. K
Dean & Principal
Dept. of General Medicine
SDUMC

Dr. Raveesha A
Professor of medicine
Dept. of General Medicine
SDUMC

The speaker highlighted the following points:

- AI facilitates early identification of Parkinson's disease by analyzing subtle clinical, imaging, and biological markers.
- Machine Learning models detect patterns in speech, gait, and motor movements that may indicate early neurodegenerative changes.
- AI assists in analyzing neuroimaging data, including MRI and PET scans, to identify structural and functional abnormalities.
- Predictive algorithms help in recognizing prodromal symptoms before clear motor manifestations appear.
- AI supports biomarker discovery through analysis of genetic, proteomic, and biochemical datasets.
- Integration of multimodal data improves early diagnostic accuracy and risk stratification.
- The session emphasized the potential of AI in enabling timely intervention and personalized disease management.

Event: Inaugural function

Time: 11.15 AM to 1.20 PM

The following dignitaries presided over the function:

Chief Guest:
Dr. M. A. Shekar, Director, Chowdaiah Medical Centre & Apoorva Diabetes Foundation, Mysore

Guest of Honour:
Sri J Rajendra, Vice President, SDUET

Presided by:

- Dr. Vengamma B, Hon'ble Vice Chancellor, SDUAHER
- Dr. D V L N Prasad, Chief Administrative Officer, SDUAHER
- Dr. Prabhakar K, Principal, SDUMC and Dean, FoM, SDUAHER
- Dr. C D Dayananda, Dean, FAHP, SDUAHER
- Dr. Krishnappa J, Medical Superintendent, RLJH & RC
- Dr. Kalyani R, Organising Chairperson, NSC 2026 & Director, R & D Cell
- Dr. Venkateswarlu Raavi, Organizing Secretary, NSC 2026 & Deputy Co-ordinator, R & D Cell
- Dr. Sudha Halkai, Executive Council Member

- The inaugural function started with an Invocation and Naadageethe.
- This was followed by lamp lighting by dignitaries.
- The preamble of the Conference was given by Dr. Kalyani R, Director, R & D Cell, SDUAHER.
- Dr. Apoorva H M, Organizing Co-Secretary, NSC 2026 welcomed all the dignitaries on the Dias and also off the dias.
- Sri J Rajendra, Vice President, SDUET addressed the gathering.
- Dr. Prabhakar K, Principal, SDUMC introduced the chief guest.

- Dr. M. A. Shekar, the chief guest addressed the gathering by highlighting the importance of AI in Healthcare. This was followed by felicitation of the Chief guest by all the dignitaries.
- All the dignitaries released the Souvenir of the National Scientific Conclave 2026.
- Dr. B Vengamma, Hon'ble Vice Chancellor, SDUAHER addressed the gathering.
- Dr. Venkateswarlu Raavi, Organizing Secretary NSC 226 & Deputy Director, R & D Cell, SDUAHER gave the vote of thanks.

---------- Lunch Break: 1.20 PM to 2.10 PM----------

Event: Invited Scientific Talk - 4

Time: 2.10 PM to 3.00 PM

Speaker: Dr. Sujay Prasad, Director Anand Laboratory, Bangalore

Topic: Integrating AI in practice of Pathology and Lab Medicine

Chairpersons:

Dr. Kalyani. R
Professor,
Dept. of Pathology
Director of R&D Cell, SDUAHER

Dr. Raja Parthiban S R
Professor & Head
Dept. of Pathology
MVJ Medical College

The speaker highlighted the following points:

- AI enhances diagnostic accuracy through automated analysis of histopathological and cytological images.
- Deep Learning models assist in detecting malignant cells and classifying disease patterns with improved precision.
- AI reduces observer variability and supports standardized reporting in pathology practice.
- Machine Learning algorithms enable faster processing of large laboratory datasets for clinical decision-making.
- AI supports biomarker identification and risk stratification in various diseases, including cancer.
- Integration of AI improves workflow efficiency, turnaround time, and quality control in laboratory medicine.
- The importance of validation, ethical considerations, and human oversight in AI-assisted pathology was emphasized.

Event: Invited Scientific Talk - 5

Time: 3.10 PM to 4.00 PM

Speaker: Dr. Sughosh Kulkarni, Associate Professor, Department of Microbiology SDM College of Medical Sciences & Hospital, SDM University, Dharwad, Karnataka.

