



**ATHENS INSTITUTE**

# **Abstract Book**

**12<sup>th</sup> Annual International Conference on  
Public Health  
22-26 June 2026, Athens, Greece**

**Edited by  
George Zahariadis & Olga Gkounta**

2026



Abstracts  
12<sup>th</sup> Annual International  
Conference on Public Health  
22-26 June 2026, Athens, Greece

Edited by  
George Zahariadis & Olga Gkounta

First published in Athens, Greece by the Athens Institute.

ISBN: 978-960-598-768-8

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9 Chalkokondili Street

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## Preface

This book includes the abstracts of all the papers presented at the 12<sup>th</sup> Annual International Conference on Public Health (22-26 June 2026), organized by the Athens Institute.

A full conference program can be found before the relevant abstracts. In accordance with Athens Institute's Publication Policy, the papers presented during this conference will be considered for inclusion in one of the Athens Institute's many publications only after a blind peer review process.

The purpose of this abstract book is to provide members of the Athens Institute and other academics around the world with a resource through which they can discover colleagues and additional research relevant to their own work. This purpose is in congruence with the overall mission of the association. Athens Institute was established in 1995 as an independent academic organization with the mission to become a forum where academics and researchers from all over the world can meet to exchange ideas on their research and consider the future developments of their fields of study.

To facilitate the communication, a references section includes all the abstract books published as part of this conference (Table 1). I invite the readers to access these abstract books –these are available for free– and compare how the themes of the conference have evolved over the years. According to the Athens Institute's mission, the presenters in these conferences are coming from many different countries, presenting various topics.

**Table 1.** *Publication of Books of Abstracts of Proceedings, 2015-2026*

Year	Papers	Countries	References
2026	25	17	Zahariadis and Gkounta (2026)
2025	22	13	<a href="#">Zahariadis and Papanikou (2025)</a>
2024	32	23	<a href="#">Zahariadis and Gkounta (2024)</a>
2023	31	20	<a href="#">Jonas and Gkounta (2023)</a>
2022	33	21	<a href="#">Contoyannis and Gkounta (2022)</a>
2021	15	11	<a href="#">Papanikos (2021)</a>
2020	9	8	<a href="#">Papanikos (2020)</a>
2019	21	17	<a href="#">Papanikos (2019)</a>
2018	44	21	<a href="#">Papanikos (2018)</a>
2017	34	19	<a href="#">Papanikos (2017)</a>
2016	49	28	<a href="#">Papanikos (2016)</a>
2015	77	32	<a href="#">Papanikos (2015)</a>

It is our hope that through Athens Institute's conferences and publications, Athens will become a place where academics and researchers from all over the world can regularly meet to discuss the developments of their disciplines and present their work. Since 1995, Athens Institute has organized more than 400 international conferences and has published over 200 books. Academically, the institute is organized into 7 divisions and 37 units. Each unit organizes at least one annual conference and undertakes various small and large research projects.

For each of these events, the involvement of multiple parties is crucial. I would like to thank all the participants, the members of the organizing and academic committees, and most importantly the administration staff of the Athens Institute for putting this conference and its subsequent publications together.

**Gregory T. Papanikos**  
**President**

## **Editors' Note**

These abstracts provide a vital means to the dissemination of scholarly inquiry in the field of Public Health. The breadth and depth of research approaches and topics represented in this book underscores the diversity of the conference.

Athens Institute's mission is to bring together academics from all corners of the world in order to engage with each other, brainstorm, exchange ideas, be inspired by one another, and once they are back in their institutions and countries to implement what they have acquired. The *12<sup>th</sup> Annual International Conference on Public Health*, accomplished this goal by bringing together academics and scholars from 17 different countries (Bulgaria, Canada, China, Denmark, Germany, Ghana, India, Kosovo, Poland, Romania, Serbia, South Africa, Spain, Sweden, Türkiye, UK, and the USA), which brought in the conference the perspectives of many different country approaches and realities in the field.

Publishing this book can help that spirit of engaged scholarship continue into the future. With our joint efforts, the next editions of this conference will be even better. We hope that this abstract book as a whole will be both of interest and of value to the reading audience.

**George Zahariadis & Olga Gkounta**  
**Editors**

**12<sup>th</sup> Annual International Conference on Public Health, 22-26 June 2026, Athens, Greece**

**Organizing & Scientific Committee**

All Athens Institute's conferences are organized by the Academic Council. This conference has been organized with the assistance of the following academic members of Athens Institute.

Dr. Gregory T. Papanikos, President, Athens Institute & Professor (Adjunct), University of Tennessee, Knoxville, USA.

Dr. George Zahariadis, Director, Health & Medical Sciences Division, Athens Institute & Associate Professor, Faculty of Medicine, Memorial University of Newfoundland, Canada.

Dr. Ingrid Brenner, Deputy Director, Health & Medical Sciences Division, Athens Institute & Associate Professor Trent University Canada.

Dr. Adel Zeglam, Deputy Director, Health & Medical Sciences Division, Athens Institute and Consultant Neurodevelopment Pediatrician & Professor of Pediatric and Child Health, Tripoli University Hospital & Faculty of Medicine Tripoli University, Libya.

Dr. Steven Jonas, Academic Member, Athens Institute & Professor Emeritus, Stony Brook Medicine, Stony Brook University, USA.

**FINAL CONFERENCE PROGRAM**  
**12<sup>th</sup> Annual International Conference on Public Health, 22-26 June 2026,**  
**Athens, Greece**

**PROGRAM**

**Monday 22 June 2026**

**08:30-09:15**

**Registration**

**09:15-10:00 Opening Speech and Welcoming Remarks**

**Speaker: Timothy M. Young**, Emeritus Professor, The University of Tennessee, USA & CEO and President, T.M. Young Institute, LLC, USA.

**10:00-11:30 Session 1**

**Moderator: Paul Contoyannis**, Head, Health Economics & Management Unit, Athens Institute & Associate Professor, McMaster University, Canada.

1. **Mehdi Ammi**, Professor, Carleton University, Canada.  
**Raphaël Langevin**, PhD Candidate, McGill University, Canada.  
**Emmanuelle Arpin**, Assistant Professor, Université de Montréal, Canada.  
**Erin Strumpf**, Professor, McGill University, Canada.  
*Title: Crowding Out Within Public Health Expenditures: A Counterfactual Analysis in Québec, Canada.*
2. **Melinda Ickes**, Professor, University of Kentucky, USA.  
*Title: Evaluation of an Innovative Near-Peer Youth E-Cigarette Prevention Education Program through the Perceived Message Effectiveness Scale.*
3. **Arijit Nandi**, Professor, McGill University, Canada.  
**Efe Atabay**, Policy Analyst, McGill University, Canada.  
**Ilona Vincent**, Policy Analyst, McGill University, Canada.  
**Jasleen Arneja**, PhD Candidate, McGill University, Canada.  
**Sarah Windle**, PhD Student, McGill University, Canada.  
**Sam Harper**, Professor, McGill University, Canada.  
*Title: Evaluating the Impact of Access to Universal Early Childhood Education on Mental Distress during Adolescence.*

**11:30-13:00 Session 2**

**Moderator: Caroline Barakat**, Professor, Ontario Tech University, Canada.

1. **Zeyad Albadri**, Family Medicine Consultant, Bra Liv Medical Center Öxnehaga, Sweden.  
**Reem Almousali**, Family Medicine Consultant, Bra Liv Medical Center Öxnehaga, Sweden.  
**Monte Mohamad Badri**, Resident Doctor, Ljungby Hospital, Sweden.  
*Title: Awareness and Knowledge of Sexually Transmitted Infections among Young Adults.*
2. **Mihail Vasile Pruteanu**, PhD Student, "Alexandru Ioan Cuza" University of Iași, Romania.  
**Alina Morosanu**, Senior Researcher, "Alexandru Ioan Cuza" University of Iași, Romania.  
*Title: Global Health Spending in a Turbulent Year: Weak Structural Signals and the Limits of Cross-Section Models.*
3. **Seher Nur Sulku**, Professor, Ankara Hacı Bayram Veli University, Türkiye.  
*Title: Real-World Evidence on Financial Protection and Healthcare Inequalities in Türkiye.*

**13:00-14:00 Session 3**

**Moderator: Olga Gkounta**, Researcher, Athens Institute.

1. **Zana Ibraimi**, Associate Professor, University of Prishtina "Hasan Prishtina", Kosovo.  
**Andi Haxhiu**, Student, University of Prishtina "Hasan Prishtina", Kosovo.

