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MEDİPOL Research Express

2026
#1



Food Safety: Detecting contamination in trace levels

Increasing sustainability of wireless sensor networks

Predicting postoperative kidney infections

New mathematical models for more reliable complex systems

MEDİPOL UNIVERSITY PRESS

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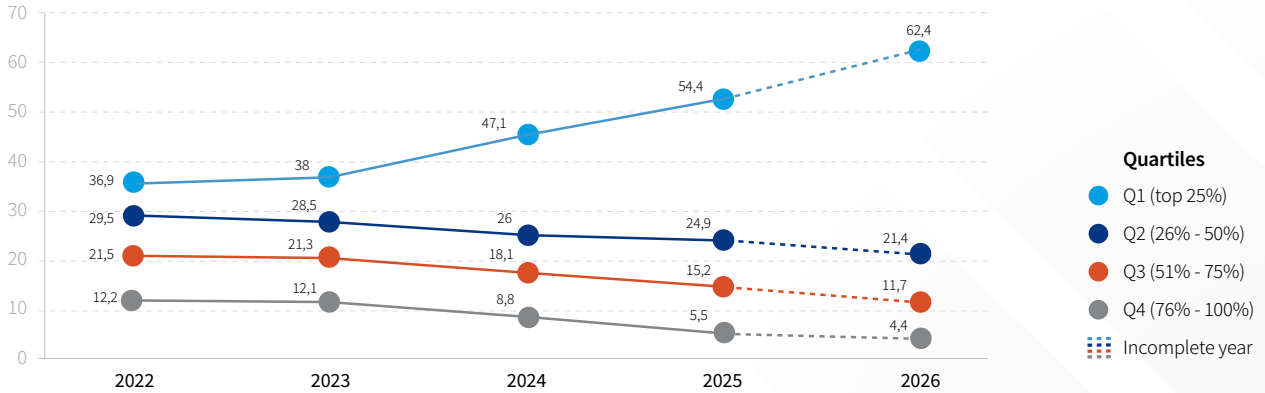
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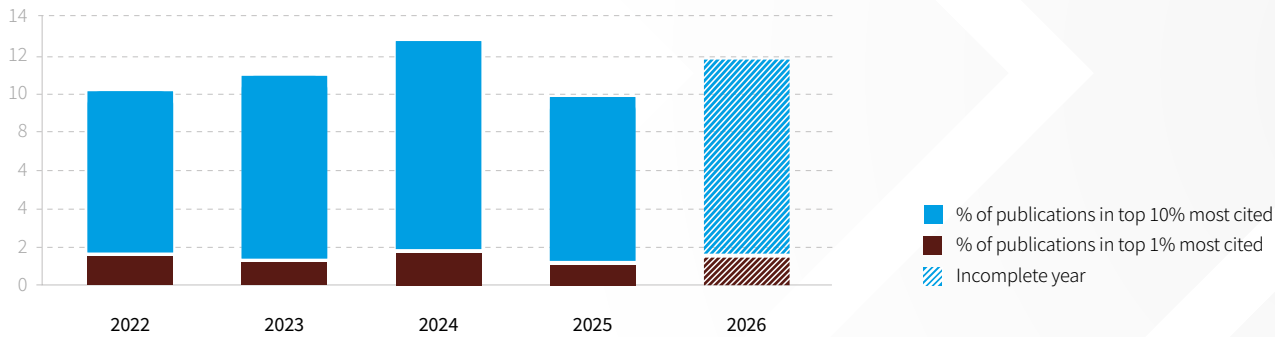
Publication Share (%)

Share of publications per journal quartile

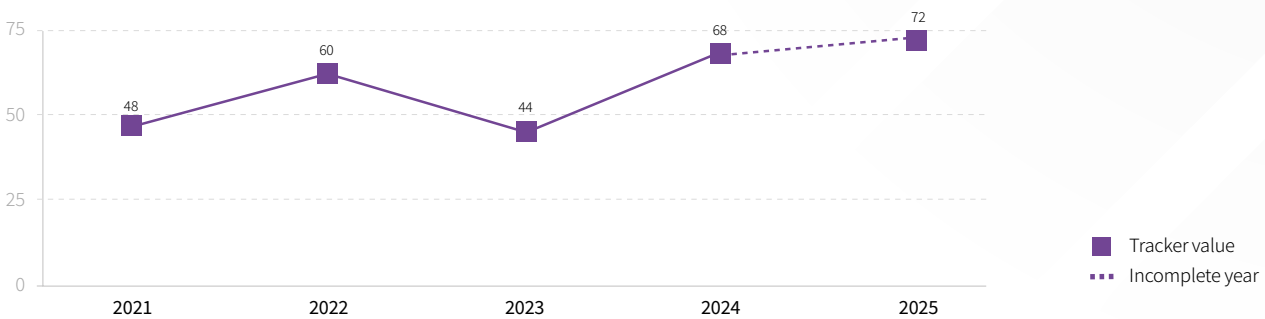


Outputs in Top Citation Percentiles (%)

Share of publications at İstanbul Medipol University that are among the most cited publications worldwide



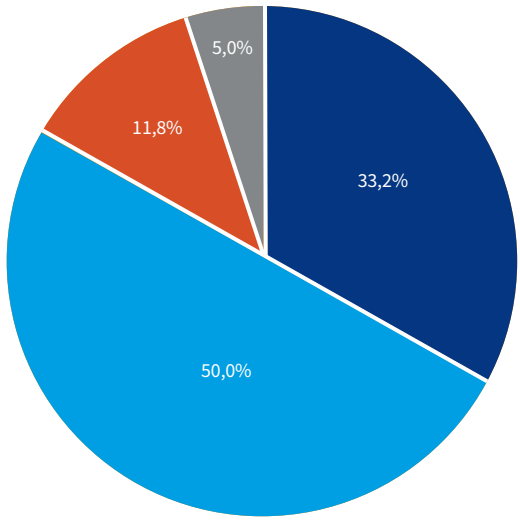
Patent Citations



Geographical Collaboration

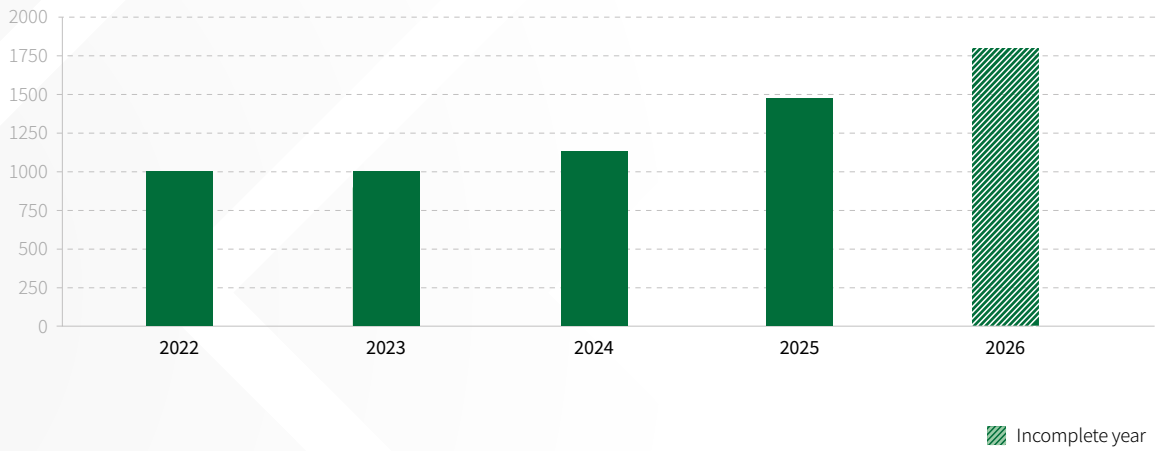
International, national and institutional collaboration

Metric	Scholarly Output
International collaboration	2,056
Only national collaboration	3,098
Only institutional collaboration	729
Single authorship (no collaboration)	307