Topic: Application of AI in Microbiology Investigations

Chairpersons:

Dr. Arvind Natarajan
Professor
Dept. of Microbiology, SDUMC

Dr. Lakshminarayana S. A
Professor, Department of Microbiology
Rajarajeswari Medical College & Hospital

The speaker highlighted the following points:

- AI enhances rapid identification of microorganisms through automated image and culture plate analysis.
- Machine Learning algorithms assist in differentiating bacterial, viral, and fungal pathogens with improved accuracy.
- AI supports antimicrobial resistance prediction by analyzing susceptibility patterns and large laboratory datasets.
- Integration of AI in molecular diagnostics improves detection of infectious agents through genomic data analysis.
- Automated systems reduce manual errors and improve turnaround time in microbiology laboratories.
- AI-driven surveillance tools aid in outbreak detection and epidemiological monitoring.
- The importance of data quality, validation, and ethical use of AI in clinical microbiology was highlighted.

Scientific free paper presentations

With 43 selected abstracts for presentation, four parallel sessions were conducted—three for oral presentations (27) and one for poster presentations (16). The details are as follows:

Hall 1: Oral presentation from Faculty & PhD Category

Time: 4.00 PM to 5.30 PM

Venue: R L Jalappa Silver Jubilee Auditorium

Judges:

Dr. Susanna T Y
Professor, Dept. of Biochemistry, SDUMC

Dr. Shobha M V
Professor, Dept. of Physiology, SDUMC

Total of 9 presenters presented their original research articles. Each presenter had a time limit of 7 min (for presentation) and 3 min (for discussion).

Hall 2: Oral presentation from UG-PG (Medical) category

Time: 3.00 PM to 4.30 PM

Venue: Dr. B C Roy Lecture Hall, First floor, Library building

Judges:

Dr. Venkateswarlu Raavi
Assistant Professor
Cell Biology & Molecular Genetics
SDUAHER

Dr. Shashidhar K
Professor
Dept. of Anatomy
SDUMC

Total of 8 presenters presented their original research article. Each presenter had a time limit of 7 min (for presentation) and 3 min (for discussion).

Hall 3: Oral presentation from UG-PG (Allied Health) category

Time: 3.00 PM to 4.30 PM

Venue: MEU Conference Hall, 3rd Floor SDUMC

Judges:

Dr. Prabhavathi K
Professor, Dept. of Biochemistry
SDUMC

Dr. Ruth Sneha C
Professor, Dept. of Psychiatry
SDUMC

Total of 10 presenters presented their original research articles. Each presenter had a time limit of 5 min (for presentation) and 2 min (for discussion).

Event: Poster Presentation for UG, PG, PhD and Faculty

Time: 3.00 PM to 5.15 PM

Venue: 2nd Floor, Central Library, SDUAHER

Judges:

Dr Srinivas Reddy P
Professor, Dept. of Forensic Medicine, SDUMC

Dr. Usha G Shenoy
Associate Professor, School of Allied Health Sciences




Total of 15 presenters presented their original research article/ case report in Poster format. Each presenter had a time limit of 5 min (for presentation) and 2 min (for Q&A).

Day 2 – 7th February 2026

Event: Invited scientific talk - 1

Time: 9.15 AM to 10.00 AM

Speaker: Dr. Guhan Ramamurthy, Consultant Neurologist BG Institute of Neurosciences, BG Hospital, Tiruchendur, Tuticorin

Topic: Applications of AI in Neurology

Chairpersons:

Dr. B. Vengamma
Professor of Neurology
Vice Chancellor, SDUAHER

Dr. N K Venkataramana
Neurosurgeon
Brians Superspeciality Hospital, Bangalore

The speaker highlighted the following points:

- The talk emphasized how AI-driven tools can analyze complex neuroimaging (MRI, CT, PET) and electrophysiological signals (EEG) with a level of granularity that exceeds manual review.
- Significant focus was placed on identifying early markers for neurodegenerative diseases like Parkinson's and Alzheimer's. AI can detect "cortical thinning" or subtle gait abnormalities years before clinical symptoms become debilitating.
- In cases of acute ischemic stroke, AI algorithms are now serving as "first responders" by rapidly identifying occluded blood vessels and mapping brain perfusion, significantly reducing the "needle-to-door" time.

- The session introduced the concept of the "Digital Twin of the Brain," a virtual model updated with real-time patient data to simulate how a specific individual might respond to various treatment protocols.
- AI was presented not as an independent decision-maker, but as a "co-pilot" that sifts through massive datasets to highlight areas of concern, allowing the neurologist to focus on high-level clinical reasoning and patient interaction.
- It was explicitly noted that while AI can process an EEG in seconds, it cannot interpret the patient's lived experience or psychological state. Therefore, the neurologist who masters these "augmented" tools will provide a standard of care that a traditional clinician simply cannot match.