<p><b>Vjosana Qeriqi</b>, Teaching Assistant, University of Prishtina “Hasan Prishtina”, Kosovo. <b>Adhurim Bresa</b>, Teaching Assistant, University of Prishtina “Hasan Prishtina”, Kosovo. <b>Ardiana Murtezani</b>, Associate Professor, University of Prishtina “Hasan Prishtina”, Kosovo. <b>Driton Shabani</b>, Assistant Professor, University of Prishtina “Hasan Prishtina”, Kosovo. <i>Title: Public Health Challenges Regarding Opioid Harm Reduction and Naloxone Accessibility.</i></p> <p>2. <b>Claudia Mitzeliotis</b>, Professor, Mercy University, USA. <i>Title: Evaluating the Effectiveness of Multiple Family Group Therapy in Reducing Stress among Families Coping with Autism.</i></p>
<p><b>14:00-14:30 Lunch</b></p>
<p><b>14:30-15:30 Session 4</b> <b>Moderator: Chelsea Yamgoue</b>, Medical Student, Anglia Ruskin University, UK.</p>
<p>1. <b>Jasmin Vassileva</b>, Professor, Virginia Commonwealth University, USA. <i>Title: Neuroscience-informed Psychoeducation for Addiction Prevention.</i></p> <p>2. <b>David Matas</b>, Lawyer &amp; International Advisory Board Member, International Coalition to End Transplant Abuse in China, Canada. <i>Title: Professional Ethical Standards Addressing Organ Transplant Abuse Abroad.</i></p> <p>3. <b>Justin Waryold</b>, Clinical Associate Professor, Upstate Medical University, College of Nursing, USA. <i>Title: Metacognition in Nursing Education: A Walker and Avant Concept Analysis.</i></p> <p>4. <b>Irina De la Flor</b>, Researcher, University of Alcalá, Spain. <i>Title: Inner Knowledge Management (IKM) as a Preventive Approach to Mental Health: Evidence from a Post-Intervention Study.</i></p>
<p><b>15:30-17:00 Session 5 – A Symposium on “The Future of Science: Education, Research, and Innovation”</b> <b>Moderator: Timothy M. Young</b>, Emeritus Professor, The University of Tennessee, USA &amp; CEO and President, T.M. Young Institute, LLC, USA.</p>
<p>1. <b>Caroline Barakat</b>, Professor, Ontario Tech University, Canada. <i>Title: Reimagining Science for a Rapidly Changing World: Research, Education, and Innovation in an Era of Global Transformation and Human Challenges.</i></p> <p>2. <b>Cristiane Bernardo</b>, Associate Professor, São Paulo State University (UNESP), Brazil. <i>Title: Scientific Dissemination in Master’s and Doctoral Programmes: Practices, Challenges and Impacts. A Case Study of the Graduate Program in Agribusiness and Development.</i></p> <p>3. <b>Seher Nur Sulku, Professor</b>, Ankara Haci Bayram Veli University, Türkiye. <i>Title: AI in Health: Rethinking Education, Research, and Innovation.</i></p> <p>4. <b>Dimitrios Goulias</b>, Associate Professor &amp; Director of Undergraduate Studies Civil &amp; Environmental Engineering Department, University of Maryland, USA. <i>Title: Multidisciplinary Transformative Aspects in Engineering Research &amp; Education.</i></p> <p>5. <b>Virginia Sisiopiku</b>, Professor, The University of Alabama at Birmingham, USA. <i>Title: The Changing Landscape of Science &amp; Engineering: Opportunities and Challenges.</i></p> <p>6. <b>Sundaravalli Narayanaswami</b>, Associate Professor, Indian Institute of Management Ahmedabad, India. <i>Title: Responsible AI: Trade-offs and Prospects for a Better Society.</i></p> <p><b>Interventions:</b></p> <p>1. <b>Rainer Lehmann</b>, Professor, Technical University of Applied Sciences Lübeck, Germany.</p> <p>2. <b>Ndakhona Bashingi</b>, Lecturer, Cape Peninsula University of Technology, South Africa.</p>
<p><b>18:00-20:00 Session 6 – Visit Aristotle’s Lyceum</b></p>
<p><b>This is not a guided tour</b>, and participation in this visit is <b>not included in any conference registration fee. It requires pre-booking.</b> It includes visits to Aristotle’s Lyceum, the Panathenaic Stadium (Kallimarmaro), the National Garden, the statues of Sophocles,</p>

Aeschylus, and Euripides, and Syntagma Square, where the tour concludes in front of the Hellenic Parliament. Click here for more details.

**20:30-22:30 Athenian Early Evening Symposium (Sequence of Events: Ongoing Academic Discussions, Dinner, Wine and Water, Music, Dance)**

**Tuesday 23 June 2026**

**09:00-10:30 Session 7**

**Moderator: Suvekshya Tiwari**, PhD Candidate, University of Birmingham, UK.

1. **Jia Hu**, Assistant Researcher, Chinese Academy of Medical Sciences and Peking Union Medical College, China.  
**Ying Zheng**, Researcher, Chinese Academy of Medical Sciences and Peking Union Medical College, China.  
**Li Li**, Researcher, Chinese Academy of Medical Sciences and Peking Union Medical College, China.  
*Title: Practice of Integrated Healthcare System Construction at County Level in Eastern China: A Qualitative Case Study.*
2. **Ying Zheng**, Researcher, Chinese Academy of Medical Sciences and Peking Union Medical College, China.  
**Li Li**, Researcher, Chinese Academy of Medical Sciences and Peking Union Medical College, China.  
**Jia Hu**, Assistant Researcher, Chinese Academy of Medical Sciences and Peking Union Medical College, China.  
*Title: Inclusive Health in Low-Resource Settings: International Progress and Developmental Insights.*
3. **Nebojsa Zdravkovic**, Full Professor, University of Kragujevac, National Entity for Accreditation and Quality Assurance in Higher Education, Serbia.  
**Stefan Milojevic**, Associate Professor, EDUCONS University, National Entity for Accreditation and Quality Assurance in Higher Education, Serbia.  
**Mateja Zdravkovic**, Teaching Assistant, University of Kragujevac, Serbia.  
**Svetlana Radevic**, Associate Professor, University of Kragujevac, Serbia.  
**Snezana Radovanovic**, Associate Professor, University of Kragujevac, Serbia.  
*Title: Association between Multimorbidity, Socioeconomic Factors and Health Care Utilization in the Adult Population of Serbia: National Health Survey.*
4. **Ardiana Murtezani**, Associate Professor, University of Prishtina "Hasan Prishtina", Kosovo.  
**Lina Shishani**, Student, University of Tetova, North Macedonia.  
**Shkurta Rrecaj**, Teaching Assistant, University of Prishtina "Hasan Prishtina", Kosovo.  
**Sabit Sllamniku**, Assistant Professor, University of Prishtina "Hasan Prishtina", Kosovo.  
**Zana Ibraimi**, Associate Professor, University of Prishtina "Hasan Prishtina", Kosovo.  
*Title: Falls, Functional Decline, and Adverse Drug Reactions in Elderly Residents of Nursing Homes.*

**10:30-12:00 Session 8**

**Moderator: Devni Perera**, Medical Student, Anglia Ruskin University, UK.

1. **Caroline Barakat**, Professor, Ontario Tech University, Canada.  
*Title: Youth as Partners in Environmental Health: A Comparative Scoping Review of Participatory Practices and Structural Gaps in Europe and the MENA Region.*
2. **Roxana Elena Gheorghita**, Lecturer, Ștefan cel Mare University of Suceava, Romania.  
**Monica Iavorschi**, Assistant Lecturer, Ștefan cel Mare University of Suceava, Romania.  
**Ancuta Veronica Lupaescu**, Assistant Lecturer, Ștefan cel Mare University of Suceava, Romania.  
**Irina Besliu Bancescu**, Lecturer, Ștefan cel Mare University of Suceava, Romania.

<p><b>Oana Camelia Iatcu</b>, Lecturer, Ștefan cel Mare University of Suceava, Romania. <b>Cristina Radu</b>, Master's Student, Ștefan cel Mare University of Suceava, Romania. <i>Title: Novel Strategies for Enhancing the Stability and Efficiency of Probiotics for Gut Microbiota Support.</i></p> <p>3. <b>Suvekshya Tiwari</b>, PhD Candidate, University of Birmingham, UK. <i>Title: Model-Based Economic Evaluations of Water, Sanitation and Hygiene Integrated Interventions to Improve Food Safety, Hygiene and Community Nutrition in LMIC Settings: A Systematic Review.</i></p> <p>4. <b>Snezhana Ilieva</b>, Professor, Sofia University, Bulgaria. <b>Radina Stoyanova</b>, Assistant Professor, Sofia University, Bulgaria. <b>Sonya Karabeliova</b>, Professor, Dean of Faculty of Philosophy, Sofia University, Bulgaria. <b>Yonko Bushnyashki</b>, Researcher and PhD Student, Sofia University, Bulgaria. <b>Alexander Iliev</b>, Researcher and PhD Student, Sofia University, Bulgaria. <i>Title: Resilience and Affective Well-Being in Digital Environments.</i></p>
<p><b>12:00-13:30 Session 9</b> <b>Moderator: Seher Nur Sulku</b>, Professor, Ankara Hacı Bayram Veli University, Türkiye.</p>
<p>1. <b>Martyna Ditbrener</b>, President, Instytut Zdrowia i Wsparcia Społecznego (Institute of Health and Social Support), Poland. <i>Title: The Role of Art Therapy in Social and Vocational Rehabilitation and Its Impact on Independence in Individuals with Disabilities.</i></p> <p>2. <b>Magdalena Lewandowska</b>, President, Instytut Zdrowia i Wsparcia Społecznego (Institute of Health and Social Support), Poland. <i>Title: Social Skills Training as a Key Component of Social Rehabilitation for People with Disabilities.</i></p> <p>3. <b>Chelsea Yamgoue</b>, Medical Student, Anglia Ruskin University, UK. <b>Devni Perera</b>, Medical Student, Anglia Ruskin University, UK. <b>Nasheetha Kader</b>, Medical Student, Anglia Ruskin University, UK. <b>Haniya Syed</b>, Lecturer, Anglia Ruskin University, UK. <i>Title: Increasing Breast Cancer Trends in Women Under 50: Are Current Early Detection Strategies Adequate in Overcoming Biological and Social Barriers to Early Diagnosis?</i></p> <p>4. <b>Palle Larsen</b>, Senior Researcher, UCL University College, Denmark. <i>Title: Sustainable Leadership and the Food Waste Paradox in Danish Nursing Homes: Balancing Ideals, Institutional Structures, and Everyday Practice.</i></p> <p>5. <b>Salome Korkor Ahene Mate</b>, Counselling Psychologist, LEKMA Hospital, Ghana. <i>Title: The Hidden Global Burden: Addressing the Public Health Challenges of Infertility in Ghana.</i></p>
<p><b>13:30-14:30 Lunch</b></p>
<p><b>15:40-19:30 Session 10</b> <b>Old and New-An Educational Urban Walk</b></p> <p>The urban walk ticket is not included as part of your registration fee. It includes transportation costs and the cost to enter the Parthenon and the other monuments on the Acropolis Hill. The urban walk tour includes the broader area of Athens. Among other sites, it includes: Zappion, Syntagma Square, Temple of Olympian Zeus, Ancient Roman Agora and on Acropolis Hill: the Propylaea, the Temple of Athena Nike, the Erechtheion, and the Parthenon. The program of the tour may be adjusted, if there is a need beyond our control. This is a private event organized by the Athens Institute exclusively for the conference participants.</p>
<p><b>20:30-22:30</b> <b>Ancient Athenian Dinner</b></p>