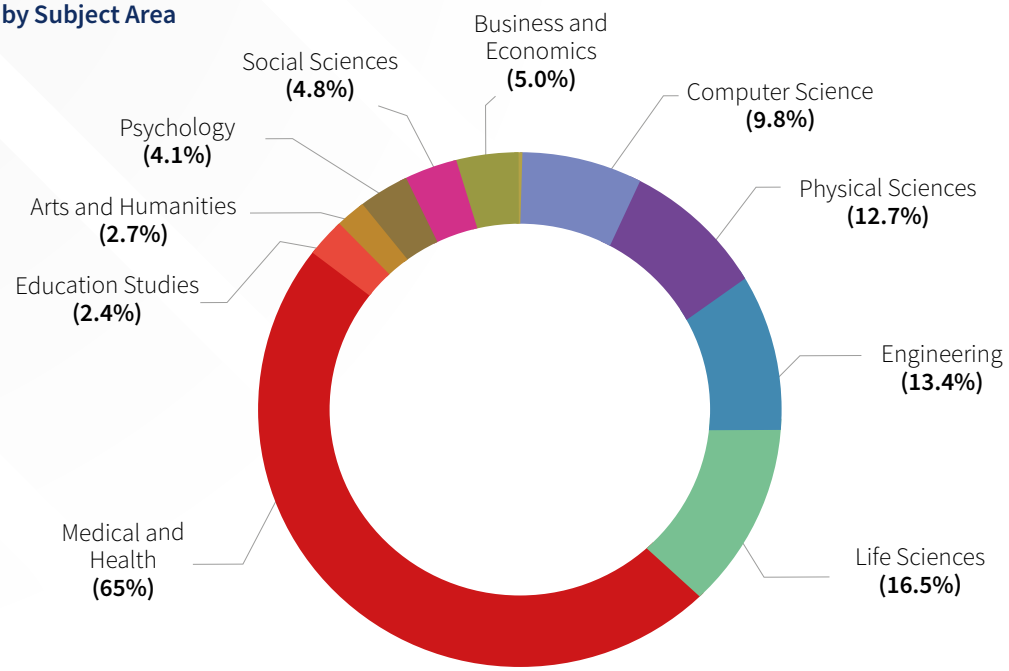


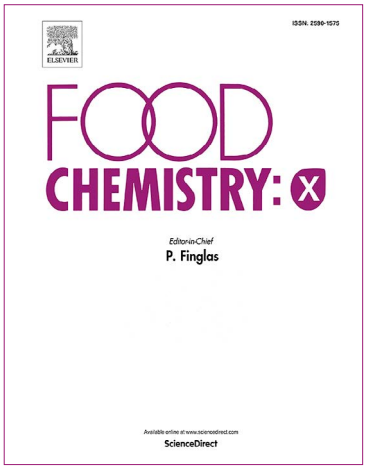
Scholarly Output

Number of publications by authors at İstanbul Medipol University



Publications by Subject Area





Detecting the Invisible Threats in Honey

An Eco-Friendly Method for Monitoring Antibiotic Residues

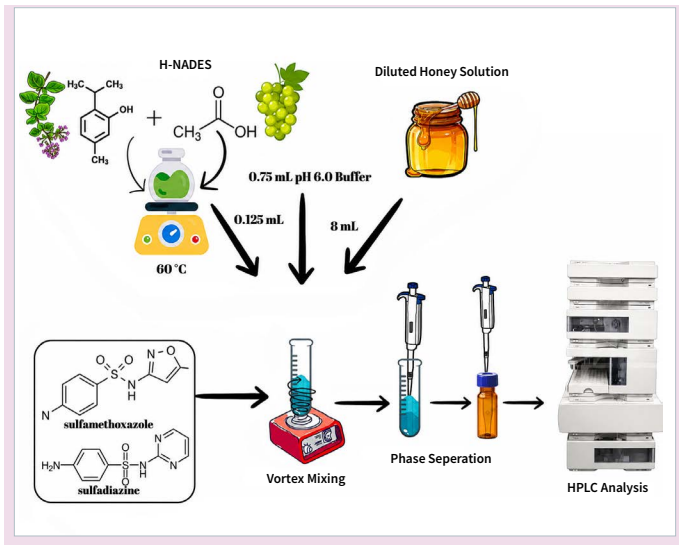
Ümit Can ERİM
School of Pharmacy

Read the full article

Honey is widely consumed as a natural and healthy food, yet trace amounts of veterinary antibiotics may remain in honey due to certain beekeeping practices. These residues can pose risks to food safety and contribute to antimicrobial resistance. The study addresses a critical challenge: how to detect antibiotic contamination accurately while reducing the matrix effect of analysis.

Methodology

- Developed a green microextraction approach using a natural deep eutectic solvent (NADES) composed of thymol and acetic acid.
- Extracted sulphonamide antibiotic residues from honey samples prior to HPLC analysis.
- Validated the method using honey samples collected from different regions of Türkiye and matrix-matching calibration techniques.

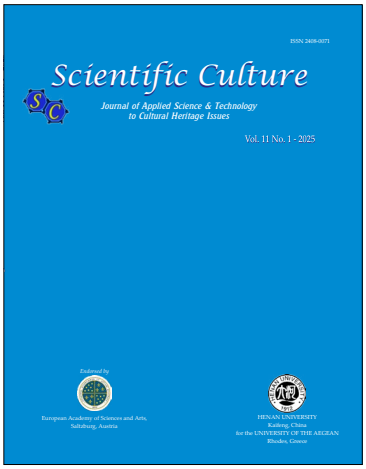


Impact

By enabling the reliable detection of antibiotic residues at trace levels, this research helps strengthen food safety monitoring in one of the world's most widely consumed natural products. The method provides a practical tool for laboratories and regulatory authorities while promoting greener analytical practices, ultimately supporting consumer protection, more effective inspections, and sustainable scientific innovation.

Key Findings

- ✔ The method successfully identified antibiotic residues in honey, even at very low concentrations that are difficult to detect with routine analyses.
- ✔ A natural solvent system replaced many of the hazardous chemicals commonly used in laboratory testing, making the process more environmentally friendly.
- ✔ The approach delivered accurate and consistent results across honey samples collected from different regions.
- ✔ Sample preparation was faster and simpler than many conventional analytical procedures, reducing both time and operational costs.
- ✔ The successful application to real honey samples demonstrated the method's potential for routine food safety monitoring and quality control.



Smarter Energy, Longer Life

An Intelligent Approach to Sustainable Wireless Sensor Networks

Mehmet Kemal ÖZDEMİR et al.
School of Engineering and Natural Sciences

Read the full article

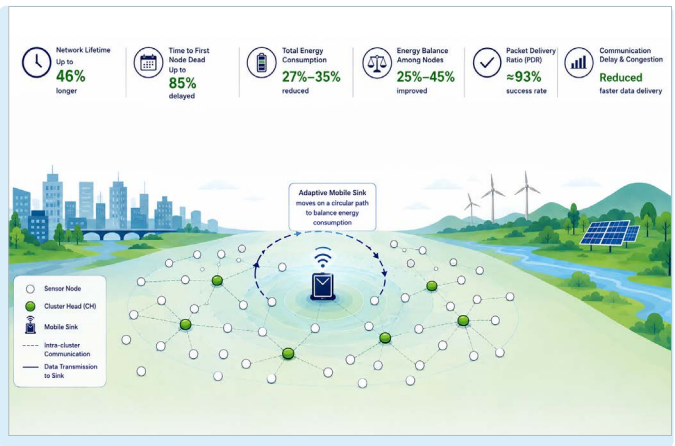
Wireless sensor networks power many of the technologies behind smart cities, environmental monitoring, industrial automation, and precision agriculture. However, these networks often suffer from uneven energy consumption, causing some sensors to run out of power much earlier than others. This study explores how intelligent optimization can help distribute workloads more efficiently, extending network lifetime while improving communication reliability.

Methodology

- Developed a hybrid protocol called PSO-MSM, combining Particle Swarm Optimization (PSO) with adaptive sink mobility.
- Used a multi-objective Particle Swarm Optimization (PSO) algorithm to select cluster heads based on residual energy, cluster compactness, and sink proximity.
- Continuously adjusted the position of the network's data collection point (sink) to balance energy consumption across the system.
- Evaluated performance through simulations involving 100 sensor nodes and compared results with established network protocols.

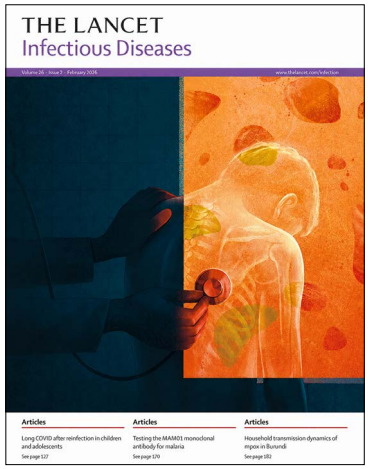
Impact

The proposed approach demonstrates how artificial intelligence can make wireless sensor networks more sustainable, reliable, and cost-effective. By extending battery life and reducing maintenance needs, the method can support long-term deployment of smart city systems, environmental monitoring platforms, precision agriculture applications, and other Internet of Things (IoT) technologies while contributing to more energy-efficient digital infrastructure. The approach also supports environmental sustainability by reducing battery replacements and maintenance interventions, helping lower electronic waste in large-scale IoT deployments.



Key Findings

- ✔ Extended overall network lifetime by up to 46% compared with widely used methods.
- ✔ Delayed the first sensor node failure by up to 85%, helping maintain network coverage for longer periods.
- ✔ Reduced total energy consumption by 27–35%.
- ✔ Improved energy balance among sensor nodes by 25–45%, preventing excessive battery drain in specific areas.
- ✔ Achieved an approximately 93% data delivery success rate, ensuring reliable communication.
- ✔ Reduced communication delays and network congestion, enabling faster data.