Event: Invited scientific talk - 2

Time: 10.00 AM to 10.45 AM

Speaker: **Dr. V. Srinivasa Chakravarthy**, Professor, Department of Biotechnology, IIT Madras.

Topic: Simplifying brain, the need for reforms in brain theory (Online)

Chairpersons:

Dr Karanam Sai Arun
Neurologist
SDUMC, Kolar

Dr. Manjunath
Assistant professor
Dept. Of General Medicine, SDUMC, Kolar

The speaker highlighted the following points:

- Dr. Chakravarthy argued that modern neuroscience often suffers from "data-rich but theory-poor" syndrome. We are drowning in the details of billions of neurons (Reductionism) but lacking a unified theory of how they work together.
- He proposed that the brain is not as complex as it seems if we look at its mathematical abstractions. By focusing on the "organizational principles" by which the brain processes information, rather than just the biology, we can create more efficient clinical models.
- A highlight of the talk was his work on building simplified, trainable models (1 to 10 million neurons) that can mimic human sensory and motor functions. This allows for a "Reverse Engineering" approach to brain disorders.
- He discussed how modelling the interaction between neurons and blood vessels (the "energy supply chain" of the brain) is vital for understanding stroke rehabilitation and Parkinson’s Disease.
- If the brain is too complex for a human to track every neuron, AI serves as the mathematical lens that simplifies this data into actionable insights.
- Dr Chakravarthy emphasized that while AI can run these "Meso-Brain" models, it requires a clinician’s expertise to translate a model's output into a treatment plan.
- This session reinforced that the clinician who understands the principles behind these AI models (the "Augmented" clinician) will be the one leading the next wave of precision medicine, while those who ignore these theories will be left behind by the sheer volume of data.

Event: Invited scientific talk -3

Time: 10.50 AM to 11.50 AM

Speaker: **Dr. Jananee Muralidharan**, Consultant clinician, Clinical informatics Dept. Atropos Health, Bangalore

Topic: AI in Clinical Medicine

Chairpersons:

Dr. S. V. Srinivas
Prof & Head,
Dept. of General Medicine, SDUMC

Dr. Kaja Sri Ramamurthy
Prof and Head,
Emergency medicine Department
SDUMC, Kolar

The speaker highlighted the following points:

- Highlighted a major gap in modern medicine: many patients (the elderly, those with multiple comorbidities) do not "fit" into standard clinical trials. She showcased how AI can query millions of anonymised electronic health records (EHR) in real-time to provide data on how similar patients were treated successfully.
- She discussed the evolution of the "Green Button", a digital tool that allows a doctor, during a consultation, to instantly generate a report on a clinical question that does not have a clear answer in existing medical literature.
- A significant portion of the talk focused on AI's ability to handle the administrative burden, such as documenting patient visits, summarising lengthy charts, and pre-filling insurance forms, allowing doctors to return to the human side of medicine.
- She illustrated how AI-driven risk scores (for sepsis, falls, or readmission) act as an early-warning system, alerting clinical teams to intervene before a patient crashes.

- She argued that AI doesn't tell a doctor what to do; it provides the missing evidence so the doctor can make an informed choice. It fills the gaps that traditional textbooks leave behind.
- She emphasised that a clinician armed with Atropos-style real-world insights has a distinct advantage over one relying solely on memory or outdated guidelines.
- She concluded that AI provides the "data," but the clinician provides the "wisdom." The AI can find a pattern in 10 million patients, but only the clinician can decide if that pattern applies to the unique person sitting in front of them.

Event: Invited Scientific Talk **- 4**

Time: 12.00 Noon to 12.55 PM

Speaker: Dr. Ramesh Debur Visweswara PT., Professor, MS Ramaiah College of Physiotherapy, Bangalore

Topic: AI in Physiotherapy - Paradigms in practice

Chairpersons:

Dr. Senthil Kumar. E
Professor
Dept. of Physiotherapy, SDUAHER

Dr. Prasanna Mohan
MPT., MBA., Ph.D.
Professor and Principal
East Point College of Physiotherapy, Bengaluru

The speaker highlighted the following points:

- Highlighted the shift from subjective visual observation to objective AI analysis. AI-powered cameras and wearable sensors can now track over 15 biomechanical variables in real-time, detecting compensation patterns 85% faster than traditional manual methods.
- The talk featured the integration of VR as a "gamified" rehab tool. This increases patient engagement by up to 40% and allows stroke or trauma patients to practice movements in safe, simulated real-world environments.
- He discussed how AI can analyze a patient's initial injury data, age, and activity levels to predict recovery timelines. This helps in setting realistic goals and adjusting the intensity of treatment protocols dynamically.
- While AI provides the "92% accuracy" in movement detection, it cannot provide the "human touch" required for manual therapy or the emotional encouragement needed during a painful recovery.