**Wednesday 24 June 2026**  
**An Educational Visit to Selected Islands**  
**or Nafplio & Mycenae Visit**

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**Thursday 25 June 2026**  
**Visiting the Oracle of Delphi**

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**Friday 26 June 2026**  
**Visiting the Ancient Corinth and Cape Sounion**

---

**Zeyad Albadri**

Family Medicine Consultant, Bra Liv Medical Center Öxnehaga,  
**Sweden**

Reem Almousali, Family Medicine Consultant, Bra Liv Medical Center  
Öxnehaga, Sweden

&

**Monte Mohamad Badri**

Resident Doctor, Ljungby Hospital, Sweden

**Awareness and Knowledge of Sexually Transmitted  
Infections among Young Adults**

**Background:** Sexually transmitted infections (STI) remain a major global health concern, particularly among young adults. Despite preventive efforts, knowledge of STIs beyond HIV is often limited, even in developed countries.

**Aim:** To assess awareness and knowledge of common STI among young adults from developed countries and explore their views on sexual health education, screening, and protection.

**Methods:** A cross-sectional study was conducted using an anonymous questionnaire among individuals aged 18–30 years attending an STI clinic at St. James's Hospital, Dublin. Participants were originally from developed countries. The survey assessed demographics, STI awareness, education, and prevention practices. Quantitative data were analysed descriptively, and qualitative responses thematically.

**Results:** Of 52 distributed questionnaires, 42 met inclusion criteria (response rate 84.6%). Most respondents were female (54.8%) and aged 18–24 years (59.5%). Awareness was highest for HIV/AIDS (81%) and chlamydia (57%), but low for gonorrhoea (24%), syphilis (50%), herpes simplex virus (19%), and hepatitis B (33%). Misconceptions were frequent, with several participants identifying non-STIs such as *Candida* as sexually transmitted. Although 64% had received formal sexual health education, only one-quarter had specific STI instruction, and fewer than half knew of national screening programs. Over half (51%) were dissatisfied with their STI knowledge.

**Conclusion:** Young adults from developed countries show limited STI knowledge and persistent misconceptions despite reported sexual health education. Broader, evidence-based education and improved public awareness of screening are essential to strengthen STI prevention and control among youth.

**Mehdi Ammi**

Professor, Carleton University, Canada

**Raphaël Langevin**

PhD Candidate, McGill University, Canada

**Emmanuelle Arpin**

Assistant Professor, Université de Montréal, Canada

&

**Erin Strumpf**

Professor, McGill University, Canada

## **Crowding Out Within Public Health Expenditures: A Counterfactual Analysis in Québec, Canada**

**Background:** The economics literature on health expenditures identifies several potential forms of crowding out between private and public funding sources. Yet much less attention has been devoted to intra-public sector crowding out, that is, the reallocation of public funds across categories of health expenditures, such as between preventive and curative programs, or between present-oriented and future-oriented investments. The COVID-19 pandemic provides a large exogenous shock that can be exploited to examine the potential for intra-public sector crowding out.

**Research Objectives:** We aim to evaluate the presence and magnitude of intra-public sector crowding out in public health expenditures during a major health crisis.

**Methods:** We assembled detailed administrative data on all public health expenditures for 16 regions of Québec, Canada, from 2013 to 2021. Public health expenditures include programs and services such as health promotion, disease prevention, emergency monitoring, and health protection. Expenditures were categorized using the World Health Organization's essential public health functions, yielding eight expenditure categories.

For each category, we estimated a predictive model of expenditures as a function of regional population characteristics (health, demographic, and socioeconomic) selected through a supervised machine learning algorithm. These predictors were obtained from public sources (e.g., Statistics Canada, Institut de la Statistique du Québec). Predicted expenditures for fiscal years 2019/20 and 2020/21 serve as model-based counterfactuals, approximating expected spending in the absence of the pandemic. We compared these counterfactuals to observed expenditures to estimate category-specific deviations attributable to the pandemic shock.

Results: Expenditures on health emergency monitoring and health protection increased by approximately 2,956% [90% CI: 1,912%; 6,251%] and 20% [1%; 47%], respectively, in 2020/21 relative to expected values without the pandemic. In contrast, expenditures on health promotion and disease prevention declined by roughly 15% [-21%; -9%] and 29% [-33%; -23%]. Expenditures on population health surveillance and prevention of sexually transmitted and blood-borne infections fell by about 59% [-70%; -35%] and 39% [-43%; -34%], representing the largest relative decreases.

Conclusions: Our findings provide empirical evidence of within-sector crowding out in public health budgets when faced with a large exogenous shock. In this case, substantial increases in expenditures addressing immediate health threats (emergency monitoring and health protection) were concomitant with reductions in expenditures that yield longer-term returns, such as health promotion and disease prevention. The magnitude of these reallocations highlights the opportunity cost inherent in crisis-driven expenditures decisions and underscores how short-term imperatives can displace investments in future population health.

**Caroline Barakat**

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## **Youth as Partners in Environmental Health: A Comparative Scoping Review of Participatory Practices and Structural Gaps in Europe and the MENA Region**

Children and youth experience some of the most significant health impacts of environmental change. Climate-related events, air and water pollution, chemical exposures, food insecurity, and broader environmental degradation shape health trajectories beginning early in life. Because of developmental vulnerability and cumulative exposure, environmental conditions during childhood and adolescence can have lasting consequences across the life course. At the same time, young people are increasingly recognized not only as a population at risk, but as active contributors to environmental health promotion and environmental justice efforts. Across regions, youth are engaging in activism, community initiatives, participatory research, and policy advocacy. However, the nature and depth of their participation varies considerably. In some contexts, youth are consulted; in others, they act as co-researchers or leaders. There has been limited systematic examination of how youth participation in environmental health is defined, implemented, and supported across different political and institutional settings.

This project is conducting a scoping review of youth participatory and co-creation approaches in environmental health initiatives, with a comparative focus on Europe and the Middle East and North Africa (MENA) region. These regions provide contrasting yet complementary contexts. Europe often supports youth engagement through formal policy structures and institutional frameworks, while in many MENA countries engagement is more grassroots and community-driven, often within more constrained civic settings. Comparing both regions helps identify transferable strategies and contextual factors shaping meaningful participation. The review has two objectives: first, to map and classify participatory and co-creation approaches used in environmental health initiatives involving children and youth; and second, to identify effective strategies, common challenges, and policy gaps that influence youth engagement across Europe and the MENA region.

The study follows established scoping review methodology and integrates the Socio Ecological Model with the Lundy Model of Child and Youth Participation. Eligible sources include original peer-reviewed

studies and relevant organizational reports published between 2010 and 2025 in English, French, or Arabic. Included initiatives must actively engage children ( $\leq 18$  years) or youth (15–24 years) in addressing environmental health challenges within Europe or the MENA region. Environmental health is defined broadly to include issues such as air and water quality, climate change, toxins, disasters, sustainability, and environmental justice. Literature reviews, conceptual papers, and studies that involve youth only as research subjects are excluded. Searches have been conducted across major academic databases and key grey literature sources. The project is currently in the screening phase, with completion anticipated by May 2026.

This review will identify patterns in how youth participation is structured, supported, and constrained across different settings. Findings will inform the development of an evidence-informed framework to guide future youth-engaged environmental health initiatives and will support a planned grant application to implement a participatory intervention in a MENA context. By centering youth perspectives and examining structural conditions that shape participation, this work aims to strengthen equitable, sustainable approaches to protecting child and youth health.

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## **Inner Knowledge Management (IKM) as a Preventive Approach to Mental Health: Evidence from a Post-Intervention Study**

Mental health has emerged as a major public health concern, with rising levels of stress, anxiety, and emotional distress affecting both clinical and non-clinical populations worldwide. In Europe, mental health-related conditions represent a significant social and economic burden, partly driven by increasing psychosocial risks in both personal and occupational environments. While many existing interventions focus primarily on symptom reduction, there is growing interest in preventive approaches that strengthen internal psychological capacities such as emotional regulation, self-awareness, and coping. This study examines the potential role of Inner Knowledge Management (IKM), a structured methodology designed to identify, observe, and transform internal emotional and cognitive patterns, as a preventive mental health approach. The IKM framework is based on the premise that individuals' emotional responses and behavioral outcomes are strongly influenced by internal belief systems and cognitive-emotional narratives, which can be systematically observed and restructured through guided processes of introspection, externalization, transformation, and internalization.

Using a quantitative, post-intervention design, data were collected from a sample of 50 adults who completed an IKM-based training process. Participants were not undergoing psychopharmacological treatment, although varying levels of stress, anxiety, and emotional distress may have been present, reflecting a non-clinical but psychologically heterogeneous population.

