Dandy Georgia's

PROJECT

Clinical Psychiatry & Forensic Medicine

2025

CONFERENCE PROCEEDINGS

PROJECT STYX

Dandy Georgia's
Project Styx 2025
Clinical Psychiatry & Forensic Medicine.
Conference Proceedings

Cogito Ergo Sum

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PROJECT STYX

Walter E. Dandy Neurosurgical Society - Georgia
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PROJECT STYX

Preface:

It is with great pride and profound enthusiasm that we present the official proceedings of Project STYX 2025, a pioneering academic event held on May 31st and June 1st, 2025, at Grigol Robakidze University (GRUNI) in Tbilisi, Georgia.

Organized under the auspices of the Walter E. Dandy Neurosurgical Society – Georgia Chapter, this conference marks a historic milestone — the first-ever event in Tbilisi dedicated entirely to the intersection of Clinical Psychiatry and Forensic Medicine. Our goal was to foster meaningful dialogue, encourage interdisciplinary collaboration, and provide a dynamic platform for early-career researchers, practicing clinicians, and academic experts to share insights across these crucial and interconnected fields.

This event reflects our commitment to pushing boundaries in medical education, encouraging responsible forensic inquiry, and promoting mental health awareness in both clinical and legal domains. The wide range of topics presented — from cutting-edge psychiatric therapies to medico-legal ethics and forensic investigations — attests to the growing importance of integrating neuropsychiatric knowledge into broader societal frameworks.

As Head of Research and Conference Chair, we extend our gratitude to every participant, presenter, and contributor whose presence transformed this vision into a vibrant and engaging academic experience. We hope that the content captured in this booklet serves as a lasting record of the intellectual richness shared over the course of these two unforgettable days.

Mahmoud El Adhami
Head of Research
Walter E. Dandy Neurosurgical Society – Georgia

Nino Dzadzamia
Conference Chair person
Project STYX 2025

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Acknowledgments:

The success of Project STYX 2025 would not have been possible without the unwavering dedication and support of many individuals and organizations who believed in the mission of this groundbreaking conference.

We express our heartfelt thanks to the Organizing Committee, whose tireless efforts, strategic planning, and passion shaped every detail of this event.

We are especially grateful to our academic partner, Grigol Robakidze University (GRUNI), for hosting this initiative and creating an environment where ideas and expertise could be shared so freely. Your collaboration was vital to the success of this endeavor.

Our appreciation extends to our generous sponsors, Blackwell Scrubs and Prospero's Books, whose contributions helped bring our vision to life and ensured a welcoming and engaging experience for all attendees.

We are deeply honored to have welcomed an exceptional lineup of keynote speakers and distinguished contributors, including:

- Mariam Chelidze, MD – Psychiatrist
- Mishiko Dumbadze, MD – Psychiatrist
- Magda Gerantia, MD – Psychiatrist
- Zura Tabeshadze – Radiology Resident
- Tamta Kenia, Ph.D, LLB, LLM
- Vanda Chanturidze, MD – Psychiatrist
- Lika Khorbaladze, MD – Neurosurgeon
- Sopiko Gigolashvili – Forensic Doctor
- Madona Akhobadze, MD – Neurosurgery
- Diana Verdzadze, MD – Psychiatrist
- Mariam Akhmeteli – Psychiatry Resident
- Mariam Sordia, MD – Psychotherapist

Each of these individuals brought unique perspectives and invaluable expertise that enriched the discussions and left a lasting impact on our participants.

We also extend our sincere thanks to Sanya Singh, Varun Dwivedi, Shabbeer Imtiaz and Nihit Singh Naruka for their outstanding contributions behind the scenes and for their steadfast support throughout the planning and execution of this event.

To all attendees, volunteers, reviewers, and supporters — your participation is what made Project STYX 2025 not just an academic gathering, but a genuine community of knowledge and purpose.

With deepest gratitude,
The Organizing Committee of Project STYX 2025

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Opening Speech:

Dear Esteemed Guests and Colleagues,

It is with great pleasure that I welcome you all to Project Styx: The Clinical Psychiatry and Forensic Medicine Conference.
As with any meaningful journey, it all begins with a single, intentional step. Today marks not just the start of this conference, but the launch of a long-term initiative to delve deeper into the vital fields of psychiatry and forensic medicine.
Many people spend their lives captivated by stories — books, films, legendary figures — believing those feats are beyond reach. But let me remind you: you are the author of your own narrative.
The power to shape a meaningful, inspiring, and even revolutionary path lies within you.
Allow me a brief personal note: I've always believed in facing challenges head-on, even when they seem systemic, global, or insurmountable. Change begins when we stop waiting for someone else to act. That belief led me to my commitment in the field of criminal psychiatry — and ultimately, to standing before you today.
Project Styx was created with one core mission: to help you explore, question, and connect — not only with your disciplines, but with yourselves and each other.
I would like to dedicate this project to my father — the greatest inspiration in my life — and extend my sincere gratitude to every person in this room who helped turn this vision into reality.
Thank you for being here today. I hope this day becomes a defining moment for you. Please feel free to take photos, share your reflections, and tag us on social media — let the world see what we're building.
And now, let us begin.
Welcome to Project Styx.

Nino Dzadzamia,
Conference Chairperson

DR. MARIAM CHELIDZE

About The Presenter:

Dr. Mariam Chelidze is a dedicated physician-psychiatrist currently practicing at Todua Clinic and "KAMARA" in Tbilisi, Georgia. With a strong academic foundation from David Tvildiani Medical University and clinical training completed at Tbilisi State Medical University, she has built a multifaceted career that bridges clinical psychiatry, education, translation, and international collaboration. Since 2018, Dr. Chelidze has served as an invited lecturer at multiple Georgian medical universities, including David Tvildiani Medical University, Georgian-American University, Georgian University, and Tbilisi Medical Academy. Her professional interests center on neuroscience, psychopharmacology, and the integration of technologies such as transcranial magnetic stimulation (TMS) in psychiatric treatment. A two-time international award winner—1st place at the 2022 European Psychiatric Association (EPA) congress and selected participant in the 2023 ECNP Workshop in Barcelona—she continues to contribute to psychiatric research, most notably on developing novel tools for assessing adverse effects of psychotropic medications. Her global experience includes psychiatric practice in Germany, the United States, Lithuania, and across Georgia, underlining her commitment to excellence and ethical innovation in mental healthcare.

Historical Review and Evolution of Psychiatry in Medicine:

Psychiatry, a term rooted in the Greek words psychē meaning "soul" or "mind" and iatreia meaning "healing," literally translates to "healing of the mind." It represents a discipline that has undergone a profound transformation over centuries—from mysticism and spiritualism to a scientific and holistic medical field. This keynote explored the historical foundations, evolving understandings, and current innovations in psychiatry, highlighting its multifaceted development across cultures and epochs.

Unlike psychology, which focuses primarily on talk therapy and behavioral interventions, psychiatry integrates psychotherapy with pharmacological treatments and is practiced by medical doctors trained to diagnose, treat, and manage mental disorders. Psychiatrists can prescribe medications, manage crises, and oversee long-term therapeutic plans. The distinction is especially important when addressing complex mental illnesses that span biological, emotional, and behavioral dimensions.

Dr. Chelidze began by clarifying the classification of psychiatric conditions. Neurotic disorders, such as generalized anxiety disorder, obsessive-compulsive disorder, and various phobias, often allow individuals to maintain functionality without hospitalization. In contrast, psychotic disorders—including schizophrenia, bipolar disorder during manic phases, and major depressive disorder with psychotic features—frequently involve delusions, hallucinations, and a profound disconnect from reality, often requiring intensive medical care. Dementia and related conditions, also fall under psychiatric care, especially when they impair cognitive and emotional functioning.

Language has historically influenced public perceptions of mental illness. Terms like “madness” or “insanity” carried deeply stigmatizing implications. Today, the preference is to use terms such as “mental health condition” or “psychiatric disorder,” which are less pejorative and more reflective of scientific understanding. These terminological shifts mark psychiatry’s movement toward greater empathy and human-centered care.

The presentation delved into ancient perspectives on mental health. In Mesopotamia, mental illness was believed to be the result of demonic possession or spiritual imbalance, with healing rituals involving exorcisms and prayers. Ancient Egyptian medicine viewed the heart—not the brain—as the seat of emotion and thought. Healing was spiritual and ritualistic, often involving herbal remedies and incantations. In India, Ayurvedic philosophy attributed mental disturbances to imbalances in the doshas—Vata, Pitta, and Kapha. Treatment emphasized harmony through yoga, meditation, herbal therapy, and ethical living. Similarly, Traditional Chinese Medicine saw mental health as a reflection of the balance between the five elements—wood, fire, earth, metal, and water—and the vital energy known as Qi. Emotions were mapped to organs: the kidneys to fear, the heart to joy, and the spleen to worry.

In Greece, Hippocrates famously proposed that mental illness stemmed from imbalances in bodily humors—blood, phlegm, yellow bile, and black bile. Melancholia, for example, was linked to an excess of black bile. Plato theorized that the soul had three parts—rational, spirited, and appetitive—and imbalances among these could result in mental disturbance. Aristotle, meanwhile, emphasized the connection between physical states and behavior and called for humane treatment of those with mental disorders. Ancient Roman practices included music, bathing, and massage to soothe emotional distress.

Religious and medieval perspectives deeply shaped societal treatment of mental illness. Christianity often viewed mental disorders as divine punishment or demonic possession, with healing centered on confession, prayer, and exorcism. However, the Islamic world made significant advancements during this period. Scholars such as Avicenna (Ibn Sina) understood mental illness as both a medical and spiritual issue. Islamic hospitals, or Bimaristans, employed music therapy, herbal medicine, baths, and occupational therapy—laying the groundwork for humane psychiatric care. These institutions represent some of the earliest formal recognition of mental illness as a condition requiring medical attention.