- The talk emphasized that AI removes the guesswork and the tedious data-entry tasks. This allows the physiotherapist to evolve into a high-level "Movement Architect" who uses AI data to build superior, personalised recovery paths.
- He concluded that the future of the field belongs to the therapist who can interpret an AI gait analysis report as easily as they can perform a joint mobilization. The technology is an extension of the therapist's eyes and hands, not a replacement for them.

Event: Invited Scientific talk -5

Time: 1.00 PM to 1.40 PM

Speaker: **Mr. Nikesh Kumar Jain**, Consultant-Nutrition and Entrepreneurship at NSR NutriEduTech Solutions Pvt. Ltd., New Delhi.

Topic: Application of AI in Nutrition

Chairpersons:

Dr. Shivakumara. C. S
Assistant Professor & I/c HoD
Dept. of Clinical Nutrition and Dietetics, SDUAHER

Dr. Bhavana S
Assistant Professor
Department of Food Technology
M S Ramaiah University of Applied Sciences, Bengaluru

The speaker highlighted some of the following points:

- The talk moved beyond traditional "one-size-fits-all" diet charts. He explained how AI integrates diverse datasets, including genetic markers (Nutrigenomics), gut microbiome composition, and real-time glycemic responses, to create dynamic meal plans that evolve with the patient.
- He showcased how AI-powered image recognition can identify food items on a plate and estimate portion sizes and caloric/macronutrient content from a single photograph, significantly reducing the "recall bias" common in manual patient diaries.
- AI models can now predict how an individual's blood sugar or inflammatory markers will react to a specific meal before they eat it. This proactive approach is a game-changer for managing chronic conditions like Type 2 Diabetes and PCOS.

- As an entrepreneur, he highlighted the rise of "Nutrition-as-a-Service." He discussed how AI enables scalable health-tech platforms that provide 24/7 virtual coaching, smart shopping lists, and automated nutrient-gap analysis for thousands of users simultaneously.
- While AI can calculate the exact grams of protein needed, he emphasized that a machine cannot understand the cultural, emotional, or socioeconomic factors that influence a patient's relationship with food.
- By automating the tedious work of calorie counting and nutrient logging, AI frees up the nutritionist to focus on the much harder task, behavioural change and counselling.

---------- Lunch Break: 1.45 to 2.45 PM----------

Event: Invited Scientific talk -6

Time: 2.45 PM to 3.30 PM

Speaker: **Dr. Prarthana T**, Consultant Dermatologist at Brindavan Daffodils and Apollo BGS Hospital, Mysore

Topic: Application of AI in Dermatology

Chairpersons:

Dr. Suresh Kumar. K
Professor & Head
Dept. of Dermatology, SDUMC

Dr. Shiv Kumar
Prof and Head
PES Medical College.
Kuppam, Andhra Pradesh

The speaker highlighted some of the following points:

- Detailed how Convolutional Neural Networks (CNNs) are now reaching "expert-level" accuracy in distinguishing between benign nevi and malignant melanomas. These tools analyze skin lesions at the pixel level, detecting subtle patterns invisible to the naked eye.
- Especially post-pandemic, she highlighted the rise of AI-powered triage. Patients can upload photos of skin concerns; the AI then categorizes them by urgency, ensuring that high-risk cases (like suspected skin cancer) are seen by a specialist immediately, while minor issues are managed with guided self-care.

- She discussed how AI removes subjectivity in chronic conditions like Psoriasis and Atopic Dermatitis. Instead of a doctor "estimating" the percentage of skin coverage, AI provides a precise, repeatable PASI (Psoriasis Area and Severity Index) score, allowing for more accurate tracking of drug efficacy.
- In her area of interest, aesthetic dermatology, she showcased how AI is used for "Age Simulation" and "Treatment Mapping." This allows patients to visualize the potential outcomes of procedures like fillers or laser treatments before they are performed.
- She emphasized that while an algorithm might give a "95% probability of malignancy," it cannot explain why. The dermatologist is essential for the "Final Verification", matching the AI's data with the patient's clinical history and physical palpation.