Ten core mental health indicators were assessed using a 5-point Likert scale, including emotional regulation, anxiety, mood stability, sleep quality, stress, self-esteem, life purpose, interpersonal relationships, coping capacity, and global mental health. Results showed consistently high perceived improvements across all indicators, with a global wellbeing index of 4.18/5 and 80.6% of responses concentrated in the upper range (4-5). Internal consistency was extremely high (Cronbach's  $\alpha = 0.988$ ), supporting the interpretation of a coherent multidimensional wellbeing construct.

Additional robustness measures strengthened interpretability. Seventy percent of participants completed the intervention more than six months prior to data collection, suggesting medium- to long-term effects. Furthermore, 88% did not engage in concurrent interventions, reducing

potential confounding. Perceived durability was high, with 92% reporting sustained improvements over time. Notably, 67% of participants perceived the IKM approach as more effective than other mental health approaches, including psychotherapy and mindfulness-based interventions. Taken together, these findings suggest that structured Inner Knowledge Management (IKM) may function as a systemic and preventive mechanism influencing multiple dimensions of psychological wellbeing. Although causal inference remains limited due to the cross-sectional and self-reported design, the strength and consistency of the results support further investigation. Future research should incorporate longitudinal designs and controlled trials to evaluate the effectiveness of IKM across diverse populations. Overall, the findings highlight the potential of IKM as a scalable preventive approach within public mental health frameworks.

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## **The Role of Art Therapy in Social and Vocational Rehabilitation and its Impact on Independence in Individuals with Disabilities**

Art therapy has emerged as a multidimensional, evidence-informed intervention supporting the social and vocational rehabilitation of individuals with disabilities. Within contemporary rehabilitation paradigms, which emphasize inclusion, autonomy, and participation, art therapy represents a non-verbal and process-oriented approach facilitating emotional expression, skill development, and psychosocial adaptation.

This paper adopts a narrative review approach to synthesize work of local NGO's on the application of art therapy in rehabilitation contexts, with particular emphasis on its role in enhancing independence. The analysis integrates findings from psychological, educational, and rehabilitation sciences to examine how creative therapeutic interventions contribute to social integration and vocational readiness.

The results indicate that art therapy plays a significant role in strengthening social rehabilitation outcomes by improving communication abilities, particularly among individuals with limited verbal capacities, and by fostering social engagement through group-based creative processes. Furthermore, it supports vocational rehabilitation by enhancing transferable skills such as concentration, fine motor coordination, problem-solving, and adaptive thinking, while also facilitating exploration of vocational identity and alternative employment pathways, including creative industries and social enterprises.

Despite its documented benefits, the implementation of art therapy remains limited by insufficient institutional integration, variability in methodological standards, and restricted access to qualified professionals. Future developments should focus on strengthening its evidence base, expanding community-based programs, and integrating digital and interdisciplinary approaches.

In conclusion, art therapy constitutes a valuable and scalable intervention within social and vocational rehabilitation systems. Its role extends beyond therapeutic expression, positioning it as a

strategic tool for enhancing independence and improving long-term social outcomes for individuals with disabilities.

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## **Novel Strategies for Enhancing the Stability and Efficiency of Probiotics for Gut Microbiota Support**

In recent years, global probiotic consumption has increased, with their efficacy recognized by both healthcare professionals and consumers. They are recognized for their beneficial effects and their contribution to the management of gastrointestinal or metabolic disorders, cancer, and other pathologies associated with intestinal dysbiosis. Since a major limitation of commercially available probiotics relates to maintaining cellular viability, the development of methods to overcome these challenges has become a topic of significant scientific interest. The aim of this study was to encapsulate *Lactobacillus casei* (*L. casei*), *Lactobacillus rhamnosus* (*L. rhamnosus*), *Lactobacillus plantarum* (*L. plantarum*), and *Bacillus clausii* (*B. clausii*) strains, well-known probiotics for their beneficial health effect, within sodium alginate and starch matrices, tested in our previous work. Although initially utilized in food industry, these biopolymers are increasingly used in biomedical fields due to their high encapsulation efficiency, non-toxic, non-allergenic, or non-immunogenic properties. Capsules developed using the extrusion method were evaluated in terms of microstructure, color, water activity, swelling behavior, as well as encapsulation efficiency and probiotic survival in simulated gastric and intestinal fluids. The capsule diameter was relatively constant, ranging between 231.12 and 268.14  $\mu\text{m}$ . Microstructural evaluation revealed a compact matrix, free of pores or fissures, regardless the probiotic strain used. FTIR spectroscopy was used to evaluate the interactions between strains and biopolymeric matrix in the probiotic-loaded capsules. Thus, formulations are stable

and the polymeric network was not affected by the probiotics' incorporation. According to the results, the lowest luminosity was observed in case of *L. plantarum* capsules. Encapsulation efficiency was significantly higher (over 91%) compared to other values reported in the literature, in the following order: *L. plantarum* capsules < *L. rhamnosus* capsules < *L. casei* capsules < *B. clausii* capsules. The swelling capacity of the hydrogel capsules increased progressively over the 24-hour immersion period, with significant differences observed between samples. All formulations maintained their structural integrity throughout solubility testing. Results obtained in simulated gastrointestinal fluids demonstrated the resistance of biopolymeric coating under gastric conditions, allowing release in intestinal environments. Thus, the proposed encapsulation system is suitable for the development of targeted and sustained-release capsules. Based on the obtained results, the proposed system proved effective for incorporating probiotics, exhibiting high encapsulation efficiency and improved gastric and intestinal stability, making it suitable for pharmaceutical formulations.

*This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS UEFISCDI, project number PN-IV-P2-2.1-TE-2023-0858, within PNCDI IV.*

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## **Practice of Integrated Healthcare System Construction at County Level in Eastern China: A Qualitative Case Study**

Background: Constructing "people-centered" integrated healthcare system is a new care concept and model jointly advocated and practiced by international organizations such as the World Health Organization (WHO) and countries with different healthcare system. It aims to better address the fragmentation of healthcare system, as well as the increasingly complex and diverse health needs brought about by population aging and changes in disease spectra. Relevant researches and practice have thus become a focus of international attention. The integrated healthcare system is mainly promoted through the tight healthcare alliance at county level in China. The integration model of "cross-regional medical alliance + tight county healthcare alliance" in Jiaozhou City, Shandong Province, is a typical case in China. However, related research is limited. This paper aims to analyze the practice measures and lessons learned in Jiaozhou City.

Methods: On-site surveys were conducted in Jiaozhou city in July and November 2023, and November 2024 respectively. 3 focus group interviews with a total of 20 key informants including policy makers and implementers of the tight county healthcare alliance each time were conducted to collect qualitative data, which was analyzed by the thematic framework method as well as the policy data. The analysis dimensions mainly included leadership and regulation, healthcare system, healthcare capacity, healthcare model, and institutional mechanism reform.

Results: Under the high attention of the party committee and government in Jiaozhou city, a networked, humanized and digital-intelligent integration model of "cross-regional medical alliance + tight county healthcare alliance" was constructed. A series of measures were taken: establishing a strong leadership system and a coordinated work

promotion mechanism; continuously optimizing the tight county healthcare alliance structure and the internal mechanisms of operation and management, incentive and restraint, and resource sharing; enhancing the overall service capacity of the city relying on the stable and long-term downward allocation of high-quality healthcare resources within and outside the province through establishing the cross-regional medical alliance; solidifying and refining the family doctor contract service and the integrated chronic disease management model; continuously promoting the interconnection of regional health information systems and expanding their application scenarios; exploring and perfecting the mechanisms of drug supply, personnel management, compensation distribution, etc. This model was promoted at the 6th Healthy County Congress in China, recognized as a typical case of social health governance through provincial-level evaluation and recommended to the National Health Commission. However, some problems remained, such as the inadequately improved system layout, limited capacity of the general hospital and primary health care, insufficient coordinated development and governance of “medical treatment, medical insurance, and medicine linkage”, and so forth.

Conclusions: The integration model of "cross-regional medical alliance + tight county healthcare alliance" in Jiaozhou City of Shandong Province is a beneficial exploration and innovative practice of the integrated healthcare system at county level, which provide reference for other regions in China and other low and middle-income countries. Targeted measures should be taken to improve the model, and long-term follow-up surveys and mixed research designs are required in the future to enrich relevant evidence.

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## **Public Health Challenges Regarding Opioid Harm Reduction and Naloxone Accessibility**

The growing burden of substance misuse and medication-related harm continues to challenge healthcare systems and public health services worldwide. Limited access to prevention programs, harm reduction interventions, and specialized addiction services may further increase the risk of opioid-related complications at the community level. In this context, community pharmacies represent one of the most accessible healthcare settings for early identification of misuse, patient counseling, and support for safer opioid use practices. This study explored public health aspects related to opioid misuse and naloxone access through the perspectives and preparedness of community pharmacy professionals in Kosova.

Data were gathered from 460 community pharmacy professionals across Kosova through a nationwide survey examining perceptions related to opioid misuse prevention and harm reduction practices. The survey explored views on patient counseling, naloxone awareness, and the potential role of community pharmacies in reducing opioid-related harm at the community level.

Most participants recognized opioid misuse as an important public health and medication safety concern. Strong support was observed for prescription-only opioid dispensing (93.5%) and for the role of community pharmacies in counseling individuals at risk of misuse (75.8%). The majority of respondents (88.1%) expressed willingness to provide patient counseling and education related to safer opioid use practices. Familiarity with naloxone was reported by 81.5% of participants, although fewer reported confidence in administering it

(43.8%). Concerns related to time constraints and practical preparedness were also reported.