During the Renaissance, beliefs in witchcraft and spiritual possession persisted, and individuals with mental illness were often persecuted. However, the rise of humanism promoted dignity and empathy, challenging older notions of possession. Philosophers like René Descartes helped shift the discourse with concepts such as “Cogito, ergo sum” (I think, therefore I am), introducing the philosophical underpinnings of mind-body dualism that continue to influence psychiatric theory today.

The modern era of psychiatry began to emerge in the 19th and 20th centuries. Sigmund Freud, originally a neurologist, laid foundational concepts with psychoanalysis and the theory of neurosis. He emphasized the impact of early childhood experiences on adult mental health and developed the framework of psychosexual development. Freud's work paved the way for exploring the subconscious, the role of trauma, and internal conflict—ideas that would evolve into various branches of psychotherapy.

Contemporary psychiatry now recognizes that mental illnesses are not solely psychological in nature but are the result of a complex interplay between genetic, biological, environmental, and social factors. Treatments are now multidisciplinary.

Pharmacological interventions such as SSRIs and benzodiazepines are standard, though side effects are carefully monitored. Innovations like Deep Brain Stimulation (DBS) have been introduced for treatment-resistant conditions, and psychedelic-assisted therapies using psilocybin and ketamine are under serious scientific investigation.

Diagnostic tools have also evolved. The DSM (Diagnostic and Statistical Manual of Mental Disorders), widely used in the United States and Georgia, and the ICD (International Classification of Diseases) issued by the WHO provide structured frameworks for diagnosis and classification. Psychiatry is increasingly turning toward personalized medicine, in which treatments are tailored to each patient's unique genetic and lifestyle profile. Shared decision-making has become a pillar of ethical care, ensuring that patients are active participants in their treatment plans.

Dr. Chelidze also noted the role of cultural influences and philosophies, from Daoism and Buddhism to Hinduism and early Christian thought. Eastern practices emphasized balance, mindfulness, and meditation. Even today, yoga and traditional medicine play a role in mental wellness. The persistence of historical beliefs—such as spiritual punishment or divine retribution for mental illness—has gradually been replaced by evidence-based understanding, though stigma persists in many societies.

Audience members raised thought-provoking questions during the session. One asked why ancient medicine often overlooked sensory pathways such as ears and eyes in diagnosing mental illness. The answer lies in the historical focus on internal imbalances, but even Hippocrates acknowledged that emotional trauma can be triggered by sensory experiences. Another question concerned the modern relevance of hypnosis. Dr. Chelidze explained that hypnosis, when used therapeutically, can help rewire the brain by accessing subconscious patterns, offering benefits for conditions such as phobias, anxiety, and post-traumatic stress.

In conclusion, the history of psychiatry is a rich tapestry woven from philosophy, medicine, spirituality, and culture. From ancient temples to modern hospitals, from herbal remedies to cutting-edge neuromodulation, psychiatry has continually adapted to reflect humanity's evolving understanding of the mind. The journey from stigma to science is far from complete, but today's psychiatry emphasizes dignity, respect, and collaboration. As Dr. Chelidze so eloquently closed, everyone deserves a mental health journey where they feel safe, understood, and empowered.

DR. MAGDA GERANTIA

About The presenter:

Dr. Magda Gerantia is a seasoned medical doctor, psychiatrist, public health expert, and academic leader with a multifaceted career in clinical, educational, and emergency medical fields. She currently serves as the Dean of the Faculty of Healthcare Sciences at Saint Andrew Georgian University and previously headed the Clinical Skills Training Center at Georgian American University. With rich experience in simulation-based medical education and emergency preparedness, she also works as a national trainer and coordinator for various health agencies, including the Ministry of Health's Emergency Situations Coordination and Urgent Assistance Center, and Training In Aid. Dr. Gerantia has played a vital role in training EMTs in fields such as WASH, logistics, and SOP development. She has held diverse roles ranging from psychiatry at the Mental Health and Addiction Prevention Center to frontline patient care at MediClub Georgia. Holding a PhD in Public Health from the London School of Hygiene and Tropical Medicine and Ilia State University, she also earned a Master's in Public Health in collaboration with the University of Tromsø. Her clinical qualifications include medical and psychiatric degrees from Tbilisi State University and Tbilisi State Medical University, as well as specialization in addiction psychiatry. An active contributor to WHO training initiatives and a certified PHTLS trainer, Dr. Gerantia continues to shape public health education and mental healthcare systems across Georgia. Her volunteer service includes psychological support for EMTs and leadership in emergency medical response missions, reflecting her enduring commitment to healthcare, equity, and crisis preparedness.

Addiction Management:

In this compelling keynote, Dr. Magda Gerantia addressed one of the most pressing and complex challenges in modern psychiatry: addiction.

Her presentation explored the multifaceted nature of both substance and behavioral addictions, emphasizing that addiction is not simply a lack of willpower or a poor lifestyle choice, but a chronic and relapsing medical condition—one that fundamentally alters brain chemistry, behavior, and the ability to make rational decisions.

Dr. Gerantia began by redefining addiction not merely as the act of repeated substance use or compulsive behavior, but as an overwhelming compulsion that persists despite causing harm. Addiction, she explained, can manifest in the relentless craving for something—be it drugs, gambling, or even caffeine—that one feels incapable of living without. What distinguishes addiction from habit is its ability to override rational thought, even when the person is fully aware of the damage being done. Illustrative examples included a long-sober alcoholic who relapses with a single drink after a decade, or a caffeine-dependent individual whose entire day is disrupted without their morning coffee.

Historically, addiction was not classified as a disease, but the DSM-5 now recognizes it as such—on par with other chronic illnesses like appendicitis or cancer. The World Health Organization (WHO) similarly defines addiction as a chronic condition that changes the brain and impairs behavior, leading individuals to act against their own well-being. As a chronic disease, addiction has no absolute cure, and treatment focuses on achieving remission and preventing relapse rather than complete eradication.

The role of dopamine and the brain's reward system was highlighted as central to addiction's development and maintenance. Substances and behaviors that stimulate dopamine release create a sense of pleasure or reward, reinforcing the cycle of craving and use. Dr. Gerantia underscored that addiction is highly genetic in nature—up to 80% of a person's susceptibility can be attributed to heredity—though environment, culture, and early-life experiences are also significant contributors.

Behavioral addictions, though sometimes dismissed, can be just as disruptive and harmful as substance dependencies. Examples included gambling, which offers an adrenaline rush that often eclipses the desire for money; shopping, where compulsive spending masks emotional voids even when essentials are unaffordable; and gaming, now formally recognized as a disorder in the ICD-10. These behaviors often begin subtly and become all-consuming over time.

Dr. Gerantia gave particular attention to substance addiction, categorizing addictive substances into several major groups based on their neurochemical effects.

CNS depressants, including alcohol, benzodiazepines, and barbiturates, induce relaxation but carry significant addiction risks, especially in patients with prior substance abuse. Opioids—such as morphine, heroin, fentanyl, and codeine—are potent painkillers that can lead to severe dependency and life-threatening overdoses. Emerging street drugs like Alpha-PVP (bath salts) and "crocodile tears" (a synthetic opioid with necrotizing effects) were cited as especially dangerous substances seen in Georgia in recent years.

Stimulants, such as cocaine, amphetamines, nicotine, and caffeine, increase alertness and energy but may mask deeper problems. Some families rationalize stimulant use in loved ones because of short-term productivity gains, but Dr. Gerantia cautioned that after the so-called "honeymoon period," users often experience cognitive decline and psychiatric symptoms. Hallucinogens, including LSD, psilocybin, and ketamine, alter perception and can induce euphoric or religious-like experiences, but may also cause persistent psychosis. Cannabis, while perceived by many as benign, was highlighted for its ability to induce acute psychosis, especially in its synthetic forms, which can result in long-term cognitive and psychiatric impairment.

The discussion also addressed inhalants—easily accessible substances like glue, paint thinner, and gasoline—that disproportionately affect homeless populations and children, leading to rapid brain damage. Designer or "club" drugs, such as MDMA (ecstasy), vary widely in effect but can have devastating consequences. Dr. Gerantia cited a real case of a young woman who developed symptoms of bipolar disorder after a single dose of MDMA.

Audience questions added further depth to the conversation. On the topic of cannabis and schizophrenia, Dr. Gerantia discussed the concept of dual diagnosis—when a person suffers from both a mental illness and substance abuse disorder. While cannabis may not directly cause schizophrenia, it can induce psychosis, and persistent psychotic symptoms may meet the diagnostic criteria for schizophrenia. Genetics and environmental triggers likely interact in complex ways, and cannabis is increasingly viewed as a risk factor for vulnerable individuals.