Event: Valedictory function

Time: 3.00 PM to 4.30 PM

The Valedictory function was presided over by

1. Prof. Dr. B. Vengamma, Honourable Vice – Chancellor, SDUAHER.
2. Dr. Muninarayana C, Registrar, SDUAHER
3. Dr. Kalyani. R, Organizing Chairperson, NSC 2025 and Director, Research and Development Cell, SDUAHER.
4. Dr. S. M. Azeem Mohiyudhin, Organizing Co-Chairperson, NSC 2026, Former Director, Research and Development Cell, SDUAHER.
5. Dr. Venkateswarlu Raavi, Organizing secretary - NSC 2026, Deputy co-ordinator, Research and Development Cell, SDUAHER.
6. Dr. Apoorva H M, Organizing Co-secretary - NSC 2026

- Dr. Ashwini N S, welcomed the gathering
- Dr. Kalyani R, Director R & D cell presented the Highlights of the conference
- Prizes were distributed to the winners of the oral and poster presentations. The details are tabulated below:

Poster Presentations

Prize	Name	Institution	Title
1st prize	Dr. Krishnan Prem	Pharmacology, SDUMC	Antimicrobial Utilization in the Intensive Care Unit of a Tertiary Care Hospital
2nd prize	Dr. Munmun Mutha	SDUMC	Hope against resistance: Activity of ceftazidime-avibactam and aztreonam in colistin-resistant Klebsiella pneumoniae.
3rd prize	Dr. Sethuram Kumaar. D	SDUMC	Dermatofibrosarcoma protuberans (DFSP) in the parotid region: An Elusive Malignancy - A rare case report
Consolation	Dr N S Lohit	Vydehi Institute of Medical Sciences & Research Centre.	A Positive Pregnancy Test with a Malignant Twist: Mixed Ovarian Germ Cell Tumor Mimicking Ectopic Pregnancy.
Consolation	Dr Meghana R	MS Ramaiah Medical College	When Benign meets Malignant: decoding Uterine adenosarcoma

Oral Presentations

UG-PG (Medical)

	Name	Institution	Title
1st prize	Dr. Sri Vasavi C H	Obstetrics and gynaecology, SDUMC	A Randomized Study of Diclofenac Rectal Suppository versus Transdermal Patch for Post-Operative Analgesia in Cesarean Delivery
2nd prize	Dr. Charitha B	Vydehi Institute of Medical Sciences and Research Centre	Spectrum Of Bone Tumors and Their Histopathological and Radiological Correlation: Insights from a Tertiary Care Centre
3rd prize	Rishabh Ostwal	Sri Devraj URS Medical College	Exploring faculty and student perspectives on artificial intelligence in undergraduate medical education: A cross-sectional study of awareness, use, and personalized learning impact
Consolation	Dr Sudha Shukla	Adichunchanagiri institute of Medical Sciences	A Comparative Study of Platelet Parameters Among Diabetic Patients with and Without Retinopathy in Geriatric Population

Oral Presentations

UG-PG (Allied health)

	Name	Institution	Title
1st prize	Anusha S	Cell Biology & Molecular Genetics, SDUAHER	Joint Toxic Impacts of Polyvinylchloride, Chlorantraniliprole and ParaPhenylenediamine on Zebrafish Embryo-Larval Stage (Danio Rerio)
2nd prize	Keerthi S	MS Ramaiah College of Physiotherapy	Association Between Tandem Stance Test and Cognitive Function in Older Adults (Pilot Study)
3rd prize	Sunithi. A	Physiotherapy, SDUAHER	Impact of Age, Disesase Stage, and Systemic Therapy on Gait and Balance in Head and Neck cancer: A Cross -Sectional Study
Consolation	Malathi. B	SDUCON	Effectiveness of Competency-Based Training regarding knowledge and competency among Nursing Officers in Prevention of Mechanical Injuries Caused by Medical Devices to Patients Admitted in High-Dependency Units (HDUs) of a Tertiary Care Hospital Kolar.