The findings suggest that community pharmacies may represent an important point for opioid harm reduction and public health intervention. However, gaps remain between willingness to engage and practical preparedness, particularly regarding naloxone use and active harm reduction involvement. Strengthening practice-oriented training, professional guidance, and integration of pharmacists into broader public health strategies may contribute to earlier intervention, safer opioid use practices, and reduction of opioid-related harm at the community level.

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## **Evaluation of an Innovative Near-Peer Youth E-Cigarette Prevention Education Program through the Perceived Message Effectiveness Scale**

**Background:** In the United States, 1.63 million middle and high school students reported past 30-day e-cigarette use in 2024, a decrease from 2.3 million in 2023. Despite this encouraging decline, youth e-cigarette use remains a significant public health concern. Globally, youth uptake of electronic nicotine delivery systems continues to rise in many regions, underscoring the need for scalable, culturally responsive prevention strategies. While numerous national tobacco prevention programs have achieved broad dissemination, gaps persist in state-specific, locally tailored education that reflects regional norms, emerging product trends, and youths' lived experiences.

#iCANendthetrend (#iCETT) was developed to address this need as a statewide, near-peer, school-based nicotine and tobacco prevention program in Kentucky. Grounded in the Theory of Planned Behavior, Empowerment Theory, and the Perceived Message Effectiveness (PME) framework, #iCETT leverages trained near-peer educators to enhance relatability, credibility, and message uptake. The program is intentionally agile, updating content to reflect evolving nicotine products while maintaining evidence-informed prevention messaging. Since 2018, #iCETT has reached more than 30,000 students across 72 Kentucky counties.

**Purpose:** The primary purpose of this study was to evaluate the effectiveness of #iCETT among Kentucky middle school students using an adapted PME for Youth Scale. Specifically, we assessed students' perceptions of message effectiveness across three domains: beliefs, attitudes, and motivations related to e-cigarette use. A secondary exploratory aim examined differences in PME scores by e-cigarette use status (never, ever, current users) to better understand how prior experience influences message receptivity.

**Methods:** Participants included 2,282 middle school students (grades 6–8) who completed the post-program feedback survey in 2024. Grade distribution was relatively even (6th grade: 32%; 7th grade: 31%; 8th grade: 36%). The majority identified as White (73.7%) and male (50.1%). Most students (85.5%) reported never having used e-cigarettes, while 13.8% reported current or ever use.

Findings: Students reported generally positive perceptions of program messaging. The mean composite PME score was 3.45 (SD = 0.88), indicating favorable overall ratings. Among domains, attitudes were rated most convincingly (M = 3.63, SD = 0.77), followed by motivations (M = 3.58, SD = 0.83), while beliefs were rated slightly lower (M = 3.16, SD = 1.03). One-way ANOVA analyses revealed significant differences in PME scores across use status for beliefs ( $p < .001$ ), attitudes ( $p < .001$ ), and motivations ( $p < .001$ ). Post hoc comparisons (Tukey's HSD) indicated that never users consistently reported higher perceived message effectiveness compared to ever and current users across domains.

Conclusion: Findings suggest that #iCANendthetrend delivers clear, persuasive prevention messaging that resonates with middle school youth, particularly those who have not initiated e-cigarette use. The observed differences by use status highlight the importance of tailoring prevention messaging to address the unique perspectives of youth with prior exposure. Near-peer, state- and our country-specific prevention interventions such as #iCETT represent a promising and scalable strategy for reducing e-cigarette susceptibility and supporting behavior change among at-risk youth populations.

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## **Resilience and Affective Well-Being in Digital Environments**

This study investigates the role of psychological resilience in shaping affective well-being in occupational contexts. Grounded in contemporary perspectives on adaptive functioning and emotional regulation, resilience is conceptualized as an important personal resource that supports individuals in managing stress and maintaining psychological balance. The present research examines whether resilience predicts variations in three core domains of affective well-being at work and study contexts: positive, negative, and calm affect.

The sample consists of 375 participants from diverse occupational sectors (Age range 18-48;  $M=21,42$ ;  $SD=3,93$ ). Resilience was assessed using a standardized self-report questionnaire capturing individuals' capacity for adaptive coping, persistence, and emotional regulation. Affective well-being was measured using the IWP Multi-Affect Indicator (Warr, 2016), which evaluates the frequency of experienced emotions at work across three dimensions: positive affect (e.g., enthusiastic, inspired, joyful), negative affect (e.g., anxious, tense, depressed), and calm affect (e.g., relaxed, at ease, calm). Participants rated each item on a 7-point scale reflecting the proportion of time they experienced each emotion during the past working week, ranging from "never" to "always."

Stepwise regression analyses were conducted to examine the predictive role of resilience for each affective domain. Results indicated that resilience was a significant positive predictor of positive affect ( $\beta = .58$ ,  $p < .001$ ), with the model explaining a substantial proportion of variance (adjusted  $R^2 = .33$ ). Similarly, resilience positively predicted calm affect ( $\beta = .49$ ,  $p < .001$ ), with a moderate level of explained variance (adjusted  $R^2 = .24$ ). In contrast, resilience was a significant negative predictor of negative affect ( $\beta = -.52$ ,  $p < .001$ ), accounting for a meaningful proportion of variance (adjusted  $R^2 = .27$ ). These findings

indicate that higher resilience is associated with more frequent positive and calm emotional experiences and lower levels of negative affect in occupational settings.

The results support theoretical frameworks that position resilience as a central protective factor contributing to affective well-being by enhancing positive emotional experiences and mitigating negative emotional states. The strongest predictive effect was observed for positive affect, suggesting that resilience may be particularly important for fostering energizing and engagement-related emotional states at work.

The study has important implications for organizational and health psychology, highlighting the value of resilience-focused interventions in promoting employee well-being. Programs aimed at strengthening coping skills and emotional regulation may foster more adaptive emotional functioning in the workplace. Future research should adopt longitudinal and multi-method approaches to further examine the dynamic relationship between resilience and affective well-being.

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## **Sustainable Leadership and the Food Waste Paradox in Danish Nursing Homes: Balancing Ideals, Institutional Structures, and Everyday Practice**

Food waste has become a central challenge in Danish nursing homes, reflecting broader tensions between rising demographic pressures, sustainability goals, and the realities of daily care work. This study examines how leadership styles, organisational structures, and contextual conditions influence the ability of nursing homes to work sustainably and reduce food waste. Drawing on a mixed-methods design, combining nationwide survey data with qualitative interviews, the study provides a comprehensive analysis of how leaders navigate paradoxes between care, efficiency, and sustainability.

Quantitative results show that leaders with higher seniority, stronger educational backgrounds, and close contact with practice are significantly more successful in implementing sustainable initiatives. Relationship-oriented and change-oriented leadership styles correlate positively with holistic and critical sustainability discourses, whereas task-oriented leadership shows little or no association with sustainability efforts. Leaders who exhibit scepticism toward sustainability are markedly less engaged in implementing concrete measures. These results demonstrate that sustainability work is not merely technical or administrative but deeply linked to leadership identity, organisational culture, and the ability to engage staff meaningfully.

The qualitative findings highlight the persistent food-waste paradox: while nursing homes aim to meet complex nutritional needs and deliver person-centred care, rigid procurement systems, documentation requirements, and standardised meal production often lead to overproduction and waste. Case studies show that value-based, dialogical, and practice-near leadership fosters engagement, innovation, and reductions in food waste, whereas top-down administrative leadership models tend to face resistance and achieve limited results. Staff engagement, psychological safety, and interdisciplinary collaboration are identified as central conditions for success.

The study's theoretical framework integrates paradox theory, sustainable and regenerative leadership, and organisational perspectives on New Public Management and rationalisation. These perspectives illuminate how leaders must navigate competing demands—care vs. efficiency, rules vs. flexibility, stability vs. innovation—while building

organisational coherence and collective capacity. The findings point to the need for leadership approaches that support reflection, learning, and local adaptation rather than relying solely on standardised procedures.

Overall, the study demonstrates that sustainable leadership in eldercare requires more than technical solutions: it demands relational competence, reflective capacity, and the ability to create shared meaning around sustainability. Reducing food waste thus becomes both a practical and symbolic task—an indicator of how well organisations balance resident wellbeing with responsible resource use. The study concludes by offering recommendations for practice, including systematic competence development, digital tools for monitoring and ordering, cross-sector partnerships, and leadership models that strengthen psychological safety, interdisciplinary collaboration, and organisational learning.

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## **Social Skills Training as a Key Component of Social Rehabilitation for People with Disabilities**

Social rehabilitation constitutes a central pillar of contemporary health and social policy, aiming to enhance the capacity of individuals with disabilities to participate fully in social life. Among the determinants of successful social integration, interpersonal and adaptive competencies are of particular importance.

This paper examines the role of Social Skills Training (SST) as an evidence-informed intervention within the framework of social rehabilitation. The study adopts a narrative review approach, synthesizing findings from recent empirical and theoretical literature on SST interventions targeting individuals with diverse disabilities, including intellectual disabilities, autism spectrum disorders, and mental health conditions.

SST is conceptualized as a structured, skill-based intervention that employs techniques such as behavioral modeling, role-playing, reinforcement, and feedback to improve communication, emotional regulation, and social interaction. The analysis indicates that SST contributes significantly to improved social functioning, including enhanced communication abilities, reduced maladaptive behaviors, and increased social participation.

The findings highlight that the effectiveness of SST is contingent upon several factors, including intervention intensity and duration, individualization of training programs, therapist expertise, and the involvement of the participant's social environment. Despite strong evidence supporting its efficacy, barriers such as limited accessibility, insufficient funding, and challenges related to skill generalization remain significant.