A New Weapon Against Resistance

Evaluating Cefiderocol in Bloodstream Infections

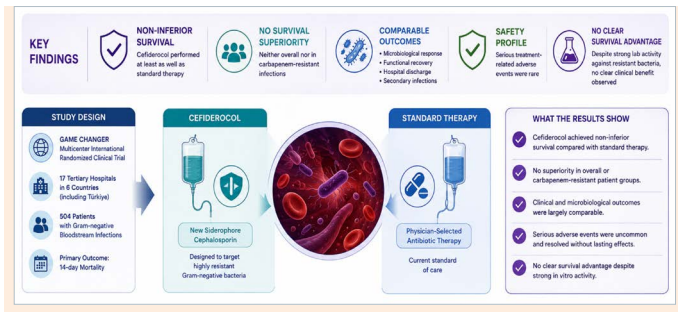
Mesut YILMAZ et al.
International School of Medicine

Read the full article

Bloodstream infections (serious infections in which bacteria spread through the bloodstream) are among the most life-threatening infections acquired in hospitals. They become even more difficult to treat when the bacteria are resistant to carbapenems (a group of last-resort antibiotics used for severe bacterial infections). Cefiderocol is a newly developed antibiotic designed to target these highly resistant bacteria. As part of the international GAME CHANGER trial, researchers investigated whether cefiderocol could improve survival compared with the antibiotics currently used in routine hospital care. The study is the first randomized clinical trial specifically designed to evaluate cefiderocol in hospital-acquired and healthcare-associated Gram-negative bloodstream infections.

Methodology

- Conducted as part of the multicenter international GAME CHANGER randomized clinical trial across 17 tertiary hospitals in six countries, including Türkiye.
- Compared cefiderocol with physician-selected standard antibiotic therapy in 504 patients with Gram-negative bloodstream infections (a major group of bacteria responsible for many severe hospital-acquired infections), using 14-day mortality as the primary outcome.



Impact

Treating bloodstream infections caused by antibiotic-resistant bacteria is becoming increasingly challenging worldwide. This study provides important clinical evidence that cefiderocol performs as effectively as current standard treatments but does not offer a clear survival advantage. The findings help physicians make more informed treatment decisions while guiding future research toward patients with the most difficult-to-treat resistant infections.

Key Findings

- ✔ Cefiderocol achieved non-inferior survival (performed at least as well as standard treatment) compared with standard antibiotic therapy, confirming that it is an effective treatment option for severe Gram-negative bloodstream infections.
- ✔ The new antibiotic did not demonstrate superior survival, either in the overall patient population or among patients infected with carbapenem-resistant bacteria.
- ✔ Clinical outcomes, including microbiological response (elimination of the infection-causing bacteria), functional recovery, hospital discharge, and secondary infection rates, were largely comparable between the two treatment groups.
- ✔ Serious treatment-related adverse events were uncommon, although those considered related to the study drug occurred only in the cefiderocol group and resolved without lasting effects.
- ✔ Despite showing strong activity against resistant bacteria in laboratory testing, cefiderocol did not provide a clear survival advantage in clinical practice, suggesting that routine replacement of existing therapies is not currently justified.



Grit Helps Language Learners Cope with Boredom

Mehdi SOLHİ et al.
School of Education

Read the full article

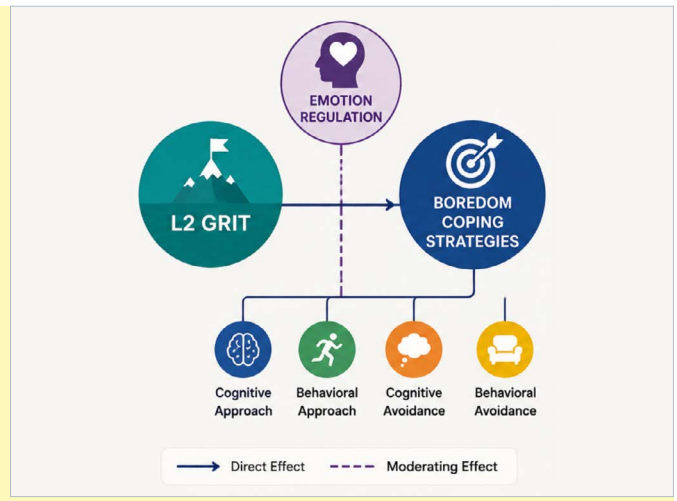
Boredom is a common emotional experience in second or foreign language (L2) learning, but students do not all respond to it in the same way. One factor that may shape how they cope with boredom is L2 grit, which refers to language learners' perseverance of effort and consistency of interest over time. This study investigated how L2 grit relates to the strategies students use to cope with boredom and whether emotion regulation—the way learners manage and respond to their emotions—contributes to this relationship.

Methodology

- Examined 259 English as a foreign language (EFL) students in Türkiye, focusing on L2 grit, boredom coping strategies, and emotion regulation.
- Used structural equation modelling, a statistical method for analyzing relationships among multiple factors, to assess the associations among these variables and the potential moderating role of emotion regulation.

Impact

The study highlights L2 grit as an important psychological factor shaping how language learners respond to boredom. Students who sustain their effort and interest use more constructive approaches to cope with boredom, particularly cognitive approach strategies. By demonstrating the close relationship between grit and boredom coping, the findings provide insight into the importance of sustained effort and interest in how learners manage challenging emotional experiences in foreign language learning.



Key Findings

- ✔ L2 grit was strongly associated with the strategies students used to cope with boredom during foreign language learning.
- ✔ Emotion regulation was moderately related to boredom coping strategies and L2 grit.
- ✔ L2 grit was a significant and strong predictor of all four boredom coping strategies: cognitive approach, behavioral approach, cognitive avoidance, and behavioral avoidance.
- ✔ Its strongest predictive relationship was with cognitive approach strategies, which involve actively changing how learners think about and respond to boredom in language learning.
- ✔ Emotion regulation did not significantly moderate the relationship between L2 grit and boredom coping. In other words, grit predicted how students responded to boredom regardless of their emotion regulation strategies.

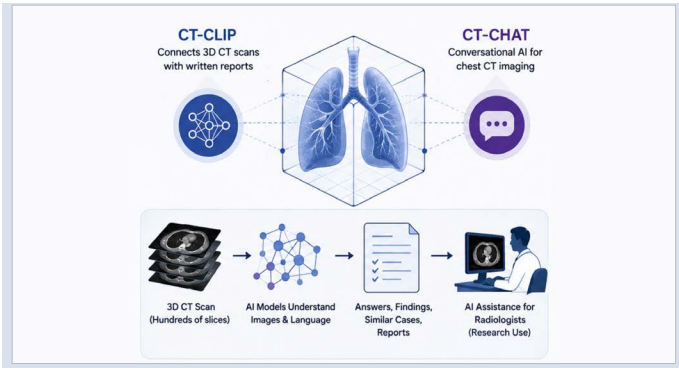


Teaching AI to Understand 3D CT scans

İbrahim Ethem HAMAMCI et al.
International School of Medicine, School of Engineering and Natural Sciences

Read the full article

Chest computed tomography (CT) scans provide detailed three-dimensional views of the body, but interpreting hundreds of image slices and preparing radiology reports can be time-consuming. While artificial intelligence has made rapid progress in analysing two-dimensional medical images, advances in 3D CT imaging have been limited by the lack of large, publicly available datasets that combine scans with radiology reports. This study addressed that challenge by introducing CT-RATE, the largest open dataset of paired 3D chest CT scans and reports, together with AI models designed to understand complete CT examinations and medical language.



Methodology

- Developed CT-RATE, an open dataset containing 25,692 chest CT scans from 21,304 patients, each linked to its corresponding radiology report.
- Used the dataset to develop CT-CLIP, an AI model that learns to connect 3D CT scans with written reports, and CT-CHAT, a conversational AI model trained on more than 2.7 million question-and-answer pairs about chest CT imaging.

Impact

By openly releasing both the CT-RATE dataset and the AI models, the study provides researchers worldwide with a foundation for developing and improving future AI systems for 3D medical imaging. These openly available resources may support new tools for detecting abnormalities, finding similar clinical cases, answering imaging-related questions, and assisting with radiology reporting. Although further development is needed before clinical use, the work represents an important step toward more accessible, transparent, and capable AI for medical imaging.

Key Findings

- ✔ CT-CLIP detected multiple abnormalities without requiring large amounts of manually labelled training data.
- ✔ In both internal and external evaluations, CT-CLIP outperformed a leading fully supervised AI model (one trained using manually labelled examples) across the study's main performance measures.
- ✔ The model could find previous CT scans with findings similar to a new patient's scan, helping identify relevant clinical cases for comparison.
- ✔ CT-CHAT answered questions about complete 3D chest CT scans and generated radiology reports, outperforming the other open-source AI models evaluated in the study.
- ✔ Independent radiologists rated CT-CHAT's reports more highly than those generated by the other 3D AI models included in the comparison.
- ✔ The researchers emphasise that these models are intended for research use and require further validation, broader testing, and regulatory approval before routine clinical use.