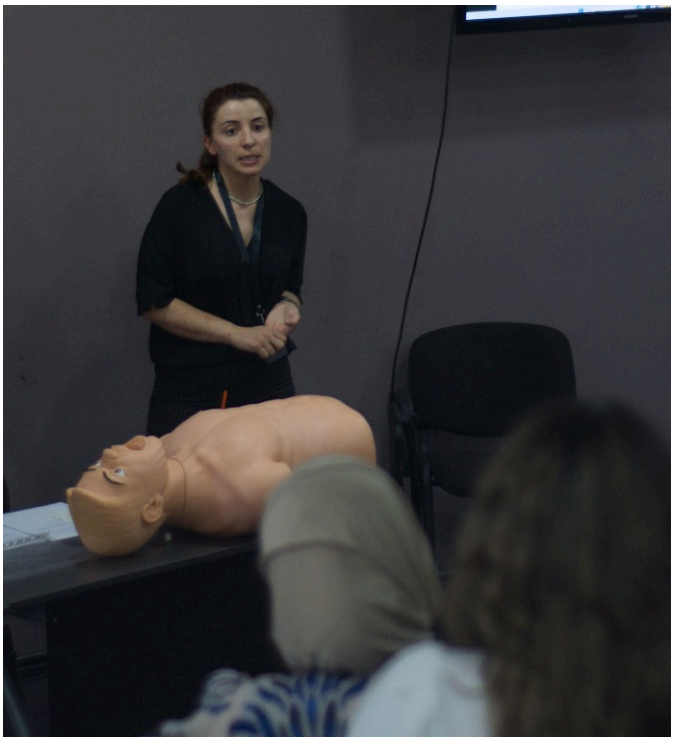
Dr. Gerantia also addressed intergenerational addiction and the role of epigenetics, suggesting that while the biological inheritance of addiction is not fully understood, environmental exposure (such as children growing up in homes where cannabis is used) could have lasting developmental consequences. Mental illnesses and addictions frequently exhibit cross-genetic patterns, meaning that a parent with schizophrenia might have a child who later develops OCD or another mental health condition.

The keynote emphasized that people with addiction deserve the same level of medical care and human dignity as those with other chronic diseases. Addiction is not a moral failure, but a condition rooted in biological, psychological, and social realities. Prevention is possible in some cases, particularly through education, early intervention, and harm-reduction strategies. However, Dr. Gerantia made clear that recovery is a long-term, often non-linear process, with relapse rates hovering around 60% within the first year after treatment.

The session concluded with an engaging workshop in which Dr. Gerantia presented real-life clinical cases. One case involved an opioid overdose patient with dangerously low respiratory rates and pinpoint pupils, illustrating the life-saving potential of Naloxone (Narcan). Another case focused on a patient with disorganized thoughts and hallucinations, raising questions about the intersection of psychosis and substance use. A third case explored the sensitive topic of helping a friend or loved one suffering from depression and refusing treatment, emphasizing the importance of motivational interviewing and gradual, empathetic intervention.

In the final reflections, Dr. Gerantia addressed complex ethical questions: Can we truly help someone who doesn't want help? Should we force treatment? Her advice was practical and grounded—you can motivate someone, but you cannot make them recover. Sometimes, people need to hit "rock bottom" before they are ready to seek help. At that point, support from someone who has lived experience can be the most powerful catalyst for change.

This keynote offered not only a medical overview of addiction but also a profoundly human message: addiction is a disease that thrives in silence and shame. By understanding its roots and respecting the lived experience of those affected, psychiatry can offer hope, dignity, and a path to recovery.



SANYA SINGH

GARVIT CHARAN

Schizophrenia Symptoms, Types of Hallucinations, and Mental Status Examination:

Schizophrenia remains one of the most misunderstood and stigmatized mental health conditions, despite its extensive impact on global health and functioning. This hands-on workshop, presented by the Dandy Georgia Psychiatry Department, aimed to demystify the condition by breaking down its clinical profile, symptomatology, neurobiology, and evaluation techniques, while offering attendees an opportunity to engage directly with its diagnostic framework in a simulated clinical setting.

The session began by deconstructing the term schizophrenia, from the Greek schizo meaning “split,” and phrenia meaning “mind,” a term coined in the early 20th century to describe the fractured nature of perception, thought, and emotion seen in affected individuals. However, facilitators were quick to clarify a common misconception: schizophrenia is not synonymous with “split personality” or dissociative identity disorder. Instead, it is a chronic and complex psychiatric syndrome encompassing a constellation of cognitive, emotional, and behavioral abnormalities.

Participants were introduced to the tripartite classification of symptoms: positive, negative, and cognitive. Positive symptoms, or psychotic features, include delusions (fixed false beliefs), hallucinations (perceptions without external stimuli), disorganized speech, and catatonic or erratic behavior. These symptoms represent an excess or distortion of normal function and are often dramatic and visible, making them the hallmark of acute psychosis. Conversely, negative symptoms reflect a reduction or absence of normal functions. The workshop emphasized the “5 A’s” of negative symptoms: avolition (loss of motivation), alogia (poverty of speech), asociality (social withdrawal), anhedonia (inability to feel pleasure), and affective blunting (diminished emotional expression). These symptoms are frequently more disabling over time due to their chronicity and resistance to treatment.

In the cognitive domain, participants learned that patients may suffer from poor attention, impaired executive functioning, lack of insight, and difficulties with problem-solving. These deficits contribute significantly to day-to-day dysfunction, including challenges with employment, relationships, and self-care.

The workshop walked attendees through the clinical course of schizophrenia, which typically unfolds in three distinct phases: the prodromal phase, characterized by subtle behavioral and cognitive changes; the first episode of psychosis, which marks the clinical onset; and the residual phase, where active symptoms diminish but negative and cognitive impairments may persist. Emphasis was placed on early recognition and intervention during the prodromal phase, which can greatly improve long-term prognosis.

Using the DSM-5 diagnostic criteria, facilitators explained that diagnosis requires the presence of at least two or more core symptoms for a significant portion of one month, with at least one being delusions, hallucinations, or disorganized speech. These symptoms must persist for six months or more, and must lead to significant impairment in social, occupational, or personal functioning. The audience discussed real-world scenarios that illustrated these criteria, reinforcing the importance of symptom duration, functional decline, and differential diagnosis.

A critical portion of the workshop addressed the neurobiological underpinnings of schizophrenia. Participants were introduced to the dopamine hypothesis, which posits that dysregulation in dopamine pathways contributes to the manifestation of different symptoms. Hyperactivity in the mesolimbic pathway is associated with positive symptoms, while hypoactivity in the mesocortical pathway is linked to negative symptoms and cognitive dysfunction. The nigrostriatal pathway, responsible for movement coordination, explains the motor side effects of antipsychotic medications, and the tuberoinfundibular pathway is involved in hormonal regulation. This integrated model provided attendees with a physiological understanding of why symptoms present and how treatments exert their effects.

Schizophrenia was further explored through its traditional subtypes, such as paranoid, catatonic, disorganized (hebephrenic), residual, and undifferentiated. Though these subtypes are less emphasized in modern classification, they provide historical context for how the disorder was previously conceptualized. The workshop facilitators challenged participants to categorize symptoms based on clinical vignettes, which prompted lively discussions and encouraged critical thinking.

The next section of the workshop turned to hallucinations, a defining and often misunderstood feature of psychotic disorders. Hallucinations are sensory perceptions occurring in the absence of external stimuli, and patients typically experience them as real and uncontestable. Their presentation is shaped not only by neurochemistry but also by cultural, environmental, and psychological influences.

Participants explored the major types of hallucinations, including:

- Auditory hallucinations, the most common in schizophrenia, often involve voices—sometimes familiar, sometimes malevolent, sometimes commanding.
- Visual hallucinations, which may range from vague shadows to vivid and complex images. Specific conditions like Charles Bonnet Syndrome (visual hallucinations in the visually impaired) and Lilliputian hallucinations (seeing miniature figures) were also discussed.
- Tactile hallucinations, such as formication—the sensation of insects crawling under the skin—are commonly seen in stimulant withdrawal.
- Olfactory hallucinations, which involve smelling unpleasant or strange odors not perceived by others, can be associated with temporal lobe epilepsy or psychiatric conditions.
- Gustatory hallucinations involve unusual tastes and may co-occur with delusional beliefs, such as poisoning.
- Proprioceptive hallucinations, where patients feel as though their body is moving or levitating, often emerge in psychotic or dissociative states.

Other complex forms were introduced, including pseudohallucinations (recognized as unreal), hypnagogic and hypnopompic hallucinations (occurring during transitions into or out of sleep), and autoscopic hallucinations, where one sees their own image. The extracampine variety involves perceptions outside the normal sensory field, while functional and reflex hallucinations involve distorted responses to real stimuli.

To reinforce learning, a dynamic quiz asked participants to match clinical scenarios to specific hallucination types. This sparked thoughtful reflection on differential diagnosis, as hallucinations also appear in affective psychoses, substance-induced states, and organic brain disorders.

The final portion of the workshop introduced the Mental Status Examination (MSE)—a structured tool that captures a patient's current mental state and is essential for diagnosis, treatment planning, and professional communication. Participants were taught the ASEPTIC framework: Appearance & Behavior, Speech, Emotion, Perception, Thought Content and Process, Insight & Judgment, and Cognition.

Each domain was unpacked in depth:

- Appearance & Behavior: Assessing grooming, consciousness, posture, motor activity, and interpersonal engagement.
- Speech: Observing fluency, volume, rate, and spontaneity.
- Emotion: Differentiating mood (the sustained internal feeling) from affect (the outward expression of emotion), noting congruence and variability.
- Perception: Identifying hallucinations, illusions, depersonalization, and derealization.
- Thought Content: Detecting delusions, obsessions, suicidal ideation, and intrusive thoughts.
- Thought Process: Analyzing the organization of thoughts, including tangentiality, circumstantiality, and thought blocking.
- Cognition: Testing orientation, memory, attention span, and abstract reasoning.
- Insight & Judgment: Gauging the patient's awareness of their condition and their ability to make safe, rational decisions.

The session culminated in a group simulation where participants were divided into clinical teams and assigned fictional psychiatric patients. Each group was tasked with conducting a full MSE using a checklist provided by the facilitators. The activity encouraged learners to practice observational skills, collaborative analysis, and formulation of clinical impressions in real time.

This workshop offered a rare combination of theory, application, and interaction—demonstrating the depth and complexity of psychiatric evaluation while empowering future clinicians to approach schizophrenia with a balance of empathy, scientific rigor, and diagnostic precision. Participants walked away not only with a deeper understanding of the disorder but also with practical tools for engaging in comprehensive mental health assessments.