The paper also discusses emerging directions in SST development, particularly the integration of digital technologies (e.g., AI-supported tools) and the need for interdisciplinary approaches combining health, education, and social care systems.

In conclusion, SST represents a critical and scalable intervention for improving social outcomes among people with disabilities. Strengthening its implementation within health and social policy frameworks may contribute to greater social inclusion and long-term cost-effectiveness of rehabilitation services.

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**Professional Ethical Standards Addressing Organ  
Transplant Abuse Abroad**

In most countries, organ transplant demand far exceeds organ donor supply. Those in need of transplants often end up waiting months and years.

China, in contrast, offers transplants on demand. Bookings for transplants can be made in advance even for vital organs - heart, liver and lungs. An independent people's tribunal concluded in 2020 that the mass killing in China of practitioners of the spiritually based set of exercises Falun Gong for their organs for transplants was certain, beyond doubt. Twelve United Nations human rights experts in 2021 found the evidence about forced organ harvesting from prisoners of conscience in China as extremely alarming, of utmost concern.

Transplant tourism into China raises ethical concerns for health professionals and institutions outside of China. Yet, professional ethical standards have, for the most part, not been adopted to address those concerns.

The Transplantation Society developed in 2006 an Ethics Committee Policy Statement on the Chinese Transplantation Program which, since October 2024, no longer appears on its website. The International Society for Heart and Lung Transplantation in 2022 developed its own ethics policy related to Chinese transplantation. These two policies relate to Chinese and foreign transplant professional interaction.

The Canadian Society of Transplantation and Canadian Society of Nephrology issued a policy statement in 2011 on Organ Trafficking and Transplant Tourism which addressed transplant tourism in the context of patient health professional interaction. Global Rights Compliance, an international legal not-for-profit in 2022 published an advisory report and guidance on mitigating human rights risks when interacting with international medical institutions and professionals in transplantation medicine.

There are only four countries in Europe - the UK, Ireland, Belgium and Italy - which have specific extra-territorial legislation addressing transplant tourism and complicity in organ transplant abuse abroad. There are nonetheless several other countries in Europe with general domestic legislation directed against organ transplant abuse which has extraterritorial effect. No country in Europe, though, has mandatory

reporting of transplant tourism by health professionals and institutions to government authorities. There has been transplant professional hesitancy in endorsing this mandatory reporting because of its adverse impact on patient professional confidentiality.

This ethical/human rights landscape relating to transplant tourism raises questions about what the proper ethical standards should be for transplant health professional and institution interaction with Chinese transplant health professionals and institutions, about health professional and institution counselling of potential transplant tourist patients into China, about medical treatment of transplant tourist patients returning from China, and about the proper transplant professional response to legislative proposals for mandatory reporting by transplant health professionals and institutions to designated government authorities on transplant tourism. The proposed presentation would address each of these questions with a European focus.

The general conclusion would be that there needs to be, for Europe, country specific ethical/ human rights standards related to each of these matters. The presentation will suggest what these standards might be.

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## **The Hidden Global Burden: Addressing the Public Health Challenges of Infertility in Ghana**

Infertility remains a critical yet under-recognised global public health issue, imposing profound psychological, social, and economic burdens on sufferers. In Ghana, affected individuals, both men and women, face intense societal pressure and stigmatisation, often leading to mental health challenges such as self-blame, anxiety, and diminished appetite for sex and food. This study employed a qualitative phenomenological approach to examine the lived experiences of 18 persons with infertility (13 women and 5 men, aged 29-50) in the Greater Accra Region. Semi-structured interviews were conducted, and data was analysed using reflexive thematic analysis. Four central themes emerged: Legacy Illusion and Marital Vulnerability, reflecting concerns over disrupted lineage and marital instability; Psychological Distress, encompassing self-blame and psychosomatic symptoms; Social Dynamics, highlighting concealment of infertility and verbal assaults from community members; and Financial Constraints, underscoring the absence of insurance coverage for infertility treatment under both national and private schemes. Our findings underscore the need for a holistic public health approach, recommending the integration of mandatory psychological support into fertility treatment protocols and establishing equitable financing mechanisms to enhance treatment accessibility, thereby mitigating the psychosocial toll and advancing reproductive health equity.

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## **Evaluating the Effectiveness of Multiple Family Group Therapy in Reducing Stress among Families Coping with Autism**

Parents raising a child with Autism Spectrum Disorder (ASD) have higher levels of stress than other disabilities. Mothers raising a child with ASD reported less parenting competence, a decrease in marital satisfaction difficulty adapting compared to mothers of children coping with Down's Syndrome. Parents tend to isolate themselves, avoiding social contact with the outside world. There are limited services available for parents. A study was implemented using the psychoeducational model to help parents cope with ASD and evaluate the effectiveness of the model. Multiple Family Group Therapy (MFGT) is a psychoeducation model that has been seen as the most effective evidence-based practice in both clinical trials and community settings. The model is flexible, incorporating both illness information and strategies for coping. McFarlane and Lukens (2004) found the MFGT model to be the most effective of the evidence-based practice models in treating families coping with illnesses ranging from schizophrenia to cancer. The historical background of Multiple Family Group Therapy began with Peter Lacquer in 1977 was the first to discuss the importance of providing education. Multiple Family Group Therapy served as the intervention. McFarlane expanded on his concept framework and designed Multiple Family Group Therapy (MFGT). The study used this model with families coping with a child having ASD. Parents were enrolled in a 4-week program that met weekly. Both parents were required to attend the groups. The Parental Stress Index short form (PSI-SF) tool measured the outcome in relation to parental stress in raising a child with ASD. PSI-SF focuses on percentiles in the data analysis. It measures the Parental Stress Index in 3 domains: parental stress, parent-child difficulty interaction, and difficult child. Parents filled out the PSI-SF before beginning the group and at the end of the 4-week group session. A questionnaire was filled out at the completion of each group session. This was used to evaluate the group process. Parents who participated in the study expressed not feeling alone and enjoyed sharing and supporting one another. The education came from within the group, parents helping one another. The father stress index post-group went up in some cases. The outcome supported the use of MGFT to assist parents

with coping with raising a child with ASD. The study had its limitations. It is difficult to recruit families to commit to weekly sessions.

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## **Falls, Functional Decline, and Adverse Drug Reactions in Elderly Residents of Nursing Homes**

Background: Falls, fall-related injuries, and adverse drug reactions (ADRs) are common among elderly nursing home residents and are associated with functional decline, reduced quality of life, and increased morbidity. Polypharmacy, multimorbidity, cognitive impairment, and reduced mobility may increase the risk of these complications. This study aimed to investigate the prevalence of falls, fear of falling, fall-related injuries, and ADRs, and to identify associated risk factors among older adults in nursing homes.

Materials and Methods: This retrospective cross-sectional study included 125 residents aged  $\geq 65$  years from two nursing homes. Data were collected through medical record review and patient interviews between June and October 2024. Sociodemographic characteristics, comorbidities, medication use, cognitive status, depression, functional dependence, falls, fear of falling, and ADRs were assessed. Cognitive impairment was evaluated using the Mini Mental State Examination (MMSE), depression with the Geriatric Depression Scale (GDS), and functional dependence with the Barthel Index (BI). Statistical analyses included descriptive statistics, correlations, t-tests, chi-square tests, and ANOVA.

Results: The mean age of participants was 76.52 years (SD 7.83), and 66% were women. Polypharmacy ( $\geq 5$  medications) was present in 48% of residents. Falls were reported in 54% of participants, while 32% experienced fall-related injuries. ADRs were identified in 24.8% of residents. Residents with ADRs used significantly more medications compared to those without ADRs (7.26 vs. 3.88 medications;  $p < .001$ ). Cardiovascular, gastrointestinal, and anticoagulant medications were most commonly associated with ADRs. Higher comorbidity scores were

significantly related to ADRs ( $r = .552, p < .001$ ). Falls and fall-related injuries were significantly associated with cognitive impairment, depression, reduced functional independence, fear of falling, and impaired mobility ( $p < .05$ ).

Conclusion: Falls, fall-related injuries, and ADRs are highly prevalent among elderly nursing home residents and are strongly associated with polypharmacy, multimorbidity, cognitive decline, depression, and reduced functional independence. Preventive strategies including medication review, fall prevention programs, and multidisciplinary geriatric care are essential to improve patient safety and quality of life in this population.

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## **Evaluating the Impact of Access to Universal Early Childhood Education on Mental Distress during Adolescence**

ECEC programs may improve mental health outcomes over the life-course by enhancing the development of children’s non-cognitive skills, including those related to executive functioning, self-control, self-regulation, impulse control, and temperament. However, research on the impact of ECEC programs on mental health is inconclusive, with few studies examining the impact of large-scale, universal ECEC programs, including those implemented by many high-income countries over the past two decades. In this study, we evaluated the impact of providing access to free ECEC during children’s preschool years on their mental health during early adolescence.

We documented the national-level policies governing access to ECEC across European countries and characterized the ECEC policy landscape for respondents to HBSC while they were in their preschool years. We identified specific federal policy changes that introduced or expanded access to free ECEC (the “treatment”) in five countries and, using a difference-in-differences design, estimated the effects of these reforms on adolescents’ symptoms of mental distress when they were between 11 and 15 years of age.