Oral Presentations

PhD & Faculty

	Name	Institution	Title
1st prize	Dr. Vani. R	SDUCON	E-Portfolios as A Tool for Competency Based Reflective Practice on Selected Advanced Nursing Procedures Among Nursing Students at Selected Institutions
2nd prize	Anitha S	Sri Ramachandra Institute of Higher Education and Research	From Uncertain to Therapeutic Insight: An Integrated in Silico Analysis of Parkinson's Disease Associated Genetic Variants
3rd prize	Dr. Sowjanya H G	Pathology, SDUMC	Histological Cartography of The Tumour Microenvironment: Mapping Stromal and Inflammatory Zones in Head and Neck Squamous Cell Carcinoma by Yamamoto- Kohama System- An Observational Study.
Consolation	Ramesh Ganpisetti	Alliance university	Automated Flow Cytometry and Machine Learning for Detection and Quantification of Microplastics in Drinking Water Samples

- The Valedictory function ended with a Vote of thanks
- The program ended with the National Anthem

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Organizing team

Rapporteurs for Day 1

1. Ms. Veda, PhD Scholar, Dept of Speech pathology & Audiology, SDUAHER
2. Mr. S Lokheshwar, Dept of Speech pathology & Audiology, SDUAHER

Rapporteurs for Day 2

1. Ms. Shriya S, PhD Scholar, Dept. of Integrative Medicine, SDUAHER
2. Mr. R Bharath, Dept of Speech pathology & Audiology, SDUAHER

Compiled & verified by:	**Reviewed by:**	**Approved by:**
Dr. Apoorva H M	**Dr. Venkateswarlu Raavi**	**Dr. Kalyani R**
Scientific Committee	Organizing Secretary	Organizing Chairperson
NSC 2026	NSC 2026	NSC 2026

Journal of Clinical and Biomedical Sciences

Male Infertility And Iui: Bridging Science And Success- A State Level Hands On Workshop

5th March 2026, Obstetrics & Gynaecology, SDUMC, Kolar-563101

Journal of Clinical and Biomedical Sciences

Event Report

Sl. No.	Particulars
1.	**Introduction**: Infertility affects nearly 10–15% of couples worldwide, and in almost 40–50% of these cases, male factors contribute either solely or in combination with female factors. Despite this significant contribution, discussions around infertility have traditionally focused more on women, while male reproductive health remains relatively neglected due to social stigma, lack of awareness, and limited screening. Early diagnosis, appropriate evaluation, lifestyle modifications, medical therapy, and modern reproductive techniques now offer many couples the hope of parenthood. Hence this workshop was conducted to provide a comprehensive overview of etiology, evaluation, and management of male infertility, while encouraging interdisciplinary collaboration between gynecologists, embryologists, and infertility specialist. This workshop was conducted in association with GENEA FERTILITY CENTRE BANGALORE.
2.	**Proceedings:** Inauguration: The programme was inaugurated by Dr B Vengamma, Hon'ble Vice Chancellor , Dr Munikrishna M Professor and HOD department of OBG , Dr Sheela S R Professor and Unit Chief , and Dr Vimarshitha P Professor and Unit chief Department of OBG . Welcome Address: Dr. Munikrishna M welcomed the crowd and gave a brief note on male infertility. Mr Hemanth Kumar, Embryologist Genea Fertility Center and Dr Chaitra Sathyanarayana, Consultant in High Risk Pregnancy and Reproductive Medicine, Genea Fertility Centre gave us brief inights regarding evaluation and management of male infertility. Dr Divyashree P S , Medical Director, Genea Fertilty Centre gave a talk on tips and tricks of IUI. Dr Lakshmi Embryologist , introduced about semen preparation techniques. Afternoon, IUI WORKSHOP Hands on was conducted which involved active participation of all the volunteers followed by Case Based Discussions on Male Infertility which involved interactive discussions among the postgraduates.

3.	**Concluding remarks**: session concluded with awareness of male infertility
4.	**Participants & delegates:** A total of 150 members participated in the event
5.	**Certificate Distribution**: Nil
6.	**Valedictory Ceremony**: Vote of thanks was proposed by Dr. Divya J Patil , associate professor Department of OBG Followed by Group Photo.

GALLERY

Prof &HOD
Department of OBG
Obstetric and Gynaecology
Sri Devaraj Urs Medical College
Tamaka, Kolar.

Prof &HOD
Department of OBG
Obstetric and Gynaecology
Sri Devaraj Urs Medical College
Tamaka, Kolar.

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Obstetric and Gynaecology
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Tamaka, Kolar.

Journal of Clinical and Biomedical Sciences

CME on "Resilient Hearts, Restless Minds: Women's Mental Health Reconsidered."