DR. MISHIKO DUMBADZE

About The presenter:

Dr. Mishiko Dumbadze is a Georgian psychiatrist and medical educator with extensive experience in clinical psychiatry, medical education, and transcranial magnetic stimulation (TMS) therapy. He is currently serving as a psychiatrist at the Psychiatric Center of Rustavi and the American Hospital Tbilisi, providing comprehensive outpatient and inpatient mental health care. In parallel, Dr. Dumbadze contributes to academic medicine as an invited lecturer in propedeutics of internal medicine at Tbilisi State Medical University and as an expert for the Foundation Global Initiative on Psychiatry in Tbilisi, where he is involved in advanced TMS therapy. He holds a medical degree and completed his residency in psychiatry at Tbilisi State Medical University, further enhancing his expertise with a Master's in Social Psychiatry at Ilia State University. His international training background includes participation in the Erasmus+ program in Romania and clinical internships in Poland and Germany. Dr. Dumbadze has actively engaged in numerous continuing professional development programs, including workshops by the World Psychiatric Association and cognitive behavioral therapy training. In addition to his strong clinical and academic background, he has passed the USMLE Step 1 and Step 2 exams and maintains a keen interest in multidisciplinary approaches to psychiatry, student mentorship, and patient-centered mental health care.

When Antidepressants Fail: Exploring TMS and Ketamine Therapy in treatment-Resistant Depression:

Depression remains one of the most prevalent and debilitating psychiatric disorders worldwide. While first-line treatment options such as antidepressants and psychotherapy are effective for many, a substantial proportion of patients fail to achieve adequate relief. This condition, known as Treatment-Resistant Depression (TRD), is typically diagnosed after a patient fails to respond to at least two adequate trials of antidepressant monotherapy. In this keynote session, Dr. Mishiko Dumbadze explored cutting-edge approaches to TRD, with a specific focus on Transcranial Magnetic Stimulation (TMS) and Ketamine therapy — two of the most promising interventions in modern psychiatry.

Dr. Dumbadze opened by revisiting the fundamental nature of depressive disorders. Major depressive disorder often begins in the late twenties and is characterized by persistent low mood, anhedonia, fatigue, poor concentration, and functional impairment. Depression can be recurrent — with a 50% chance of relapse after the first episode — and when left untreated or inadequately managed, it severely impacts both quality of life and productivity. While selective serotonin reuptake inhibitors (SSRIs), cognitive behavioral therapy, and electroconvulsive therapy (ECT) remain part of the therapeutic arsenal, these methods do not always yield satisfactory outcomes, particularly in patients with TRD.

Transcranial Magnetic Stimulation (TMS), developed in 1985 and approved by the FDA in 2008, has emerged as a non-invasive neuromodulation technique targeting superficial cortical areas of the brain. The treatment involves rapidly alternating electric currents passed through a magnetic coil, generating a field between 1.5 and 3 Tesla. This magnetic field penetrates the scalp and skull to reach the cortex, where it depolarizes neurons. The underlying hypothesis is that this stimulation enhances neuroplasticity — the brain's ability to reorganize and form new neural connections — potentially by increasing levels of brain-derived neurotrophic factors (BDNF). Various forms of TMS exist, including standard repetitive TMS (rTMS), deep TMS, and theta-burst stimulation.

In Georgia, TMS is currently employed for TRD and is expanding into indications such as bipolar depression, obsessive-compulsive disorder (OCD), generalized anxiety disorder (GAD), depersonalization disorder, post-traumatic stress disorder (PTSD), and even schizophrenia. Importantly, TMS is well-tolerated by most patients. Common side effects include localized headache or scalp discomfort, experienced by approximately 28% of patients versus 16% in placebo groups. Temporary hearing reduction and vasovagal syncope may also occur, and in rare cases, patients may experience hypomanic episodes. Contraindications to TMS include a history of seizures, implanted metal devices in the cranial region, cochlear implants, and cardiac pacemakers.

Dr. Dumbadze emphasized that TMS is particularly suited for individuals who prefer non-pharmacologic treatment options, those who have previously responded to neuromodulation, or those with comorbidities that contraindicate antidepressant use. Additionally, while SSRIs are generally safe, they may pose bleeding risks in certain patients due to their impact on platelet aggregation through serotonin receptor inhibition.

The presentation then shifted to Ketamine therapy, which has been gaining international attention for its rapid-acting antidepressant properties. Originally developed as a dissociative anesthetic, ketamine is a racemic mixture of two enantiomers: S- and R-ketamine. Though its exact mechanism is still being explored, hypotheses include NMDA receptor antagonism, opioid receptor agonism, and activation of the anterior cingulate gyrus. These mechanisms are believed to play a role in restoring synaptic connections and enhancing neuroplasticity in brain regions affected by depression.

Ketamine can be administered in various forms, including intravenous (IV), intramuscular (IM), oral, sublingual, and intranasal routes. The most commonly studied regimen involves a 0.5 mg/kg IV infusion delivered over 40 minutes. For non-responders, the dose can be increased to 0.75 or even 1 mg/kg. Remarkably, a single infusion of ketamine has been shown to produce a rapid and robust antidepressant response within 40 to 120 minutes in nearly 50% of patients. However, these effects typically diminish by days 10 to 14 post-infusion.

To maintain the therapeutic benefits, a three-phase protocol is employed: the initiation phase (2–3 treatments per week), the maintenance phase (biweekly sessions), and the booster phase for long-term stability. While ketamine is highly effective, it is not without risks. Increased frequency of use can lead to dependence, and its dissociative effects must be closely monitored. Nonetheless, its rapid onset of action makes it invaluable in managing acute suicidal ideation and severe depressive episodes.

Dr. Dumbadze concluded by comparing the two modalities. While TMS is non-invasive and offers a gradual yet steady response over multiple sessions, ketamine provides a rapid, often dramatic relief, though its effects are shorter-lived without structured maintenance. Both treatments are increasingly considered after standard antidepressants have failed and are helping to redefine how we approach chronic and refractory depression.

This keynote offered not only a scientific overview but also a hopeful message — that innovative, evidence-based treatments are expanding the psychiatric toolkit, offering relief to patients who may have once felt out of options. In doing so, psychiatry moves closer to its ultimate goal: restoring mental well-being through personalized, compassionate, and cutting-edge care

DR. VANDA CHANTURIDZE

About The presenter:

Vanda graduated in General Medicine from Tbilisi State Medical University (TSMU) in 2012, after completing a six-year program from 2006 to 2012. She obtained her psychiatrist license at TSMU in 2017 and further enriched her professional development through self-experience and self-reflection training in Cognitive Behavioral Therapy (CBT) in 2018. In 2019, Vanda was granted a medical license to practice in Germany. Her clinical experience includes internships in psychiatry, psychotherapy, psychosomatics, and neurology at HG Klinik in Merzig, Germany. She currently works as a forensic psychiatrist at the Levan Samkharauli National Forensics Bureau.

Risk Assessment in Forensic Psychiatry:

In this authoritative keynote session, Dr. Vanda Chanturidze delved into the highly specialized field of forensic psychiatry, focusing on the science and ethics of risk assessment within judicial and correctional frameworks. The presentation illuminated the delicate balance that forensic psychiatrists must maintain: providing objective mental health evaluations while also fulfilling the legal system's need for reliable, evidence-based risk predictions.

The role of the forensic psychiatrist, as outlined by Dr. Chanturidze, extends beyond clinical psychiatry into the intersection of law, mental health, and public safety. These professionals are tasked with conducting structured psychiatric evaluations at the request of legal authorities—most often courts, prosecutors, or attorneys—within both criminal and civil proceedings. Whether assessing competency to stand trial, criminal responsibility, risk of reoffending, or the need for compulsory treatment, the forensic psychiatrist must offer informed opinions that are both legally sound and psychiatrically valid.

A central aspect of the presentation was the breakdown of the forensic psychiatric examination process. These evaluations include a review of the patient's current mental status, the formulation of a psychiatric diagnosis following international diagnostic standards such as the DSM-5 and ICD-10/11, and the delivery of formal forensic conclusions relevant to the legal question at hand. These assessments may lead to outcomes such as psychiatric supervision, mandatory treatment orders, or detention in specialized facilities when the risk of harm to self or others is deemed significant.

Dr. Chanturidze emphasized the necessity of using structured tools and validated instruments in the assessment of risk. Among the most commonly employed tools are:

- HCR-20 (Historical Clinical Risk Management-20), which evaluates an individual's historical risk factors, clinical presentation, and risk management needs. This tool offers a semi-structured framework for assessing the potential for future violence, incorporating both static and dynamic elements.

- PCL-R (Psychopathy Checklist – Revised), often used to measure psychopathic traits, especially manipulativeness, impulsivity, and emotional detachment—factors highly correlated with recidivism and violent offenses.

- START (Short-Term Assessment of Risk and Treatability), notable for incorporating protective factors alongside risk indicators. This approach offers a balanced and dynamic view of the individual's potential for change and the environments in which risk may increase or decrease.

Data collection for these assessments is comprehensive and multisource. It involves:

- Reviewing criminal records to identify past offenses, patterns of behavior, and potential triggers.

- Evaluating medical and psychiatric records from prior hospitalizations or treatment programs.

- Interviewing the subject and analyzing personal history, including educational, occupational, and family background.

- Accessing digital footprints, such as communications, search histories, or social media activity, when relevant and legally permissible.

The assessment of risk levels is not binary but stratified based on three dimensions: likelihood, imminence, and severity of potential harm. Dr. Chanturidze explained how professionals must contextualize these levels—ranging from low to critical or imminent risk—according to the specific legal and situational context. For example, a person with passive suicidal ideation and no plan may be classified as low or moderate risk, whereas an individual with a violent history, acute psychosis, and active threats might be deemed high or critical risk, requiring immediate containment and treatment.