Building a Common Language Reference

A Comprehensive Turkish Picture-Naming Database

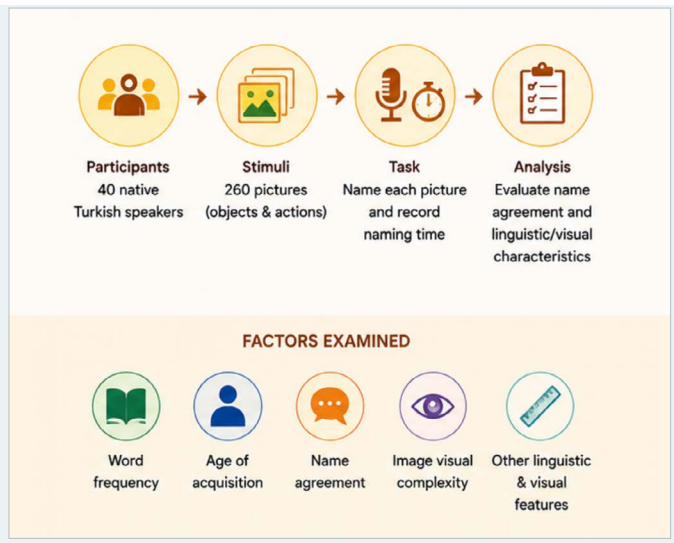
Elif İkbal ESKİOĞLU, N. Evra Günhan ŞENOL, Talat BULUT
Institute of Health Sciences, School of Health Sciences

Read the full article

Naming a familiar object or action may seem effortless, but it requires the brain to recognize an image, retrieve the correct word, and produce it quickly. Because of this, picture-naming tasks are widely used to study language processing and assess language disorders. However, Turkish has lacked a comprehensive reference database covering both object and action naming. This study fills that gap by creating the first large-scale Turkish picture-naming database for healthy adults.

Methodology

- Asked 40 healthy native Turkish speakers to name 260 pictures, including both objects and actions.
- Recorded naming speed, the consistency of participants' responses, and a range of linguistic and visual characteristics that influence word retrieval.

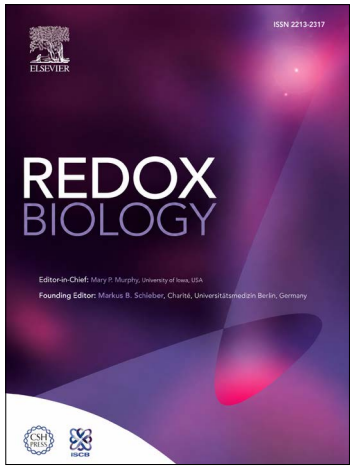


Impact

Reliable reference materials are essential for both language research and clinical assessment. By providing the first comprehensive Turkish picture-naming database, this study offers researchers and clinicians a shared resource for investigating how words are retrieved and produced. The database may also provide a useful reference for future research and clinical work involving language disorders that affect word retrieval.

Key Findings

- ✔ The study produced the first comprehensive Turkish database containing naming times, name agreement scores, and key linguistic characteristics for both object and action pictures.
- ✔ Name agreement, how consistently people used the same word for a picture, significantly influenced naming speed.
- ✔ Words learned earlier in life were generally named more quickly than those acquired later.
- ✔ The database identifies which pictures are easier or more difficult for Turkish speakers to name.
- ✔ Researchers can use the resource to design better-controlled language experiments and compare results more consistently across studies.



Revealing the Hidden Dialogue Inside Brain Cells

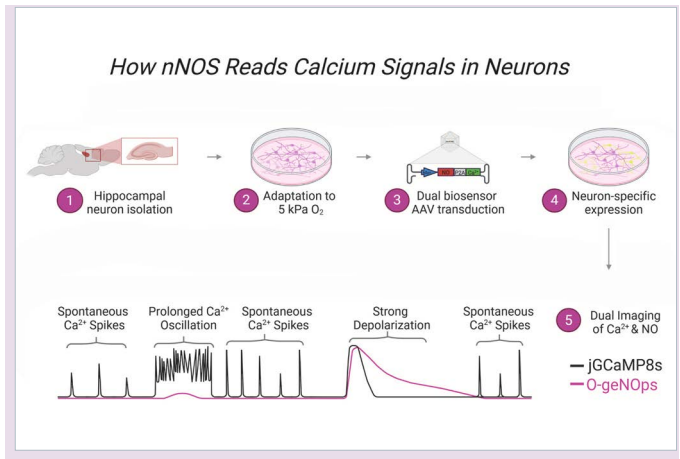
Asel AYDEĞER et al.
Research Institute for Health Sciences and Technologies (SABİTA)

Read the full article

Calcium (Ca^{2+}) and nitric oxide (NO) are two essential molecules that help brain cells communicate, adapt, and respond to activity. Although these two signaling systems constantly influence one another, scientists have struggled to observe them simultaneously in living neurons. This study introduces a dual biosensor, a biological imaging tool that can monitor both signals at the same time, allowing researchers to watch their interaction in real time under conditions that closely resemble those in the living brain.

Methodology

- Developed a genetically encoded dual biosensor capable of simultaneously tracking calcium and nitric oxide activity in individual living neurons.
- Tested the biosensor in primary hippocampal neurons under near-physiological oxygen and temperature conditions to examine how the two signaling pathways interact during different levels of neuronal activity.

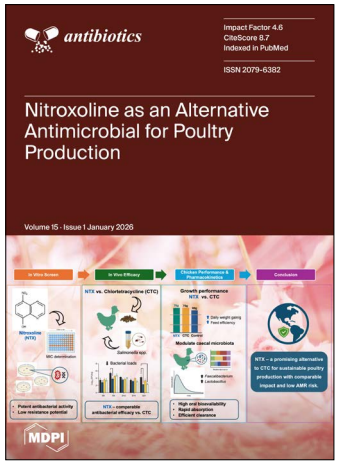


Impact

Understanding how brain cells communicate is essential for explaining both normal brain function and many neurological diseases. By allowing scientists to observe calcium and nitric oxide signaling simultaneously in living neurons, this new imaging platform provides a clearer picture of how these two systems work together. The technology may support future research into conditions such as stroke, traumatic brain injury, and neurodegenerative diseases, where disruptions in these signaling pathways are known to play an important role.

Key Findings

- ✔ The new biosensor enabled simultaneous, high-resolution imaging of calcium and nitric oxide signaling within individual neurons.
- ✔ Strong neuronal activity triggered substantial nitric oxide production, whereas low or moderate activity produced little or no detectable nitric oxide.
- ✔ Nitric oxide also influenced calcium signaling by temporarily reducing spontaneous neuronal activity, revealing a two-way communication between these two signaling systems.
- ✔ Experimental conditions that closely resembled the natural brain environment significantly improved nitric oxide detection without affecting calcium measurements.



Hidden Bacteria Inside Kidney Stones Reveal Infection Risk

Pilar LAGUNA, Jean de la ROSETTE et al.
International School of Medicine

Read the full article

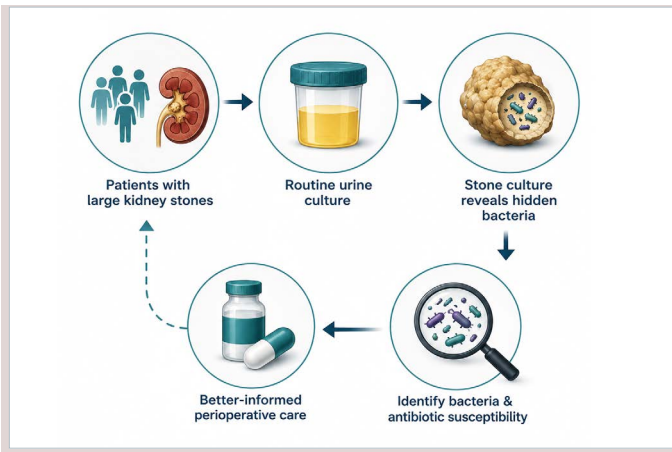
Percutaneous nephrolithotomy (PCNL) is one of the most effective procedures for removing large kidney stones. However, some patients develop serious infections after surgery, even when preoperative urine tests show no signs of infection. This study explored whether culturing bacteria hidden inside kidney stones could better identify patients at risk and help guide safer postoperative treatment.

Methodology

- Conducted a prospective study involving 126 patients undergoing PCNL between December 2023 and March 2025.
- Compared bacteria found inside kidney stones with routine urine culture results and examined how these findings related to postoperative infections, kidney function, antibiotic susceptibility, and clinical outcomes.

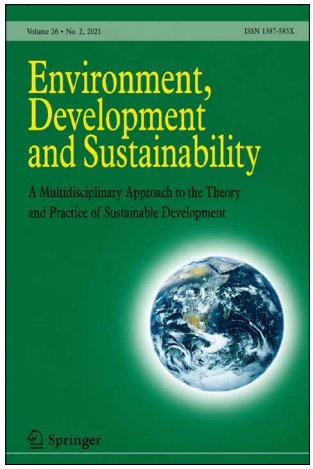
Impact

Routine urine tests do not always reveal the bacteria that may remain hidden inside kidney stones. This study shows that analysing the stones themselves can provide a more accurate picture of infection risk before and after surgery. Identifying these hidden bacteria may help physicians choose more appropriate antibiotics, monitor high-risk patients more closely, and reduce serious postoperative infections while supporting more responsible antibiotic use.