7th March 2026, Psychiatry, SDUMC, Kolar-563101

S/N	EVENT REPORT
1	**Name & Level of Event:**
	CME on "Resilient Hearts, Restless Minds: Women's Mental Health Reconsidered."
2	**Background / Introduction:**
	The Department of Psychiatry, Sri Devaraj Urs Medical College, Organized a Continuing Medical Education (CME) programme on **7th March 2026** in observance of **International Women's Day**. The programme focused on **Women's Mental Health**, highlighting the unique psychological, emotional, and social challenges faced by women across different stages of life. The CME aimed to raise awareness regarding gender-specific mental health issues, promote early identification, and discuss effective management strategies. The programme commenced with registration followed by the inauguration and a series of expert lectures, panel discussions, and academic interactions addressing various aspects of women's mental health.
3	**Venue**: Physiology AV Hall, SDUMC
4	**Sponsors**: SDUAHER
5	**Inauguration:** The programme was inaugurated in the presence of distinguished dignitaries including **Dr. Muninarayana C (Registrar, SDUAHER), Dr. Prabhakar K (Dean, Faculty of Medicine & Principal, SDUMC), Dr. Krishnappa J (Medical Superintendent, RLJH&RC), Dr**. **Dinesh (Deputy Medical Superintendent), Dr. Ruth Sneha (Prof & HOD, Psychiatry) and Dr, Mohan Reddy M (Prof, Psychiatry).** The dignitaries emphasized the importance of recognizing and addressing women's mental health issues and the need for increased awareness and access to mental health services.
6	**Speakers / Judges / Chairman / Panel Team**
	The CME featured several expert sessions delivered by eminent speakers. **Dr. Vimarshitha Professor, Department of OBG, SDUMC** delivered a lecture on *"The Mind-Body Bridge."* **Dr. Prakruthi, Consultant Psychiatrist, Thanu Mana Clinic, Whitefield** spoke on *"From Resilience to Recovery."* **Dr. Keya Das, Professor and HOD, Department of Psychiatry, PES Medical College, Bangalore** discussed *"Medication, Metabolism & Women's Brains."* **Dr. Vedha N Shetageri, Professor, Department of Psychiatry, East Point Medical College, Bangalore** presented on *"Trauma That Doesn't Leave Bruises."* The programme also included a **panel discussion on "Stigma, Silence & Access to Care"** followed by **case vignettes and academic interaction**, encouraging active participation and discussion among the attendees. Also Women's Badminton league was conducted to stress on the importance of physical health, which was a grand success.
7	**Participants & Delegates in Number: Total= 236**
8	**Valedictory function:** The vote of thanks was given by Dr Sahana S Murthy, Assistant professor, department of Psychiatry.
9	**Any other information: Screenshots and photos**

Dignitaries inaugurating and participating in the CM

Chief guests on the stage

Chief guests and Speakers of Women's mental health day attending the CME program


Sri Devaraj Urs Academy of Higher Education
Sri Devaraj Urs Academy of Higher Education and Research
(A Deemed to be University)
Tamaka, Kolar
DEPARTMENT OF PSYCHIATRY
invites you to the


ofHigherEducation

CME Organizing team of psychiatry department

Journal of Clinical and Biomedical Sciences

Value added Course: "Psychiatric Emergencies" The course code issued "PSE-081".

26th, 27th & 28th March and 8th, 9th, 10th and 11th April 2026 (7 days), Psychiatry, SDUMC, Kolar-563101

Journal of Clinical and Biomedical Sciences

Name of the Event: Value added Course: "**Psychiatric Emergencies"**

The course code issued **"PSE-081".**

Conducted by: **Department of Psychiatry**

Date: 26th, 27th & 28th March and 8th, 9th, 10th and 11th April 2026 (7 days)

S.No	EVENT REPORT
1	Level of Event
Institutional Level	
2	Background/Introduction
Psychiatric emergencies represent acute disturbances in behavior, thought, mood, or cognition that require immediate recognition and intervention to prevent harm to the patient, healthcare personnel, or the public. Such emergencies commonly present in emergency departments, medical and surgical wards, intensive care units, obstetric units, and outpatient settings. Postgraduate medical students across al specialties frequently encounter psychiatric emergencies, often as the first point of contact. Despite their high prevalence and clinical significance, structured training in the assessment and initia management of psychiatric emergencies is limited for non-psychiatry postgraduates. This value-added course aims to bridge this critical gap by equipping postgraduate students with essential knowledge, practical skills, and professional attitudes required for safe and effective management of psychiatric emergencies.	
3	Venue
Library AV Hall, Central Library Building, SDUMC, Kolar	
4	Sponsors
Sri Devaraj Urs Academy of Higher education and research	
5	Inauguration
Dr Ruthsneha C, Prof and HOD of Psychiatry	
6	Course Coordinators
	Dr Ruth sneha C, Professor & HOD of psychiatry, SDUMC, Kolar Dr Purushotham A, Assistant Professor of psychiatry, SDUMC, Kolar
7	Resource persons
Dr Ruth Sneha C, Professor, Psychiatry Dr Purushotham A, Assistant Professor, Psychiatry Dr Mohan Reddy M, Professor, Psychiatry Dr Sahana Murthy, Assistant professor, Psychiatry Dr Kamran Chisty, Assistant professor, Psychiatry Dr Sharat Ramani, Senior resident, Psychiatry Dr Afra Shaz, Senior resident, Psychiatry Dr Stuti Mashru, Senior Resident, Psychiatry Dr Eby yesudas, Senior resident, Psychiatry Dr Vathsala, Senior resident, Psychiatry Dr B Vengamma, Vice chancellor, Neurologist, SDUAHER Dr Prabhakar K, Principal, Prof of medicine, SDUMC Dr Bhuvana K, Professor of Pharmacology	