A vital distinction was made between static risk factors—unchangeable elements such as prior convictions or early trauma—and dynamic risk factors, including acute symptoms of psychosis, substance use, and recent stressors. The forensic psychiatrist must be attuned to both, particularly dynamic factors, as they are more amenable to treatment and may shift significantly over time.

A particularly engaging portion of the keynote focused on the communication of risk to legal authorities. Dr. Chanturidze stressed that forensic reports must be clear, precise, and legally actionable. Risk levels must be explicitly stated, with attention to how they relate to specific legal standards such as fitness to stand trial, criminal responsibility, or dangerousness to society. Moreover, ethical principles must be embedded throughout the process, ensuring that assessments are conducted without bias, respect the rights of the individual, and acknowledge the fluidity of psychiatric states.

Dr. Chanturidze also tackled the question of ethics in compulsory treatment, reminding the audience that while protecting society is paramount, individuals must not be denied autonomy or due process. The principle of least restrictive intervention guides many forensic psychiatric decisions, balancing risk management with human rights.

In her closing remarks, Dr. Chanturidze reiterated that evaluating the potential for future violence or harm is one of the most consequential responsibilities in forensic psychiatry. The results of such evaluations can influence whether an individual is incarcerated, placed in a forensic psychiatric unit, granted conditional release, or ordered to undergo mandatory treatment. Therefore, the quality and integrity of these assessments are critical—not just for the legal outcome, but for the ethical administration of justice and the safeguarding of mental health rights.

This session reinforced the role of forensic psychiatry as a bridge between clinical understanding and legal accountability, where accurate risk assessment can lead to more nuanced legal decisions, better outcomes for individuals with mental illness, and safer communities overall.

DR. LIKA KHORBALADZE

About The Presenter:

Dr. Lika Khorbaladze is a distinguished neurosurgeon with a strong focus on pediatric and neonatal neurosurgery. She currently serves at M. Iashvili Children's Central Hospital, where she provides advanced neurosurgical care to young patients. Dr. Khorbaladze is also a major consultant in neonatal neurosurgery at O. Ghudushauri National Medical Center, bringing her expertise to some of the most critical and delicate cases in early childhood care. Academically, she holds the position of Associate Professor at Ken Walker International University, where she plays a key role in training the next generation of medical professionals. Additionally, she is an invited lecturer at multiple Georgian universities, actively involved in medical education and curriculum development. Beyond her clinical and academic responsibilities, Dr. Khorbaladze contributes to the advancement of neurosurgery in Georgia as the General Secretary of the Georgian Society of Neurological Surgeons, fostering collaboration and knowledge-sharing among professionals in the field.

Where Psychiatry Meets Neurosurgery:

Dr. Lika Khorbaladze delivered a compelling keynote address on the emerging intersection between psychiatry and neurosurgery, a domain where clinical insight, legal nuance, and ethical complexity converge. Her talk underscored the necessity of an interdisciplinary framework for addressing the increasingly blurred boundaries between mental health disorders and neurological conditions, particularly within the forensic context. As psychiatry deepens its ties with neuroscience and neurosurgery evolves beyond structural intervention into functional modulation, a new collaborative frontier is taking shape—one where justice and medicine meet through shared evidence, expertise, and empathy.

Dr. Khorbaladze began by exploring neurological conditions that often have profound psychiatric manifestations. Traumatic Brain Injury (TBI) was highlighted as a key example, with numerous studies confirming that head trauma can lead to anxiety, depression, bipolar symptoms, psychosis, aggression, impulsivity, and significant personality changes. From a forensic standpoint, these consequences carry profound implications. A defendant with a history of TBI may exhibit diminished capacity, impaired judgment, or behavior that deviates from pre-injury baselines—all of which complicate legal evaluations of culpability, mens rea, and fitness to stand trial. Similarly, brain tumors, particularly those located in the frontal or temporal lobes, were shown to disrupt executive functioning, emotion regulation, and impulse control. These patients may not only suffer behavioral disturbances but also face challenges in navigating legal processes, especially if their conditions are undiagnosed or misattributed to psychiatric illness alone.

Epilepsy was presented as another condition straddling the neurological-psychiatric divide. Beyond its hallmark seizures, epilepsy—especially temporal lobe epilepsy—is frequently associated with psychiatric comorbidities such as psychosis, depression, or episodic aggression. The forensic dimension arises when seizure-related behaviors intersect with criminal events. Determining whether a violent or unlawful act occurred during a seizure, in a postictal state, or was entirely unrelated, requires careful clinical investigation and legal interpretation. Dr. Khorbaladze emphasized that forensic psychiatry must not only account for the existence of a disorder but also its influence on consciousness, intent, and behavioral control at the time of the offense.

Transitioning to psychiatric conditions with established neurological roots, Dr. Khorbaladze discussed schizophrenia, psychosis, Alzheimer's disease, and other dementias. These disorders, while traditionally managed within psychiatry, are increasingly understood through the lens of neurobiology and structural brain pathology. For instance, schizophrenia has been linked to abnormalities in dopamine pathways, cortical thinning, and disrupted connectivity. From a forensic standpoint, such conditions raise questions of legal responsibility, especially when delusions or hallucinations contribute to criminal behavior. Alzheimer's and other dementias, on the other hand, complicate cases of testamentary capacity, guardianship, and consent—requiring forensic experts to evaluate the degree to which cognitive impairment affects decision-making.

A significant portion of the talk was dedicated to the growing role of neurosurgical intervention in psychiatric care. Dr. Khorbaladze detailed the evolution and ethical journey of psychosurgery, beginning with the now-condemned practice of prefrontal lobotomy. Once championed as a cure for mental illness, lobotomies were later abandoned due to their crude execution and irreversible side effects. Yet their forensic legacy lingers, particularly in cases where individuals underwent the procedure prior to criminal acts, prompting courts to question their culpability. She then introduced modern neurosurgical techniques such as Deep Brain Stimulation (DBS), which involves implanting electrodes in specific brain regions like the subthalamic nucleus, globus pallidus, or ventral capsule. Originally developed for movement disorders, DBS has found new ground in treating severe depression, obsessive-compulsive disorder, and aggression—conditions often resistant to conventional psychiatric treatment.

Dr. Khorbaladze emphasized the forensic implications of such interventions. Legal systems must grapple with whether patients undergoing DBS are capable of informed consent, how such procedures might alter behavior and judgment, and what responsibility, if any, lies with the clinicians in cases of post-operative harm. Ethical review boards now routinely consult forensic psychiatrists to assess mental competency both before and after neurosurgical procedures, highlighting the need for continuous interdisciplinary dialogue.

The collaboration between forensic medicine and neurosurgery also extends to autopsies and criminal investigations. Neuroimaging technologies such as CT and MRI scans play a dual role—diagnosing neurological conditions in living patients and uncovering causes of death in postmortem analyses. In cases involving gunshot wounds, blunt trauma, or shaken baby syndrome, neurosurgical knowledge assists forensic experts in reconstructing the mechanism, severity, and timeline of injury. Evidence such as burr holes, craniotomy scars, or intracranial hemorrhages may hold the key to understanding intent, survivability, and sequence of events. Dr. Khorbaladze presented examples where interdisciplinary collaboration led to breakthroughs in difficult legal cases—underscoring how the scalpel and the gavel must sometimes work hand in hand to deliver justice

A further dimension of neurosurgical contribution comes through expert witness testimony. Neurosurgeons, with their deep understanding of brain physiology, are often called upon to explain to courts whether a patient's injury was survivable, what kind of medical interventions were applied, and how likely those interventions were to influence the outcome. In many trials, such testimony can determine sentencing, verdicts, or eligibility for specific legal protections. As such, Dr. Khorbaladze urged neurosurgeons to receive foundational training in legal communication and ethics.

The keynote concluded with a discussion on Georgia's legislative stance on brain imaging in legal contexts. Under new national guidelines, neuroimaging is permitted for judicial review only under strict medical or forensic justification. Dr. Khorbaladze commended this development while noting the continued need for legal reforms that better integrate clinical realities. She answered questions from the audience on post-operative psychiatric care, the legal concept of Mens rea, and the treatment of aggression following DBS. She stressed that psychiatry alone cannot address the full spectrum of post-surgical behavioral symptoms, and collaboration with psychological and legal teams is essential for recovery and reintegration.

In her closing statement, Dr. Khorbaladze delivered a powerful message: "True justice demands a partnership between the scalpel and the gavel—a blend of scientific insight and legal scrutiny." Her presentation not only spotlighted the potential of interdisciplinary collaboration but also challenged the audience to break down the silos separating law, medicine, and ethics. As the frontiers of psychiatry and neurosurgery continue to converge, this integrative approach offers a path toward more compassionate, accurate, and legally sound responses to complex mental health challenges.

DR. SOPIKO GIGOLASHVILI

About The Presenter:

Dr. Sopiko Gigolashvili is a practicing Forensic Doctor at the Levan Samkharauli National Forensics Bureau, where she brings clinical precision and investigative rigor to the intersection of medicine and law. A graduate of the American MD Program at Tbilisi State Medical University (2013–2019), Dr. Gigolashvili further specialized in Forensic Medicine through a residency at the same institution, completing her qualification in 2023. Her expertise spans forensic pathology, parasitology, microbiology, and neuroanatomy, all of which she imparts as an invited lecturer at several leading Georgian institutions including Caucasus University, Caucasus International University, Batumi State University, and Tbilisi State Medical University. Beyond academia, she has contributed to educational development as a program specialist in the American MD Program and is active in continuing medical education, having earned certifications such as the AMEE Specialist Certificate and the ESMEA Certificate in Medical Education. Dr. Gigolashvili is a frequent participant in national forensic science conferences and maintains a strong focus on forensic autopsy work, making her a key voice in the contemporary forensic medicine landscape of Georgia.