Key Findings

- ✔ One in eight patients (12.6%) had bacteria growing inside their kidney stones, despite routine preoperative testing.
- ✔ Patients with positive stone cultures experienced significantly higher rates of postoperative fever, systemic inflammatory response syndrome (SIRS, a severe body-wide inflammatory reaction to infection), acute kidney injury, longer hospital stays, and more serious complications.
- ✔ Positive stone cultures were associated with several preoperative risk factors, including chronic kidney disease, positive urine cultures, and larger kidney stones.
- ✔ Escherichia coli (E. coli) was the most identified bacterium, while many isolates were resistant to commonly used antibiotics.
- ✔ Stone cultures provided clinically important information beyond routine urine cultures, helping explain postoperative infections even in patients who had received preventive antibiotic treatment.



Finding the Most Effective Way to Reduce Energy Poverty

Serkan ETİ, Yaşar GÖKALP, Serhat YÜKSEL, Hasan DİNÇER et al.
Vocational School, School of Health Sciences, School of Business and Management Sciences

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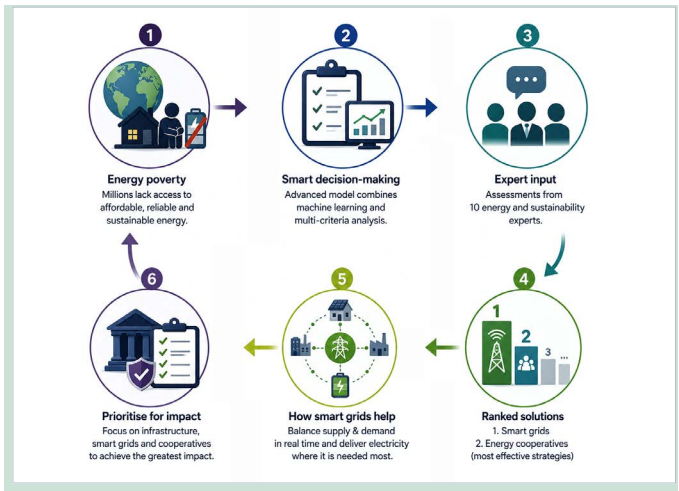
Energy poverty, the inability to access affordable, reliable, and sustainable energy, affects millions of people worldwide. Governments have many possible ways to address this challenge, but limited resources make it essential to know which actions should come first. This study developed a decision-making framework to identify the main causes of energy poverty and rank the strategies most likely to deliver the greatest impact.

Methodology

- Developed an advanced decision-making model that combines machine learning and multi-criteria analysis to evaluate the causes of energy poverty and compare possible intervention strategies.
- Collected expert assessments from 10 specialists in the fields of energy and sustainability to rank six contributing factors and six potential solutions.

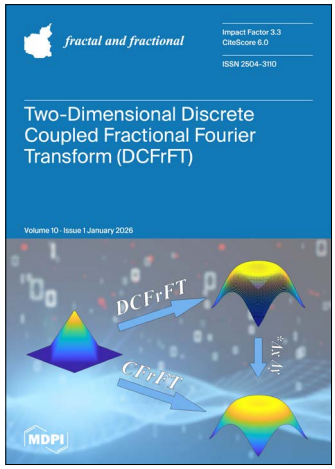
Impact

The study provides policymakers with a practical way to prioritise investments that can have the greatest impact on reducing energy poverty. Rather than treating all solutions equally, the findings show that strengthening energy infrastructure, expanding smart grid technologies, and supporting community-based energy cooperatives should be among the highest priorities. By helping governments invest where they can make the biggest difference, the framework may contribute to more reliable, affordable, and sustainable energy systems.



Key Findings

- ✔ Inadequate energy infrastructure emerged as the most influential driver of energy poverty, followed by geographical and climatic conditions.
- ✔ Smart grids ranked as the most effective strategy for reducing energy poverty, with energy cooperatives identified as the second most promising solution.
- ✔ Smart grids can improve the reliability and efficiency of electricity systems by balancing energy supply and demand in real time and directing electricity where it is needed most.
- ✔ The proposed framework produced consistent results across different model settings, demonstrating the reliability of the approach.



When the Past Shapes the Future New Mathematical Models Capture Memory and Time Delays in Complex Systems

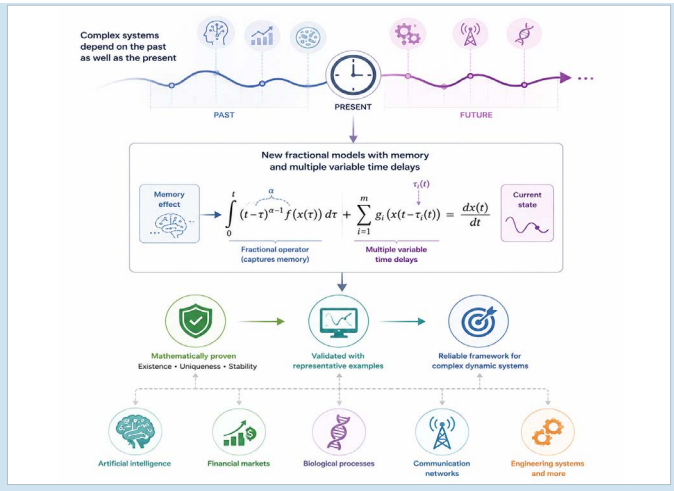
Cemil TUNÇ et al.
School of Engineering and Natural Sciences

Read the full article

Many real-world systems are influenced not only by what is happening now, but also by past states and delayed effects. Fractional mathematical models provide a way to represent such memory-dependent behaviour are influenced not only by what is happening now, but also by what happened in the past. Traditional mathematical models often struggle to capture these memory effects and changing time delays, making it difficult to describe complex systems accurately. This study introduces two new mathematical models that account for both, providing a more realistic way to analyze dynamic systems whose present behavior depends on their history.

Methodology

- Developed two new fractional mathematical models, a class of models designed to describe systems with memory, capable of incorporating multiple variable time delays.
- Established the existence and uniqueness of solutions and investigated their Ulam-type stability, which examines whether approximate solutions remain close to exact solutions under small perturbations.

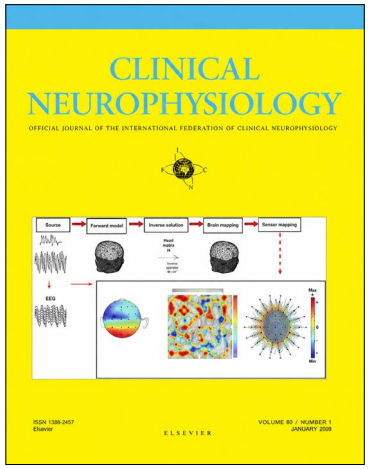


Impact

Many natural and engineered systems are influenced by past states as well as present conditions. By introducing mathematically reliable models that better capture these effects, this study expands the tools available for analyzing complex dynamic systems. The framework may support future advances across a wide range of disciplines where understanding how the past influences the future is essential.

Key Findings

- ✔ The study investigates two fractional mathematical models that simultaneously incorporate memory effects and multiple variable time delays.
- ✔ The models were shown to have unique solutions and satisfy Ulam-type stability conditions, indicating robustness to small perturbations in approximate solutions.
- ✔ By incorporating both memory and time delays, the models can provide a mathematical framework for representing systems whose current behaviour depends on past states and delayed effects.
- ✔ Illustrative examples demonstrated the applicability of the theoretical results to the fractional differential and integral equations considered in the study.



Listening to the Brain's Hidden Signals

Distinguishing Huntington's Disease from Alzheimer's

Bahar GÜNTEKİN, Lütfü HANOĞLU, Harun YIRIKOĞULLARI et al.
School of Medicine, Research Institute for Health Sciences and Technologies (SABİTA), Vocational School

Read the full article

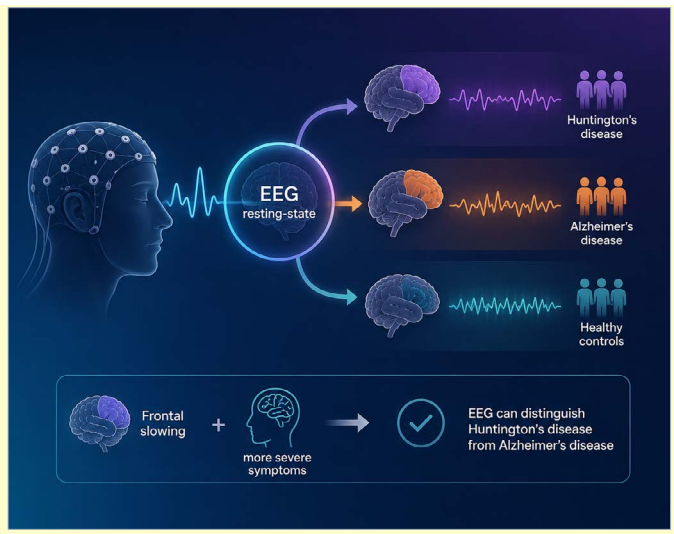
Huntington's disease and Alzheimer's disease both damage the brain over time, but they affect different brain networks. Distinguishing between these conditions, especially in their early stages, can be challenging. This study explored whether electroencephalography (EEG), a simple and non-invasive method that records the brain's electrical activity, could identify brain wave patterns unique to Huntington's disease while also reflecting disease severity.