Individual-level information was derived from the HBSC study, a cross-sectional, school-based survey of the health, behaviors, and perceptions of adolescents 11, 13, and 15 years of age, conducted every four years in more than 40 countries and regions across Europe, Central Asia, and North America. After merging the 2002, 2006, 2010, 2014, and 2018 HBSC waves, our final analytic sample included 188,041 respondents from 10 countries surveyed between 2002 and 2018,

including five treated countries that introduced or expanded access to free ECEC (i.e., Portugal, England, Wales, Scotland, and Czechia) during the study period and five countries that did not (i.e., Austria, Croatia, Ireland, North Macedonia, and Switzerland).

We estimated the effect of providing access to free ECEC using the extended two-way fixed-effects approach developed by Wooldridge. We reported the overall and group-specific average treatment effect on the treated (ATT) for the different years of access to free ECEC on the prevalence difference (PD) scale, alongside 95% confidence intervals with standard errors clustered at the country level.

Results shows that one year of access to free ECEC was associated with a 1.6 percentage-point [95% confidence interval (CI)=-2.7, -0.5] reduction in the prevalence of feeling low or depressed, 2.6 percentage-point (95%CI=-4.3, -1.0) reduction in the prevalence of feeling irritable or bad tempered, 1.9 percentage-point (95%CI=-2.7, -1.1) reduction in the prevalence of feeling nervous, and -0.7 percentage-point (95%CI=-1.8, 0.3) reduction in the prevalence of having difficulty sleeping more than once per week over the past 6 months. The estimated effects of having two years of access to free ECEC, based on the reforms occurring in Portugal (1992), England and Wales (1995), and Scotland (1998), were less consistent across outcomes. Three years of access to free ECEC, based on the reform occurring in 1992 in Portugal, was associated with improvements in mental health. We comment on heterogeneity in effect estimates across treatment groups and intensities.

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## **Global Health Spending in a Turbulent Year: Weak Structural Signals and the Limits of Cross-Section Models**

Cross-country analyses of health expenditure often assume that macroeconomic and demographic indicators offer a stable explanatory framework. However, the conditions of 2022 challenge this assumption. Using data from 194 countries, this study investigates whether standard determinants remain statistically relevant during a year marked by post-pandemic adjustments, energy-price shocks, inflation surges, rapid fiscal reallocations, and significant variation in reporting practices.

The modeling process was incremental. Simple linear regressions provided an initial understanding of pairwise relationships. A multivariate model was then developed, with interaction terms added to test whether relationships only appeared under specific covariate combinations. Log-linear and semi-logarithmic models were estimated to address proportional responses. Feasible Generalized Least Squares models handled heteroscedasticity, while mixed-effects models accounted for regional clustering. Generalized Additive Models were employed to relax linearity assumptions and explore potential nonlinear patterns.

Across all methods, the findings remained consistent. Most coefficients were small, imprecise, and unaffected by changes in functional form or the inclusion of interactions. GLS offered only slight improvements in efficiency, and regional random effects accounted for little of the cross-country variation. In GAMs, smooth terms mostly reduced to linear components, indicating that the data did not support nonlinear relationships. Only income-group classification showed a stable association with spending levels, reflecting broad structural differences rather than effects of specific predictors.

The scarcity of clear patterns mainly reflects the specific year studied. The 2022 data reveal shocks that were both global and uneven, making it difficult to identify a clear signal for statistical analysis. Reliable results will require multi-year panel data capable of distinguishing lasting trends from temporary disruptions.

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## **Real-World Evidence on Financial Protection and Healthcare Inequalities in Türkiye**

**Background:** Achieving Universal Health Coverage (UHC) requires not only access to healthcare services but also effective financial protection against out-of-pocket (OOP) health expenditures. Although Türkiye implemented major health reforms through the Health Transformation Program and Universal Health Insurance system, concerns remain regarding the persistence of catastrophic health expenditures (CHE), particularly during periods of economic instability and the COVID-19 pandemic. This study evaluates changes in OOP health expenditures and financial protection in Türkiye by comparing the pre-pandemic period with the COVID-era period using nationally representative microdata.

**Methods:** The analysis used Household Budget Survey (HBS) microdata collected by the Turkish Statistical Institute for 2019 and 2022. The study examined household healthcare spending patterns through descriptive analyses and multivariate econometric models. Four complementary models were constructed to assess: (1) the probability of incurring any OOP health expenditure, (2) the share of healthcare expenditures in total household expenditures, (3) the likelihood of catastrophic health expenditure defined as OOP spending exceeding 10% of total household expenditure, and (4) the relationship between household expenditure levels and OOP healthcare spending. Socioeconomic and demographic variables including income, insurance status, employment, education, household composition, disability, and access barriers were incorporated into the analysis.

**Results:** The findings indicate that nominal monthly OOP health expenditures increased substantially between 2019 and 2022. However, when adjusted for purchasing power parity, average expenditures slightly declined, reflecting the effects of inflation and macroeconomic instability. The proportion of households experiencing catastrophic health expenditure increased modestly during the study period, while the intensity of financial burden among affected households became more severe. Dental care, hospital services, and pharmaceutical expenditures emerged as the major contributors to catastrophic spending.

Income level was a strong determinant of both healthcare utilization and catastrophic expenditure risk. Insurance coverage provided partial

financial protection by reducing the probability of catastrophic spending, although insured households were more likely to report healthcare expenditures overall. Vulnerable groups—including households with young children, elderly individuals, and disabled members—faced significantly higher financial risk. Transportation barriers and difficulties in accessing healthcare services were also associated with increased financial vulnerability.

Conclusions: Türkiye's health insurance system continues to provide an important level of financial protection compared with global averages; however, important inequalities persist across socioeconomic groups. The findings suggest that economically vulnerable households remain disproportionately exposed to healthcare-related financial hardship, particularly during periods of economic and public health crises. Strengthening equitable financing mechanisms and improving protection for disadvantaged populations may contribute to more resilient and inclusive health systems in the future.

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## **Model-Based Economic Evaluations of Water, Sanitation and Hygiene Integrated Interventions to Improve Food Safety, Hygiene and Community Nutrition in LMIC Settings: A Systematic Review**

**Background:** There is growing recognition of the importance of integrating WASH and nutrition-related interventions, along with the development of behavioral frameworks to guide these efforts. However, evidence on their implementation and effectiveness remains limited. Furthermore, there is a notable gap in economic evaluation of these interventions in LMIC settings.

**Objective:** This study aimed to identify, assess and synthesize evidence from model-based economic evaluations of interventions focused on improving domestic-level food safety, hygiene practices, and community-level nutrition in LMIC settings.

**Methods:** A systematic search strategy was applied to several bibliographic databases: MEDLINE, EMBASE, COCHRANE LIBRARY, ECONLIT, GH CEA registry, Scopus, Web of Science, and CINHALL. Keywords such as 'WASH', 'diarrhea', 'economic evaluation', 'decision model' and 'LMICs' were used with no timeline restrictions. A comprehensive protocol was developed and studies were selected using the PICOS (Participants, Interventions, Comparators, Outcomes and Study design) framework. Studies were included if they conducted a full economic evaluation with decision analytic modelling of WASH, food safety, hygiene and nutrition interventions in LMIC settings. Quality assessment of the models reviewed was carried out using the Philips checklist for model-based economic evaluations. A systematic narrative synthesis was conducted to summarise and explain the characteristics and findings of the included studies.

**Results:** Eighteen studies were identified for inclusion in the review. Studies consistently reported that a range of nutrition, child health and water, sanitation and hygiene (WASH) interventions were cost-effective. For example, small-quantity lipid-based nutrient supplements (SQ-LNS) were delivered at a cost of \$242 per DALY averted and were estimated to prevent over 3,689 child deaths annually. Integration of community level interventions into the existing health system was also found to be highly cost-effective. Quality assessment of the models revealed methodological heterogeneity the studies. Differences in model structure, time horizon, cost categories and outcome measures limited

comparison. Lack of uniformity in reporting parameter uncertainty, sensitivity analysis and model assumptions were also identified. Justification for exclusion of relevant interventions, handling uncertainty and derivation of utility values were often not explicit. This review also reflected lack of economic evaluation of integrated interventions that assess the combined impact of water, sanitation and hygiene, food safety and nutrition programs at community level.

Conclusion: There are few studies on economic evaluation of WASH, food safety and nutrition interventions, with even fewer model-based studies. A small number of studies, combined with methodological heterogeneity among them could affect comparability and generalization of results.

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## **Neuroscience-informed Psychoeducation for Addiction Prevention**

**Introduction:** To address the scarcity of neuroscience-based prevention and harm reduction programs for addiction, we recently developed a mobile app using neuroscience-informed psychoeducation and game-based cognitive training as a universal prevention program for college students. It focuses on key neurocognitive functions implicated in addiction by providing interactive psychoeducation using cognitive games, videos, animations, cartoons, and brain training strategies. We will present results from a pilot study testing the feasibility and acceptability of the program in college students, as well as preliminary estimates of its efficacy on substance use and other outcomes.

**Methods:** The app-based program consists of 4 self-administered 20 minutes long sessions, each of which focuses on a specific neurocognitive function implicated in substance use disorders: (1) Attention, (2) Memory, (3) Cognitive Flexibility; and (4) Decision-Making. Participants were recruited from the Spit for Science Registry at Virginia Commonwealth University. Participants completed a pre-intervention risk-assessment survey, four intervention sessions, and a post-intervention survey including feedback about the intervention.