Autopsy – When Hidden Becomes Evident:

Autopsies, often seen as the final investigative step in a person's life, are in fact one of the most essential components in the pursuit of medical, legal, and ethical truth. In her detailed and captivating session, Dr. Sopiko Gigolashvili reasserts the fundamental importance of postmortem examinations within the framework of forensic medicine. Her presentation titled “When Hidden Becomes Evident” bridges the gap between death and justice, between silent bodies and the voices they still carry.

From the outset, Dr. Gigolashvili establishes the autopsy not as a mere medical procedure but as a form of scientific storytelling. It is the meticulous unraveling of what the body cannot express in life or what has been silenced through violence, trauma, or mystery.

The autopsy becomes a lens through which forensic specialists interpret the end of life—not just biologically, but contextually, legally, and ethically. It is, as she asserts, the final diagnostic opportunity and often the most honest one.

She then systematically delineates the types of autopsies:

- Clinical (hospital) autopsies, conducted to understand disease progression and treatment outcomes;
- Academic autopsies, used for medical education and research; and
- Forensic autopsies, which are legally mandated and concerned with deaths that are sudden, violent, suspicious, or occur in custody.

Dr. Gigolashvili's primary focus is on forensic autopsies, which play a central role in criminal investigations, civil litigation, and public health surveillance. These procedures are often initiated not by families or doctors, but by prosecutors, judges, or police authorities. The forensic pathologist's task is to determine the cause, manner, and mechanism of death—terms with distinct legal and medical meanings. The cause is the specific injury or disease, the manner refers to the circumstances (e.g., homicide, accident, suicide), and the mechanism describes the physiological process leading to death (e.g., exsanguination, asphyxia).

Her presentation provides a comprehensive overview of the autopsy process. It begins with the external examination, where the body is assessed for visible injuries, rigor mortis, lividity, and any distinguishing marks. Tattoos, scars, defensive wounds, and signs of restraint may all hold forensic value. The internal examination follows, involving the careful dissection of cranial, thoracic, and abdominal cavities. Organs are removed, weighed, and examined for abnormalities. Tissue samples are collected for histology, and blood, urine, or stomach contents may be analyzed in toxicology. Each step is driven by scientific rigor and legal precision.

Dr. Gigolashvili highlights several case studies where autopsies altered the direction of investigations. In one instance, a death initially presumed to be of natural origin was revealed—upon discovery of petechial hemorrhages and neck tissue bruising—to be a case of manual strangulation. In another, the presence of soot in airways contradicted claims that the victim had died prior to a fire, revealing instead a homicidal act masked as an accident. These cases underscore how autopsies can challenge surface assumptions and expose hidden truths that no other investigative method can reach.

She also discusses the integration of modern imaging techniques like postmortem CT scans, MRIs, and the emerging field of virtopsy. These non-invasive or minimally invasive alternatives are particularly useful in cultures or religions where traditional autopsy is restricted. While promising, she maintains that they cannot yet replace full autopsy dissection in terms of depth and diagnostic accuracy. Nevertheless, such tools have enhanced the practice, offering supplementary perspectives and facilitating better documentation.

The lecture then delves into the ethical considerations surrounding autopsies. Consent, confidentiality, cultural sensitivity, and respect for the dead are all critical. In clinical settings, informed consent is typically obtained from the next of kin. However, in forensic cases, legal obligation can override familial objection. Dr. Gigolashvili makes clear that ethical conduct in autopsy work is not optional—it is foundational. The dignity of the deceased must be preserved, even as their bodies are examined to serve justice.

A poignant part of her presentation addresses the global decline in autopsy rates, especially in hospitals. This decline is attributed to factors such as cultural taboos, perceived lack of necessity, fear of litigation, and cost concerns. Yet the consequences are grave: misdiagnoses go unchecked, hospital quality assessments suffer, and public health insights are lost. Dr. Gigolashvili advocates for re-integrating autopsies into standard medical training and public discourse. She calls upon policymakers, educators, and practitioners to restore the autopsy's rightful place as a cornerstone of postmortem investigation.

Towards the end of the session, she touches upon the interdisciplinary collaboration essential to forensic autopsy work. Coordination with crime scene investigators, toxicologists, radiologists, and legal professionals ensures that findings are understood within broader investigative and societal contexts. Autopsy reports often serve as crucial legal documents that withstand courtroom scrutiny and help deliver closure to families.

Dr. Gigolashvili's presentation closes with a philosophical and deeply human reflection: the dead may no longer speak, but through the hands and minds of trained forensic doctors, their truths can still be heard. Autopsies offer not only clarity but dignity—they allow justice to breathe and accountability to rise from the silence of death.

In her words, "When hidden becomes evident, the world is a little less blind, and a little more just."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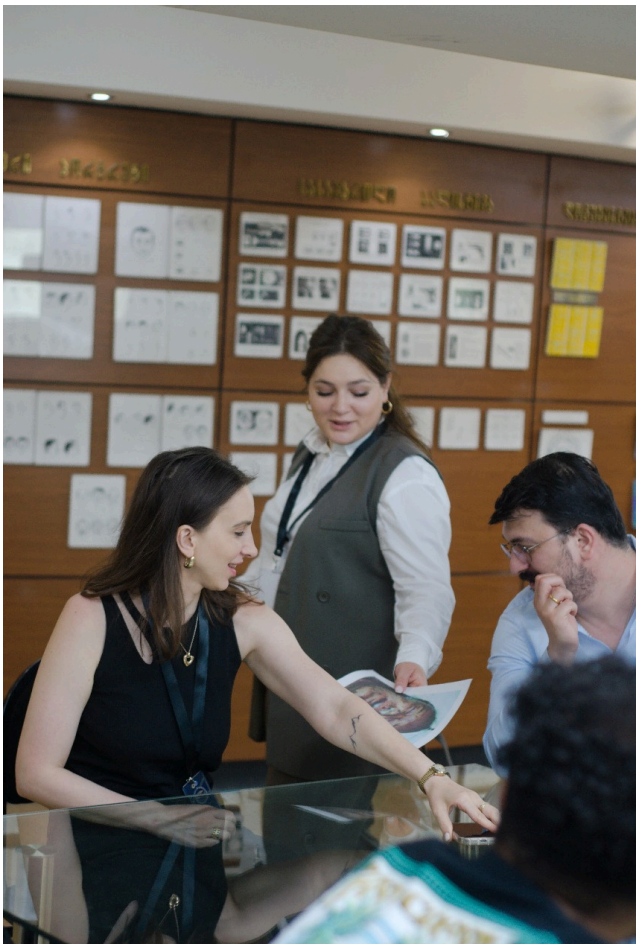

DR. MADONA AKHOBADZE

About The Presenter:

Dr. Madona Akhobadze is the youngest board-certified female neurosurgeon in Georgia and a rising figure in global neurosurgical education. She serves as one of the international moderators for Izmir Online Neurosurgery, a prominent educational platform that connects neurosurgical professionals worldwide. A graduate of Tbilisi State Medical University, Dr. Akhobadze earned her Medical Doctor (MD) degree with distinction in 2016, followed by the successful completion of a rigorous Residency Training Program in Neurosurgery (2017–2023). She made history as the first Georgian woman to receive advanced spinal neurosurgery training through the European Association of Neurological Surgery (EANS, 2024) in Prague, Czech Republic.

Currently, she practices as a neurosurgeon across four major Georgian hospitals, including the Georgian-Dutch Hospital, Iashvili Central Children's Hospital, Aladashvili Clinic, and Mtskheta St. King Mirian and St. Queen Nana Hospital, where she manages a diverse caseload of pediatric and adult neurosurgical conditions. An invited lecturer at New Vision University since 2019 and an assistant professor in neurosciences since 2022, Dr. Akhobadze is deeply committed to academic excellence. She is also pursuing a dual PhD in Neurosurgery and Educational Sciences, reflecting her interdisciplinary vision that bridges cutting-edge clinical expertise with modern medical education. Her international training experiences—spanning France, Czech Republic, Turkey, UAE, and Romania—further underscore her dedication to professional growth. Driven by a strong passion for mentorship and teaching, Dr. Akhobadze continues to inspire the next generation of neurosurgeons and healthcare professionals in Georgia and beyond.

CranioPsyche: Transcranial Interventions in Psychiatry:

The Neurosurgery Workshop at Project STYX 2025, titled “CranioPsyche: Transcranial Interventions in Psychiatry,” served as an exceptional platform for introducing students and early-career professionals to the intersection of neurosurgery and mental health.

Led by Dr. Madona Akhobadze, a leading neurosurgeon with expertise in functional brain procedures, this session combined historical insight, technological innovation, and hands-on surgical simulation. It highlighted not only the clinical evolution of psychosurgical approaches but also the ethical and neurobiological considerations shaping modern neuromodulation therapies.

Historical Overview: From Crude Tools to Neuroethics

The lecture commenced with a reflective examination of the origins of psychosurgery, tracing its roots to the 1930s when Antonio Egas Moniz introduced the prefrontal leucotomy, a technique that would earn him the Nobel Prize but later become one of the most ethically contested interventions in medical history. Dr. Akhobadze detailed how Freeman and Watts expanded on this method through the development of the transorbital lobotomy in the United States, utilizing crude instruments such as the orbitoclast, leucotome, and manual hand drills. These procedures were performed with limited anatomical precision and often resulted in devastating personality changes, cognitive impairment, and loss of autonomy.