Methodology

- Analyzed resting-state EEG recordings from 35 patients with Huntington's disease, 81 patients with Alzheimer's disease, and 102 healthy individuals across multiple international clinical centers.
- Mapped the brain regions generating these signals and examined whether changes in brain wave activity were associated with cognitive performance, motor symptoms, and daily functioning.

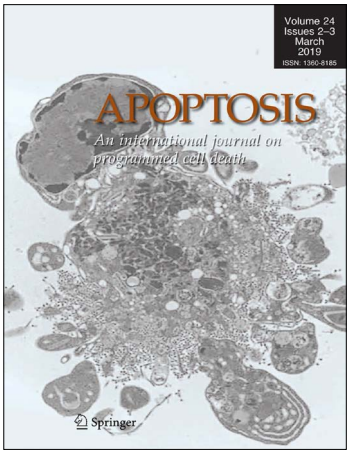
Impact

Diagnosing neurodegenerative diseases accurately and monitoring how they progress remain major clinical challenges. This study shows that a simple EEG recording can reveal brain wave patterns that are characteristic of Huntington's disease and linked to its severity. As a non-invasive and widely available technique, EEG could become a valuable tool for supporting earlier diagnosis, tracking disease progression, and evaluating future treatments.



Key Findings

- ✔ Both Huntington's disease and Alzheimer's disease showed slower brain wave activity than healthy individuals, indicating widespread disruption of normal brain function.
- ✔ Patients with Huntington's disease displayed a distinct pattern of slowing in the frontal regions of the brain, clearly differentiating them from patients with Alzheimer's disease.
- ✔ In Huntington's disease, these abnormal brain wave patterns were closely associated with poorer thinking abilities, greater movement difficulties, and reduced daily functioning.
- ✔ The findings suggest that resting-state EEG could help distinguish Huntington's disease from Alzheimer's disease using a simple, non-invasive brain recording.



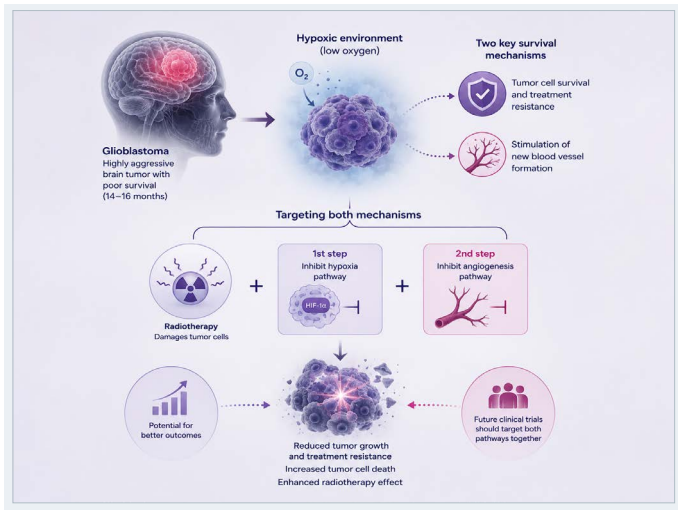
Why Two Targets May Succeed Where One Has Failed

Combining HIF and VEGF inhibition to overcome treatment resistance in glioblastoma

Emirhan HARBİ, Yasemin Yozgat BRYNE et al.
Research Institute for Health Sciences and Technologies (SABİTA)

Read the full article

Glioblastoma is the most aggressive and most common grade 4 tumour of the central nervous system. Even with surgery, radiotherapy and temozolomide, median overall survival in clinical trials remains 14–16 months. A central reason is the tumour's adaptation to low oxygen: hypoxia stabilises hypoxia-inducible factors (HIF), which drive new blood-vessel formation, metabolic adaptation and resistance to radiotherapy. This review asks why blocking these pathways one at a time has failed, and sets out the case for testing them together.



Methodology

- Synthesises the biology linking radiotherapy, HIF stabilisation and VEGF-driven angiogenesis in glioblastoma.
- Reviews completed trials of VEGF inhibitors and of HIF-2α inhibitors - none of which has combined the two.
- Proposes a sequenced regimen, with HIF-2α inhibition before radiotherapy and VEGF-pathway inhibition afterwards, together with an outline Phase I/II trial design.

Impact

Survival in glioblastoma has changed little in twenty years, and the two drug classes closest to its biology have only ever been tested in isolation. The contribution of this review is to argue that the failure may lie in how these agents are sequenced rather than in the targets themselves, and to specify a regimen and trial design that could test that idea directly. The authors are explicit that the combination remains supported only by mechanism and preclinical data, and that safety will be decisive: HIF-2α inhibitors cause anaemia and tissue hypoxia in more than 60% of treated glioblastoma patients, a particular concern where cardiopulmonary reserve is limited.

Key Findings

- ✔ Adding bevacizumab to standard therapy in 637 newly diagnosed patients lengthened progression-free survival (10.7 vs 7.3 months) but not overall survival (15.7 vs 16.1 months), at the cost of added toxicity and decline in quality of life.
- ✔ HIF-2α inhibitors alone fare no better: PT-2385 produced no objective radiographic responses in 24 patients with recurrent disease, and belzutifan stabilised disease in only 2 of 25 patients in the LITESPARK-001 glioblastoma cohort.
- ✔ A single mechanism explains both failures: blocking VEGF deepens tumour hypoxia, further stabilising HIF and switching on alternative angiogenic signals such as PDGF, FGF and SDF-1.
- ✔ In mouse xenografts, adding a HIF-1α inhibitor to bevacizumab suppressed tumour growth and restored apoptosis-something bevacizumab alone failed to achieve.



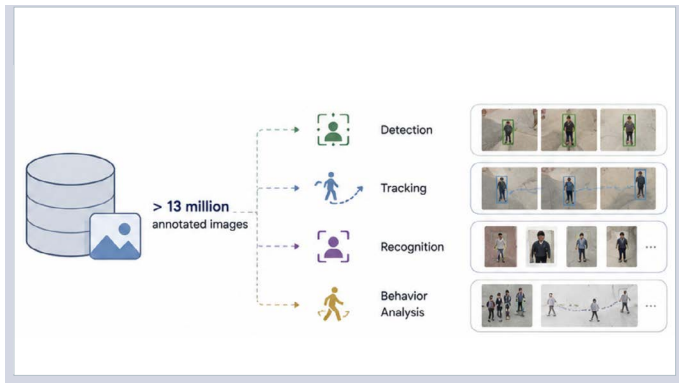
Putting AI to the Test in the Real World

A New Benchmark for Drone-Based Person Recognition

Gökhan SİLAHTAROĞLU et al.
School of Business and Management Sciences

Read the full article

Artificial intelligence can identify and track people with impressive accuracy under controlled conditions. However, real-world drone footage presents a much greater challenge because people appear at different distances, from changing angles, at lower image quality, and often in different clothing. Existing public datasets do not capture many of these real-world conditions. To address this gap, the researchers developed DetReIDX, a large-scale benchmark designed to evaluate how well person recognition systems perform in realistic drone surveillance scenarios.



Methodology

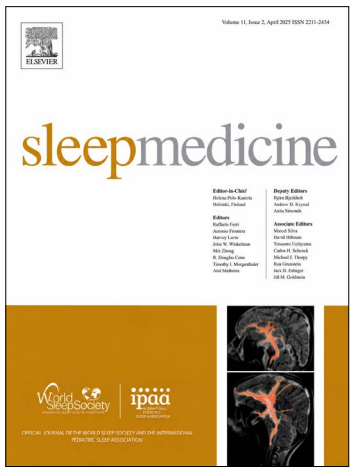
- Created a large aerial-ground dataset collected across seven universities in Portugal, Türkiye, India, and Angola.
- Recorded 509 individuals using indoor cameras and drones flying at different heights and viewpoints, producing more than 13 million annotated person bounding boxes for detection, tracking, re-identification, and action recognition.
- Evaluated several leading AI models using the new benchmark to measure how they perform under realistic operating conditions.

Impact

Real-world conditions remain one of the biggest challenges for AI-based person recognition. By introducing one of the largest aerial-ground benchmark datasets, this study provides researchers with a more realistic way to evaluate and improve future AI systems. The dataset may support the development of more reliable technologies for applications such as search-and-rescue operations, public safety, surveillance, and autonomous UAV systems.

Key Findings

- ✔ State-of-the-art person detection models experienced performance drops of up to 80% when analyzing long-range drone imagery.
- ✔ Person recognition systems struggled to identify the same individual when clothing changed or when matching indoor camera images with drone footage.
- ✔ The results suggest that many current AI models rely heavily on superficial visual cues, particularly clothing and appearance, and struggle when image quality, viewpoint, or scale changes.
- ✔ The benchmark highlights key areas for future improvement, including recognizing people across different viewpoints, image resolutions, and environments.