Dr Raj Kumar, Professor, Forensic Medicine Dr Ajay Kumar, Professor, Forensic Medicine Dr Imran Khan, Assistant professor, Pharmacology Dr Devendra Prasad, Associate prof, Emergency medicine Dr K S Murthy, Professor, Emergency medicine Dr Vimarshitha P, Professor, OBG Dr Divya Patil, Assistant professor, OBG Mr Murali Mohan, Child Psychologist, Pediatrics	
8	Participants and delegates- Postgraduate students of SDUMC.
No of students registered: 84 No of students successfully completed the course: 52	
9	Awards /Prizes
Mementos/ Certificate of Appreciation were given to speakers E-certificates issued through Email toparticipantsafter successful completion of the course	
10	Valedictory ceremony
Conducted by Dr Ruth sneha C, Professor and HOD, Psychiatry	
11	Highlights of VAC
	This course was designed to train Post graduate students of SDUMC to learn skills to understand and manage psychiatric emergencies in day to day practice of their clinical training. The Course duration was 30 hours and the following were the key highlights. At the end of the course, the learner was able to 1. Understand the core principles of psychiatric emergencies 2. Perform rapid assessment and risk evaluation 3. Initiate immediate and appropriate emergency management 4. Ensure safety of patients, caregivers, and healthcare staff 5. Identify organic and substance-related causes of emergencies 6. Apply ethical, legal, and documentation standards Pretest and post test assessments done along with Feed-backs to improve further in future endeavors.

Journal of Clinical and Biomedical Sciences

Workshop on Stress Management

22nd May 2026, Psychiatry, SDUMC, Kolar-563101

1 Name & Level of Event: Workshop on Stress Management

2 Background / Introduction:

The Department of Psychiatry, Sri Devaraj Urs Medical College, Organized A workshop on "Stress Management for Postgraduate Residents" was conducted on 22nd May 2026 from 2:00 PM to 4:00 PM.The program was held at the C V Raman Auditorium.

Postgraduate residents often experience stress due to heavy academic and clinical responsibilities. Long working hours, patient care duties, and examinations contribute to mental and emotional strain. Stress and burnout can negatively affect both personal well-being and professional performance.

The workshop aimed to create awareness about stress, burnout, and mental well-being among residents.

Sessions focused on stress management techniques such as mindfulness, relaxation, time management, and work–life balance.

The workshop encouraged residents to adopt healthy coping strategies and seek support whenever needed.

3 Venue: C V Raman auditorium, SDUMC

4 Sponsors: SDUAHER

5 Inauguration:
Dr. Ruth Sneha (Prof & HOD, Psychiatry) emphasized the importance of recognizing and managing stress among postgraduate residents. And highlighted the need for increased awareness about mental well-being, burnout prevention, and healthy coping strategies during residency training.

6 Speakers / Judges / Chairman / Panel Team

The workshop featured expert sessions delivered by eminent speakers

Dr Sharan Roy Chowdhury,Senior Consultant,Sukoon health,Bangalore delivered a lecture on 'Identification of Stressors and Their Impact on Mental Health'.

Ms Swayntika Adavi, Clinial Psychologist, Sukoon health,Bangalore, conducted 'Hands on techniques for stress management and emotional resilience'.

7 Participants & Delegates in Number: Total=76

8 Valedictory function:
The vote of thanks was given by **Dr M Kamran Chisty, Assistant professor**, department of Psychiatry.

9 Any other information: Screenshots and photos

PHOTOS OF THE EVENT-STRESS MANAGEMENT

Participants

Speakers