While originally hailed as breakthroughs for intractable psychiatric illness, early psychosurgical interventions eventually fell out of favor due to their irreversible side effects, the rise of psychopharmacology, and increasing concerns over informed consent and abuse, especially in vulnerable populations. Dr. Akhobadze emphasized that this chapter of history serves as a reminder of the importance of ethical vigilance and scientific humility in neurosurgical innovation.

Transition to Functional Neurosurgery and Neuromodulation

With remarkable clarity and depth, the session transitioned to modern-day functional neurosurgery, a field that emerged in response to the limitations of early psychosurgery. Dr. Akhobadze walked the audience through the evolution of stereotactic neurosurgery, which enabled three-dimensional precision targeting of brain structures using radiographic imaging and Cartesian coordinates.

She outlined several cutting-edge techniques now shaping neuropsychiatric care:

- Deep Brain Stimulation (DBS), FDA-approved for Parkinson's disease, Essential Tremor, and Obsessive-Compulsive Disorder (OCD), involves the surgical implantation of electrodes that deliver electrical impulses to targeted brain regions.

- Gamma Knife Radiosurgery, a non-invasive modality that uses multiple beams of gamma radiation to focus on intracranial lesions, allows for treatment of deep-seated targets without a single incision.

- Frameless stereotaxy, robot-assisted electrode placement, and intraoperative neuro-navigation systems represent key technological advancements, reducing surgical time and improving accuracy.

The anatomical targets for DBS in psychiatric conditions were discussed in detail, including the subcallosal cingulate (used in treatment-resistant depression), nucleus accumbens, and the ventral capsule/ventral striatum. Dr. Akhobadze shared intraoperative footage and high-resolution imaging to walk students through the surgical steps of trajectory planning, electrode placement, and pulse generator implantation, offering them a rare inside view of the procedure.

The conversation concluded with a robust discussion on patient selection, ethical consent protocols, and the neuroplastic implications of neuromodulation. Dr. Akhobadze stressed that while the therapeutic potential of DBS is profound, it must always be guided by individualized care, interdisciplinary collaboration, and rigorous ethical oversight.

Practical Demonstration: Ventriculostomy and DBS Electrode Simulation

Following the theoretical session, students participated in a live surgical simulation, designed to replicate key neurosurgical procedures using 3D-printed anatomical brain models and synthetic tissue environments. Under Dr. Akhobadze's supervision, two primary procedures were demonstrated:

- Ventriculostomy, a lifesaving technique for relieving elevated intracranial pressure, involved locating Kocher's point, navigating through the frontal cortex, and entering the lateral ventricles for simulated cerebrospinal fluid (CSF) drainage. Students practiced aligning tools to real-world anatomical landmarks and manipulating neurosurgical instruments in a safe and controlled setting.

- DBS Electrode Placement was introduced with an emphasis on microelectrode recording, millimeter-level precision, and trajectory planning to avoid critical brain structures. Participants explored stereotactic frame calibration and were taught how to adjust for imaging artifacts and intraoperative brain shift.

Throughout the demonstration, attention was drawn to postoperative imaging correlation, the role of real-time feedback, and the engineering behind closed-loop stimulation systems. The goal was not only technical familiarity but also the cultivation of spatial reasoning and procedural confidence.

Neurosurgical Skills Lab: Suturing and Knot-Tying

The workshop culminated in a skills lab focused on surgical technique, particularly wound closure and vascular control, which are foundational in any neurosurgical practice. Using synthetic skin pads and foam models, participants practiced:

- Suturing methods, including simple interrupted, continuous, vertical and horizontal mattress, interlocking, and the figure-of-eight suture, which is especially useful in dura repair and vascular tie-off.

- Knot-tying techniques, ranging from double-handed and single-handed throws to distinguishing between a square knot and a surgeon's knot. Emphasis was placed on achieving tension balance, minimizing tissue trauma, and maintaining aseptic control.

Faculty rotated among stations offering direct feedback on needle handling, instrument use, and ergonomic positioning, giving students a close approximation of the operating room environment. This session not only built fine motor skills but also reinforced surgical discipline, focus, and stamina.

Engagement, Reflection, and Impact

The interactive format of the workshop encouraged peer learning, team-based collaboration, and clinical reasoning, aligning with the broader educational mission of Project STYX. Attendees engaged in each station with enthusiasm, often assisting one another and asking high-level questions regarding surgical risk, anatomical variance, and future innovations.

Students consistently rated the session as one of the most intellectually stimulating and technically enriching parts of the conference. Many expressed a newfound or strengthened interest in pursuing careers in neurosurgery, functional brain science, or neuropsychiatry.

Conclusion

CranioPsyche: Transcranial Interventions in Psychiatry offered more than a glimpse into the future of neuropsychiatric care—it provided an immersive and transformative educational experience. By blending historical insight with current techniques and future possibilities, the workshop showcased how neurosurgery is evolving from its controversial past into a highly precise, ethical, and evidence-driven field.

Dr. Madona Akhobadze's leadership and teaching not only conveyed the technical art of neurosurgery but also its philosophical and ethical responsibility—reminding us that at the heart of every intervention lies the singular goal of healing the mind without harming the self. In doing so, the workshop fulfilled its mission of inspiring, educating, and empowering the next generation of brain and behavioral specialists.

DR. ZURAB TABESHADZE

About The presenter:

Dr. Zurab Tabeshadze is a dedicated medical doctor and educator committed to delivering excellence in clinical practice and academic instruction. A graduate of Tbilisi State Medical University (2016–2022), Dr. Tabeshadze is currently specializing in Radiology at The First University Clinic, where he continues to expand his expertise in diagnostic medicine. His academic pursuits are complemented by his dynamic role as an invited lecturer in multiple leading Georgian universities, including European University, East-West University, Tbilisi Medical Academy, and Georgian-American University, where he teaches anatomy, radiology, professional development, and patient safety.

Dr. Tabeshadze brings a unique combination of strategic leadership, adaptability, and cross-functional collaboration, which he developed through his clinical training and teaching roles. Outside academia, he is the creator and administrator of the educational platform Medic(Z)ine, a widely followed Facebook page dedicated to sharing medical insights, health tips, and global healthcare news. His international perspective has been enriched through participation in youth exchange programs in the UK and Germany, and he has been recognized with several honors including the Headmaster's Award from Buckswood International School of Hastings and a Youthpass Certificate for intercultural exchange.

He has further honed his academic skills by participating in high-impact conferences and training sessions such as "Modern Teaching Methods in Higher Education", "Artificial Intelligence in Higher Education", and "Evaluation in Medical Education: How to Create Standard MCQs". Through his multifaceted roles in education, clinical medicine, and digital outreach, Dr. Tabeshadze continues to foster a culture of innovation, evidence-based learning, and compassionate care in the Georgian medical landscape.

Medical Crimes Towards Humanity:

Dr. Zurab Tabeshadze's powerful keynote address served as a sobering reminder of the dark legacy of medicine when divorced from ethics. Centered on the theme of "Medical Crimes Towards Humanity," the presentation traced how historically, the abuse of medical knowledge and authority has led to egregious violations of human rights under the guise of scientific advancement. At its core, medical ethics is meant to ensure responsibility, accountability, and morally sound action. Dr. Tabeshadze emphasized that without adherence to core ethical principles—such as respect for autonomy, non-maleficence, beneficence, justice, and informed consent—medicine risks becoming a tool of harm rather than healing.

The lecture opened with a reflection on the foundational frameworks of bioethics and research ethics. Bioethics, he explained, is a subfield of ethics concerned with the moral implications of advances in biology and medicine, especially in clinical and research settings. Research ethics, in turn, guides the conduct of scientific investigations, ensuring that participants' rights, dignity, and safety are prioritized. Dr. Tabeshadze outlined the core ethical principles as enshrined in modern codes of conduct, including autonomy (the right of individuals to make informed decisions about their care), non-maleficence ("do no harm"), beneficence (promoting the welfare of others), justice (fairness in treatment and resource allocation), integrity, accountability, and credibility in scientific practice.

A considerable portion of the talk focused on historical case studies that exemplify ethical failure. The Tuskegee Syphilis Study, conducted between 1932 and 1972 in the United States, was cited as a notorious example of racialized medical exploitation. In this study, African-American men with syphilis were deliberately left untreated, even after penicillin became available, so researchers could observe the disease's progression. The study involved deception, withheld information, and denied treatment, violating the principles of honesty, justice, autonomy, and non-maleficence. Participants suffered physical harm, psychological trauma, and death—all without proper consent.

The Willowbrook Hepatitis Study was another egregious breach of ethical norms. Children with intellectual disabilities at the Willowbrook State School in New York were intentionally infected with hepatitis to study the disease. The participants' autonomy was severely restricted, and their consent was often coerced or obtained under misleading circumstances. The study disregarded the vulnerable status of these children, prioritizing data collection over human dignity.

Dr. Tabeshadze expanded on further atrocities committed in the name of science, notably during wartime. He described Japan's secret biowarfare program during World War II, specifically Unit 731, which conducted lethal experiments on prisoners of war, including vivisections without anesthesia, organ removal from conscious victims, and surgical procedures on pregnant women. Similar practices were noted in the Soviet Union, where allegations of non-consensual medical procedures on political dissidents and prisoners paralleled the horrors of Unit 731. China also experienced unethical human experimentation during the Sino-Japanese War, underscoring that the abuse of medical power has not been limited by geography.

The dark history of psychosurgery, particularly the widespread use of lobotomy, was another focal point. Dr. Tabeshadze traced the trajectory of this now-discredited procedure, in which the prefrontal cortex was severed in an attempt to control aggressive or nonconforming behavior. Often performed without true informed consent and targeting marginalized populations—including women, the elderly, and individuals labeled as "socially deviant"—lobotomies became a symbol of ethical failure. The ethical decline of lobotomy was due in large part to the violation of autonomy, breaches of the principle of non-maleficence, and the exploitation of vulnerable groups.