The Hidden Burden of Sleep Apnea in Women Symptoms Can Be More Severe Than Standard Tests Suggest

Muhammed Emin AKKOYUNLU et al.
School of Medicine

Read the full article

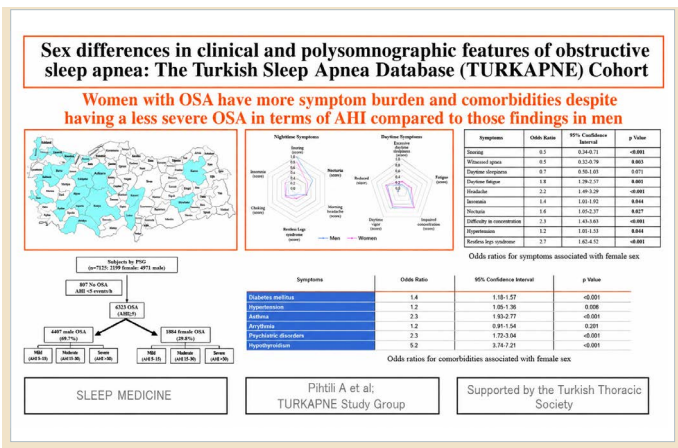
Obstructive sleep apnea (OSA) is commonly considered a condition that mainly affects men. However, women often experience different symptoms, are diagnosed later, and may therefore be overlooked. Using data from the nationwide TURKAPNE registry, this study investigated how sleep apnea differs between women and men in terms of symptoms, sleep quality, disease severity, and accompanying health conditions.

Methodology

- Analyzed clinical and overnight sleep study data from 7,130 adults evaluated for suspected sleep apnea across 34 sleep centers in Türkiye.
- Compared symptoms, sleep measurements, and accompanying medical conditions between women and men, while also examining the influence of menopause on disease severity.

Impact

Sleep apnea does not affect women and men in the same way. This nationwide study shows that women may experience a greater overall health burden even when conventional tests suggest milder disease. The findings support a more personalized approach to diagnosing and evaluating sleep apnea, helping clinicians recognize patients who might otherwise be overlooked and ultimately improving care for women with this common sleep disorder.



Key Findings

- ✔ Women were diagnosed at an older age and had higher rates of obesity, hypertension, diabetes, asthma, thyroid disease, psychiatric disorders, and other accompanying health conditions than men.
- ✔ While men more often reported loud snoring and witnessed breathing pauses during sleep, women more frequently experienced insomnia, headaches, difficulty concentrating, depressed mood, and restless legs syndrome.
- ✔ Despite having less severe sleep apnea according to the standard apnea severity score (AHI), women had poorer sleep quality, including shorter sleep duration, lower sleep efficiency, and longer time to fall asleep.
- ✔ After menopause, women experienced a marked increase in sleep apnea severity compared with premenopausal women.
- ✔ The findings suggest that the standard measure used to assess sleep apnea severity may underestimate the true impact of the disease in women.



Frontiers in Psychology
Positive Psychology

Finding Strength Through Purpose Meaning in Life and Resilience Support Better Mental Well-Being

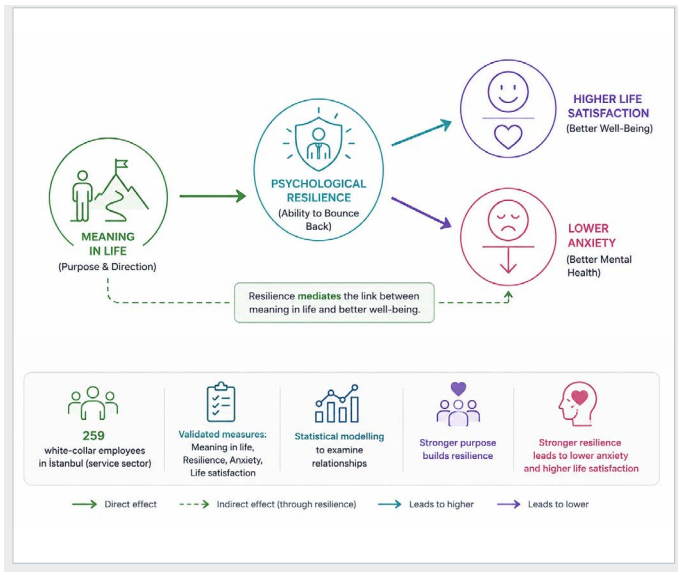
Elif BAYKAL et al.
School of Business and Management Sciences

Read the full article

The COVID-19 pandemic left lasting effects on mental health, yet people responded to these challenges in different ways. While some recovered and adapted more easily, others continued to experience anxiety and reduced well-being. This study explored whether meaning in life, the feeling that life has purpose and direction, and psychological resilience, the ability to recover from challenges, help explain these differences and contribute to better mental well-being.

Methodology

- Surveyed 259 white-collar employees working in the service sector in İstanbul during the post-pandemic period.
- Measured meaning in life, psychological resilience, anxiety, and life satisfaction using validated psychological assessment tools.
- Used statistical modelling to examine how these factors influence one another.

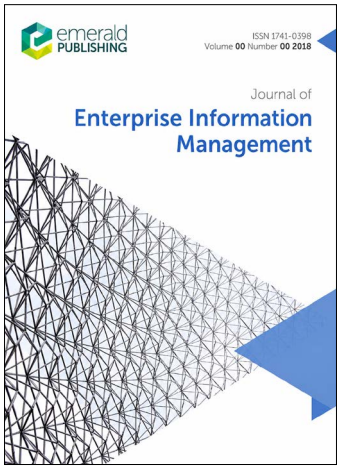


Impact

Mental well-being is shaped not only by reducing stress and anxiety but also by strengthening the personal resources that help people cope with life's challenges. This study shows that a strong sense of purpose and psychological resilience can work together to support better mental health and greater life satisfaction. The findings may help guide workplace well-being programmes, mental health interventions, and strategies that promote resilience in the face of future crises.

Key Findings

- ✔ Individuals with a stronger sense of meaning in life also showed higher psychological resilience.
- ✔ Greater resilience was associated with lower anxiety and higher life satisfaction.
- ✔ Meaning in life improved well-being both directly and by strengthening psychological resilience.
- ✔ Resilience played a key role in explaining how meaning in life was linked to lower anxiety and greater life satisfaction.
- ✔ The findings suggest that developing a stronger sense of purpose may help people cope more effectively with periods of uncertainty and change.



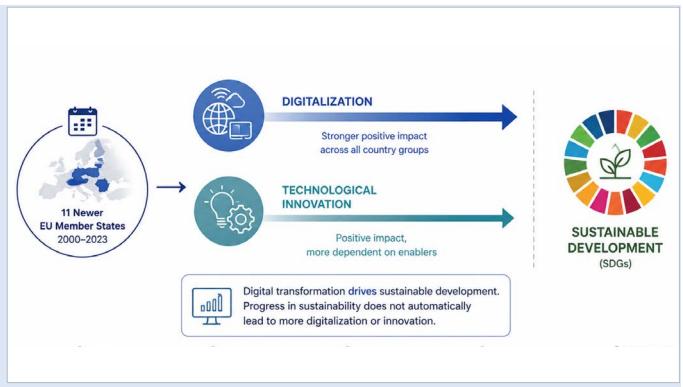
Digital First, Sustainable Faster

A 24-Year Study Shows Digitalization Has a Greater Impact than Innovation

Mesut ÖZTIRAK et al.
School of Business and Management Sciences

Read the full article

Digital transformation and technological innovation are both considered essential for achieving sustainable development. However, an important question remains: which creates the greater impact? This study examined how digitalization and technological innovation influenced sustainable development across 11 newer European Union member states over a 24-year period, identifying which factor contributes more strongly to progress toward the United Nations Sustainable Development Goals (SDGs).



Methodology

- Analysed economic and sustainability data from 11 European Union countries covering the years 2000–2023.
- Compared the effects of digitalization and technological innovation on sustainable development using internationally recognised indicators and advanced statistical analyses.

Impact

Achieving sustainable development depends not only on creating new technologies but also on ensuring that digital technologies are widely accessible and effectively used. This study suggests that investments in digital infrastructure and digital transformation can deliver broader and faster sustainability benefits than innovation policies alone, particularly in countries still developing their digital capacity. The findings provide policymakers with practical evidence for prioritising digital transformation as a foundation for long-term sustainable growth.

Key Findings

- ✔ Digitalization consistently had a stronger positive impact on sustainable development than technological innovation across all country groups.
- ✔ The greatest benefits were observed in countries with lower sustainability performance, where improvements in digital infrastructure produced the largest gains.
- ✔ Technological innovation also supported sustainable development, but its impact was more limited and appeared to depend on supporting infrastructure, institutional capacity, and effective policies.
- ✔ The analysis found one-way relationships from digitalization and technological innovation to sustainable development, but not in the reverse direction.
- ✔ Expanding digital access and infrastructure may generate broader sustainability gains than focusing on innovation policies alone.