**Results:** Of the 85 participants who completed the pre-intervention survey, 68 (80%) completed all four sessions of the intervention and the post-intervention survey and feedback. Student feedback revealed high acceptance and satisfaction with the program. From the different

intervention components, the neurocognitive games were liked the most and the brain training strategies were liked the least. Preliminary results from pre- and post-intervention comparisons reveal significant reductions in self-reported deficits in executive function ( $Z=-7.11$ ;  $p<0.001$ ) and emotional distress including depression ( $Z=-2.58$ ;  $p=0.010$ ) and anxiety ( $Z=-2.49$ ;  $p=0.013$ ), and an increase in metacognitive awareness ( $Z=-3.07$ ;  $p=0.002$ ). Additionally, assessment of decision-making revealed reduced delay discounting of large magnitude rewards ( $Z=-2.11$ ;  $p=0.035$ ) and increased probability discounting of small probabilities ( $Z=-3.177$ ;  $p=0.001$ ), indicating increased sensitivity to uncertainty. Finally, participants reported significantly lower intentions to use and lower actual use of nicotine and cannabis, and lower binge drinking from pre- to post-intervention assessment.

Conclusions: These findings support the feasibility and acceptability of the program among college students. Results also provide preliminary evidence about the potential of the program to increase metacognitive awareness and impulse control and to reduce psychological distress and intentions to use. These preliminary results will be used to refine the intervention and conduct a randomized controlled trial (RCT) to evaluate its efficacy.

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### **Metacognition in Nursing Education: A Walker and Avant Concept Analysis**

This concept analysis examines metacognition as a foundational process for strengthening clinical reasoning, self-regulation, and patient safety in nursing and nurse practitioner education. Metacognition, broadly defined as awareness and regulation of one's own thinking, has been associated with improved academic performance, enhanced decision-making, and greater adaptability in complex clinical environments. The purpose of this work is to clarify the concept of metacognition for application in advanced nursing education and to explore its implications for preparing safer, more effective providers in an era of global health complexity.

An integrative review of 2018–2024 literature was conducted using major health and education databases to identify studies of metacognition in nursing, medicine, and allied health education. Guided by Walker and Avant's methodology for concept analysis, the paper synthesizes dictionary and theoretical definitions, then identifies defining attributes (awareness of cognition, self-monitoring, reflective practice, and intentional regulation of learning strategies), antecedents (student-centred curricula, psychologically safe learning environments, and feedback-rich teaching), and consequences (improved academic outcomes, reduced anxiety, and stronger diagnostic and clinical reasoning). Model, borderline, related, and contrary cases situated in nurse practitioner clinical practice illustrate how metacognitive processes shape learners' responses to diagnostic uncertainty, feedback, and evolving patient presentations.

The analysis highlights empirical referents such as the Metacognitive Awareness Inventory and related tools that can be used to assess metacognition in health professions education, while noting current limitations in measurement and scoring. Overall, the concept analysis argues that explicitly teaching and assessing metacognition—through structured reflection, case-based learning, simulation, and guided self-regulation—should be a strategic priority for nurse practitioner programs worldwide. Embedding metacognitive development within curricula can better equip future advanced practice nurses to function in healthcare systems characterized by volatility, uncertainty, complexity, ambiguity, and delayed feedback, thereby supporting safer clinical

decision-making and improved public health outcomes across diverse populations.

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## **Increasing Breast Cancer Trends in Women Under 50: Are Current Early Detection Strategies Adequate in Overcoming Biological and Social Barriers to Early Diagnosis**

Over the past 30 years there has been an increasing incidence of breast cancer in women under 50. Breast cancer in this age group is associated with poorer outcomes, with more aggressive forms of cancer and later stage presentation being 2 of the main obstacles that younger women face. Women under 50 are also not included in UK screening programmes for breast cancer, contributing to the diagnostic delays seen. This review evaluates if current investigative procedures sufficiently address the increase in incidence of breast cancer in younger women, specifically whether the increasing rates of breast augmentation influence cancer detection, whether higher breast density affects diagnostic accuracy and if implementing screening in women under 50 is beneficial.

Our systematic review was carried out using PRISMA guidelines and conducted across multiple databases. We found that breast implants could minimise mammographic visualisation of breast cancer. However, breast tumours were detected at an earlier stage and smaller size in women with implants, meaning augmentation does not affect symptom recognition. Additionally, women under 50 are more likely to have denser breasts which reduces the sensitivity of mammography: ultrasound, MRI and contrast enhanced mammography were found to be superior in this age group. Including women in breast cancer screening programmes would effectively reduce mortality, however there is a slightly increased risk of false positives and subsequently psychological distress and healthcare burden.

Current detection strategies are inadequate in addressing the increasing incidence and aggressive nature of breast cancer in women under 50. An individualised screening process could be an effective strategy for early detection and outcome improvement, however further

research if required to determine the most effective imaging modality and assess the risk-benefit ratio that comes with screening.

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**Association between Multimorbidity, Socioeconomic Factors and Health Care Utilization in the Adult Population of Serbia: National Health Survey**

**Introduction:** Multimorbidity, defined as the concurrent presence of two or more chronic diseases or conditions, is recognized as one of the major challenges facing contemporary medicine and health care systems. Patients with multimorbidity have more complex health needs, a higher likelihood of adverse health outcomes, lower quality of life, and an increased risk of mortality. This study aimed to assess the prevalence of multimorbidity in the adult population of Serbia and examine its association with demographic, socioeconomic factors, and healthcare utilization.

**Methodology:** Data were drawn from the 2019 Serbian National Health Survey, a nationally representative, stratified, two-stage random sample including 12,439 adults aged  $\geq 20$  years. The independent variables in the study are: demographic variables (age structure, gender structure, marital status, type of settlement, region); socio-economic variables (employment status, educational structure, Well-being Index as an indicator of the material condition of the respondents, self-rated health) and aspects of health care utilization. The dependent variable in the study is multimorbidity. Descriptive statistics, Chi-square and t-tests, and bivariate and multivariate logistic regression models were used to assess associations. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated, with significance set at  $p < 0.05$ .

**Results:** The study included 12,439 adults (mean age  $52.83 \pm 17.69$  years; 51.5% women). Multimorbidity was present in 35.2% of participants. The univariate analysis showed that the risk of

multimorbidity was 1.49 times higher among women (OR = 1.49), 2.86 times more frequent among widowed participants (OR = 2.86), 1.36 times more frequent among participants from Southern and Eastern Serbia (OR = 1.36), 3.49 times more frequent among participants with primary or lower education (OR = 3.49), and 1.20 times more frequent among those with secondary education (OR = 1.20). Additionally, multimorbidity was 4.58 times more frequent among employed participants (OR = 4.58) and 1.44 times more frequent among participants with poorer material status (OR = 1.44). Younger age groups had a significantly lower risk of multimorbidity. Participants with multimorbidity demonstrated a substantially higher likelihood of using health care services. In the univariate model, individuals with multimorbidity were 10.89 times more likely to visit a specialist physician within the previous 12 months (OR = 10.89), 7.63 times more likely to use physician-prescribed medications (OR = 7.63), and 3.95 times more likely to use home care services in the previous 12 months (OR = 3.95). The multivariate regression analysis confirmed these associations.

**Conclusion:** Multimorbidity affects more than one-third of adults in Serbia and is strongly associated with demographic and socioeconomic disadvantage. It substantially increases healthcare utilization. These findings emphasize the need for early detection of chronic conditions, strengthening preventive programs targeting socioeconomically vulnerable groups, and developing integrated, patient-centered healthcare models with a stronger role for primary care. Strategic resource planning and reducing health inequalities represent key steps in addressing the growing burden of multimorbidity in Serbia.

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**Inclusive Health in Low-Resource Settings:  
International Progress and Developmental Insights**

This study focuses on the central issue of achieving health equity in low-resource settings, exploring strategies for advancing health equity under significant resource constraints. The research identifies that the challenge lies not only in multidimensional supply-side shortages – such as funding, equipment, health workforce, and technology – but also in demand-side limitations, including low health literacy and a lack of self-management skills among residents. Together, these factors prevent basic health services from translating into substantive improvements in health outcomes, thereby hindering the attainment of higher-level health equity. International experience shows that promoting health inclusivity in these regions is both a matter of guaranteeing fundamental health rights and a means to enhance overall social resilience. To address this complex challenge, a multi-pronged approach is essential, which can be structured as follows: Firstly, regarding governance mechanisms, the key is to establish integrated financing systems at the policy-design level, strengthen resource allocation centered on primary healthcare, and fully utilize digital technologies to create robust supervision networks involving multiple stakeholders. Secondly, in terms of payment mechanisms, innovation should focus on developing outcome-oriented, integrated financing models. Setting up dedicated funds for vulnerable groups can effectively channel resources toward clinical and population-level prevention, fostering the integration of medical and public health services. Thirdly, to build an integrated health service delivery model based on supply-demand synergy, a general practitioner-led approach should be adopted. This model would integrate multidisciplinary professional teams and community resources, using digital tools to enhance coordination efficiency, empower service recipients, and facilitate a shift toward outcome-oriented care. Fourthly, with respect to

essential support elements, it is crucial to systematically strengthen foundational capacities. This can be achieved by implementing practice-oriented training mechanisms for general practitioners, optimizing drug supply systems, and exploring low-cost digital pathways. International comparative studies highlight that advancing health equity in low-resource settings faces dual challenges: institutional coordination and technological adaptability, with solutions often being highly context-specific. This implies that success depends not on simply transplanting technologies, but on fostering innovation tailored to local conditions. For China, this suggests that primary healthcare should be the core focus, closely integrated with ongoing structural reforms such as urban medical alliances and tightly-knit county-level healthcare networks. By launching pilot programs, China can explore synergistic innovations in service models, incentive mechanisms, and digital technology applications—translating macro policies into workable micro-level mechanisms. Ultimately, identifying viable pathways that suit national conditions and enhance capabilities on both supply and demand sides will require continuous policy learning, adaptive implementation, and the building of a broad societal consensus.

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