Assoc. Prof. Mesut Öztırak Receives the **“Best Paper” Award at AIRS 2026**



Assoc. Prof. Mesut Öztırak, a faculty member in the Department of Aviation Management at the School of Business and Management Sciences of İstanbul Medipol University, was presented with the “Best Paper Award” at the Aviation and Research Symposium (AIRS 2026). The study entitled “Turbulence in the Mind: The Impact of Organizational Gaslighting on Psychological Safety in the Aviation Industry,” presented at the international symposium held in Cappadocia, addressed the relationship between organizational gaslighting and psychological safety in the aviation industry from a multidimensional perspective and revealed noteworthy findings of both academic and sectoral significance.

Academic Achievement in Europe by Çağrı Yurtseven

Çağrı Yurtseven, a fifth-year student in the English Programme of the School of Dentistry, received the third-place award for his original research, which he presented before the jury at the 77th EDSA meeting hosted by the Academic Center for Dentistry Amsterdam (ACTA) in Amsterdam, the Netherlands. The European Dental Students Association (EDSA) stands out as an important organization that enables students to share their scientific studies on an international platform. In the scientific competitions held as part of the EDSA meetings organized twice a year, students’ academic competencies are evaluated by the jury through the assessment of original research and case presentations.



Assist. Prof. Yalçın’s Research on Cerebral Ischemia Receives **TÜBİTAK Funding**

Assist. Prof. Esra Yalçın’s project entitled “Therapeutic Approaches Targeting Complement C3 Activation in a Cerebral Ischemia Model” has been awarded funding under the TÜBİTAK ARDEB 1001 Programme.

The School of Communication Reaches the Top at **AkademİDA PR Jam 2025**

Students from the School of Communication at İstanbul Medipol University achieved first and second place at AkademİDA PR Jam 2025, organized by the Communication Consultancy Companies Association (İDA), which represents the communication consultancy sector,



completing the nationwide competition involving 50 universities with two awards. In the AkademİDA PR Jam 2025 competition, in which 705 students from 50 universities across Türkiye participated in 225 teams, students developed communication campaigns in line with briefs provided by non-governmental organizations and brands. At the end of the three-stage process, faculty students achieved two rankings among the teams that presented their projects to a jury composed of leading figures from the sector.

Medipol Becomes an Official Partner in **Europe's 6G Research Ecosystem**

İstanbul Medipol University has been accepted as an official partner in the MULTIPLY-6G project, supported under the European Union's Horizon Europe Programme. The project is the university's first Horizon Europe project conducted under the framework of the Smart Networks and Services (SNS) Joint Undertaking. Implemented on a pan-European scale, MULTIPLY-6G aims to develop more efficient, scalable, and energy-friendly solutions for the 6G communication systems of the future. Prof. Hüseyin Arslan, Dean of the School of Engineering and Natural Sciences, represents İstanbul Medipol University in the project, while the university actively contributes to the consortium through its scientific and technical expertise.

TÜBİTAK Grant for Depression Assessment Study

Assist. Prof. Zafer İşcan's project entitled "Assessment of Depression Using Resting-State Neurodynamics and a Steady-State Visual Evoked Potential-Based Brain–Computer Interface" has been awarded funding under the TÜBİTAK ARDEB 1001 Programme.



Award for Dr. Neşe Ayşit at the **Medical Biology Congress**

Dr. Neşe Ayşit, a researcher at the Research Institute for Health Sciences and Technologies (SABİTA) was awarded second place in the "Oral Presentation Award" category after presenting her study entitled "Investigation of Sensory Neuron–Breast Cancer Cell Interactions in In Vitro Models" at the 19th Medical Biology and Genetics Congress.

International "Seminal Paper" **Award for Prof. Zekai Şen**

The study entitled "Innovative Trend Analysis Methodology" by Prof. Zekai Şen, a faculty member at the School of Engineering and Natural Sciences, was deemed worthy of the 2026 Seminal Paper Award, presented by the Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE).

TÜBİTAK Support for **Assoc. Prof. Aydın**

Assoc. Prof. Mehmet Şerif Aydın's project entitled "Effects of 7,8-Dihydroxyflavone on Liver Regeneration and Reinnervation Following Partial Hepatectomy" has been awarded funding under the TÜBİTAK ARDEB 1002-A Programme.

International Support for Molecular Biology Collaboration

Assoc. Prof. Özge Şensoy's project entitled "Development of Molecules Capable of Mimicking Isoform-Specific Conformational Changes in Arrestins" has been awarded funding under the TÜBİTAK 2523 Türkiye–National Research Foundation of Korea (NRF) Bilateral Cooperation Travel Support Programme.

International Fellowship for **Mass Spectrometry Research**

Research Assistant Nursu Aylin Kasa's project entitled "High-Resolution Mass Spectrometry Based on Isotope Exchange for Metal Speciation" has been awarded funding under the TÜBİTAK BİDEB 2214 International Doctoral Research Fellowship Programme.

Research Fellowship for **Assist. Prof. Emir**



Assist. Prof. Ahmet Emir's project entitled "Investigating the Validity of Goal-Oriented Video-Based Games in Developmental Coordination Disorder" has been awarded funding under the TÜBİTAK BİDEB 2219 International Postdoctoral Research Fellowship Programme.

TÜBİTAK Grant for **Drug Screening Innovation**

Dr. Sarah Barakat's project entitled "Improving In Vitro Drug Screening by Addressing the Effects of Atmospheric Oxygen Levels on Drug Responses in Brain Endothelial Cells" has been awarded funding under the TÜBİTAK ARDEB 3501 Programme.





TÜBİTAK Support for **Assist. Prof. Alp**

Assist. Prof. Muhammed İkbal Alp's project entitled "Optimistic Future Science Festival" has been awarded funding under the TÜBİTAK BİTO 4007 Science Festivals Support Programme.

TÜBİTAK Support for **Social Justice Research**

Assist. Prof. Büşra Eylem Aktaş's project entitled "The Third Party of Justice: The Influence of Socioeconomic Status-Based Group Identity, Empathy, and Anger" has been awarded funding under the TÜBİTAK ARDEB 1002 Programme.

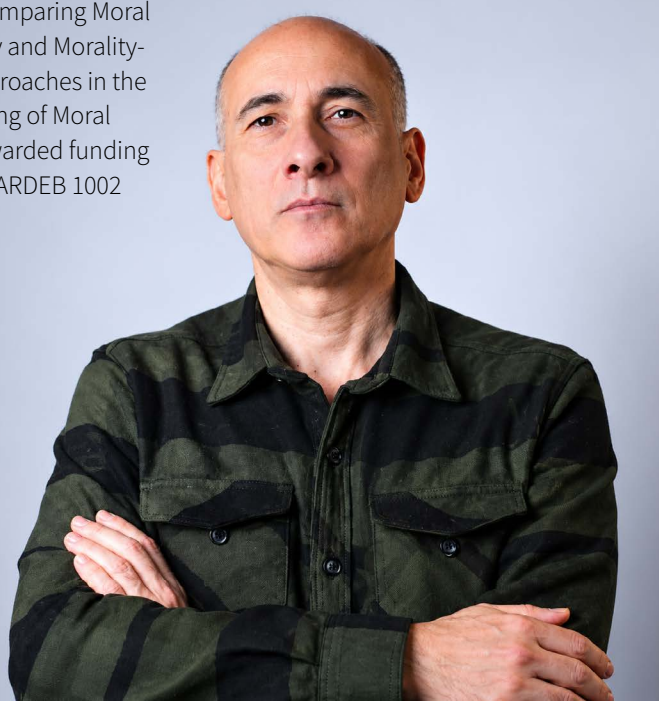
Prof. Mustafa Gündoğar Named "Innovative Dentist of the Year"

Prof. Mustafa Gündoğar, a faculty member at the School of Dentistry of İstanbul Medipol University, received the title of "Innovative Dentist of the Year" at Türkiye's Health Awards, organized by Doktorclub, with the votes of more than 115,000 physicians.



Funding for **Moral Cognition Study**

Assist. Prof. Hasan Galip Bahçekapılı's project entitled "Comparing Moral Foundations Theory and Morality-as-Cooperation Approaches in the Perceptual Processing of Moral Words" has been awarded funding under the TÜBİTAK ARDEB 1002 Programme.



Research Grant for **Fear Extinction Study**

Assist. Prof. Hasan Galip Bahçekapılı's project entitled "Preventing the Return of Fear: The Effects of Partial Reinforcement and Unpaired Unconditioned Stimulus Presentations on Extinction" has been awarded funding under the TÜBİTAK ARDEB 1002-A Programme.

TÜBİTAK Grant for **Res. Asst. Kasa**

Research Assistant Nursu Aylin Kasa's project entitled "Isotope Exchange-Based High-Resolution Mass Spectrometry for Metal Speciation" has been awarded funding under the TÜBİTAK BİDEB 2214 International Research Fellowship Programme for PhD Students.

"Outstanding Service Award" for **Prof. Arslan**



At the event themed "The Future of Engineering in Our Country," organized by the Turkish Engineers Association on the occasion of 5 December World Engineers' Day and the anniversary of the association's establishment, the "Outstanding Service Award" was presented to Prof. Hüseyin Arslan, Dean of the School of Engineering at İstanbul Medipol University.

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