The lecture also highlighted the pseudoscientific ideology of eugenics, which sought to "improve" the human gene pool through selective breeding and sterilization. Under this movement, many were forcibly sterilized, denied marriage, or subjected to inhumane procedures. The most extreme form of eugenics was implemented by Nazi Germany, which conducted genocidal medical experiments in concentration camps. Dr. Tabeshadze detailed experiments such as the freezing trials at Dachau, aimed at developing cold survival tactics; blood coagulation tests; and sterilization and fertility experiments that were both non-consensual and grotesquely invasive. The infamous Josef Mengele—nicknamed the "Angel of Death"—was responsible for some of the most horrific experiments on twins, involving unconsented amputations, organ removals, and eye color manipulation. Mengele's obsession with racial purity and sadistic experimentation exemplified the complete abandonment of ethical medical conduct.

In a deeply moving segment, Dr. Tabeshadze honored the bravery of survivors like Jadwiga Dzido, who testified at the Nuremberg Trials against the atrocities committed in Ravensbrück concentration camp. Her courage helped bring global attention to the necessity of strict ethical standards in medicine and research. Dr. Tabeshadze explained that while unethical twin studies were once widespread, modern research involving twins is now conducted under rigorous ethical oversight, guided by the lessons learned from Auschwitz and other sites of horror.

In response to these atrocities, the global medical and legal communities created safeguards. The Nuremberg Code (1947), developed after the Doctors' Trial, laid the foundation for modern research ethics. It introduced critical principles such as voluntary informed consent, the right to withdraw from a study, risk minimization, and the requirement for scientifically valid methodology. Later, the Declaration of Helsinki (1964), issued by the World Medical Association, built upon these principles, adding guidelines for ethics committee review, protection of vulnerable populations, and transparency in research.

Dr. Tabeshadze concluded his talk with a powerful reflection on the purpose of medicine: to promote health, prevent and treat illness, alleviate suffering, and respect the dignity and autonomy of every patient. He stressed that the four pillars of medical ethics—non-maleficence, beneficence, justice, and autonomy—must be the foundation of every clinical and research decision. Without them, even the most sophisticated scientific endeavors risk becoming instruments of oppression and cruelty.

To engage the audience in a meaningful way, Dr. Tabeshadze concluded with an interactive session titled "Real or Fake," where participants were asked to differentiate between true historical medical atrocities and fictional accounts. The exercise was designed not only to test knowledge but also to deepen understanding of the importance of ethical vigilance. The keynote closed on a poignant note, reminding all present that the horrors of the past were not the result of ignorance, but of indifference and power misused. The responsibility of modern practitioners is not only to heal but to uphold the integrity of the medical profession, ensuring that such crimes are never repeated.

TAMTA KENIA

About The Presenter:

Tamta Kenia is a legal scholar and practitioner currently serving as Head of a Secondary Structural Unit at the Supreme Court of Georgia. With extensive experience in the judiciary, she has held prior positions at the High School of Justice, the Tbilisi Court of Appeals, and the Tbilisi City Court, focusing on judicial practice analysis, international relations, and legal consultancy.

Academically, Tamta is a PhD candidate in Civil Law at Sulkhan-Saba Orbeliani University, with advanced degrees from Université Savoie Mont Blanc and Mykolas Romeris University, as well as an LLB from Ivane Javakhishvili Tbilisi State University. She currently lectures on Medical Law, Civil Law, and Professional Development at Sulkhan-Saba Orbeliani University and Georgian-American University.

Her scholarly activities include publications on property rights and judicial powers, participation in numerous international conferences, and involvement in ERASMUS+ mobility programs. She has passed both the Judicial Qualification Exam and the Georgian Bar Association Legal Qualification Exam, highlighting her expertise in civil and administrative law. Fluent in English, with working knowledge of Russian and French, she is an active contributor to legal education and reform in Georgia.

Court Cases: Law & Medicine Intersection:

In a deeply engaging and multi-dimensional presentation, Dr. Tamta Kenia, an accomplished legal scholar with expertise in health law and human rights, shed light on how the European Court of Human Rights (ECHR) interprets and applies legal protections in cases involving medical ethics, patient rights, and state responsibility. Through a meticulous examination of landmark rulings, her keynote traced the evolving jurisprudence where law and medicine intersect.

At the core of her lecture was the clarification that the European Convention on Human Rights does not explicitly grant a "right to health." However, the Court has developed a robust body of case law interpreting Article 8—which ensures respect for private and family life—as covering issues related to physical and moral integrity in the provision of medical care. Article 8 thus functions both procedurally, by requiring states to investigate claims such as medical negligence, and substantively, by affirming an individual's right to bodily autonomy and informed healthcare decisions.

Dr. Kenia explored a vast range of health-related case topics litigated before the ECHR, from access to experimental treatments, confidentiality of medical records, compulsory vaccinations, forced medical procedures, and organ transplantation, to medical negligence, informed consent, and healthcare discrimination. She presented the landmark Hristozov and Others v. Bulgaria (2012) decision, where the Court ruled that denial of access to an unauthorized experimental cancer drug did not violate Article 8, citing the lack of legal consensus across Europe regarding unapproved medications. Similarly, in Durisotto v. Italy (2014), the Court upheld the state's refusal to authorize "Stamina" experimental therapy, noting the lack of scientific validation and emphasizing the importance of proportionality in public health policy.

One of the most powerful segments of her lecture focused on forced sterilization—a gross violation of human rights that has historically targeted vulnerable populations including women, people with disabilities, minorities, and institutionalized individuals. She discussed landmark cases such as V.C. v. Slovakia and I.G. and Others v. Slovakia, where the Court found clear violations of Articles 3 (prohibition of torture), 8 (private life), and 14 (non-discrimination). Dr. Kenia framed these cases as stark reminders that coercive medical practices are not relics of the past, but ongoing violations requiring urgent legal and ethical accountability.

The issue of blood transfusions and the rights of Jehovah's Witnesses introduced complex legal dilemmas. Dr. Kenia explained how courts balance religious freedom with the state's obligation to protect life and prevent inhuman treatment (Articles 2 and 3). She emphasized that while minors under 12 require parental consent, refusal based solely on religious grounds can be overridden when life is at stake. For adolescents aged 12–17, the mature minor doctrine may apply—as exemplified in the E.G. case in Illinois (1989)—but state interests can still prevail, as in the tragic Bethany Hughes case, where transfusions were authorized against the minor's will to save her life.

Regarding informed consent, Dr. Kenia stressed that modern courts demand a shift from medical paternalism to patient-centered dialogue. She dissected the Reyes Jimenez v. Spain (2022) case, in which the Court found a violation of Article 8 due to a lack of clarity about whether written informed consent had been obtained prior to a brain surgery on a minor. She also cited the influential UK ruling Montgomery v. Lanarkshire Health Board (2015), where the court rejected the traditional "Bolam test" and emphasized the doctor's duty to disclose material risks—even if rare—when they could significantly affect a patient's decision.

Dr. Kenia then examined vaccination policies in the context of legal rights. In Vavřička and Others v. Czech Republic (2021), the ECHR upheld mandatory childhood vaccination as compatible with Article 8, affirming that children's best interests take precedence. The Court recognized herd immunity and public health as legitimate aims justifying such state interference in private life.

She continued with a powerful discussion on medical negligence and liability, invoking Article 2 (Right to Life) as a positive obligation for states to protect patients' lives and to ensure judicial systems capable of assigning accountability. The Šilih v. Slovenia (2009) case illustrated how systemic failure to investigate a patient's death constituted a violation of this right. In G.N. and Others v. Italy (2009), she explained how the Court evaluated HIV and hepatitis infections following state-sponsored transfusions, though no violation was found due to a lack of knowledge at the time. However, in Mehmet Şentürk and Bekir Şentürk v. Turkey (2013), the Court concluded that blatant negligence and failure to provide emergency care led to a direct breach of the right to life.

Finally, she reviewed the Altuğ and Others v. Turkey (2015) decision, in which the death of a patient due to allergic shock after being given penicillin led to a violation of Article 2—not necessarily because of individual negligence, but because the legal and institutional frameworks failed to adequately safeguard patients' lives.

Dr. Kenia concluded her presentation by emphasizing that law must serve as both a protective shield and a corrective lens in the medical field. The intersection of law and medicine is not merely technical—it is ethical, social, and deeply human. Each court ruling echoes with the lived experiences of real people navigating vulnerability, illness, and the system's power. It is within these rulings that human dignity finds both its greatest tests and its strongest affirmations.

Panel Discussion:

About the Panelists:

1) Dr. Diana Verdzadze is a psychiatrist and academic based in Batumi, Georgia. She earned her MD from Tbilisi State Medical University in 2018, followed by a residency in psychiatry and is currently pursuing a PhD in Clinical and Translational Medicine. Additionally, she is training in child psychiatry at the Open-Heart Clinic. Dr. Verdzadze has held various clinical roles, including at the Tbilisi Mental Health Center, Adjara Psychiatric Hospital, and the Mental Health and Addiction Prevention Center. Since 2021, she has served as an assistant professor at Tbilisi State University and is currently an invited lecturer at BAU International University Batumi. Actively involved in education and public health, she has participated in multiple national conferences and interdisciplinary trainings. She speaks English and Russian, and is known for her commitment to advancing mental health care and medical education in Georgia.

2) Dr. Mariam Akhmeteli is a third-year resident in psychiatry at Tbilisi State University and affiliated with the Center for Mental Health and Addiction Prevention. She is concurrently engaged in theoretical and practical psychiatric training at the Guga Skhilkaridze Mental Health Center and participates in group supervision at the Philippe Paumelle Psychotherapy Center. Dr. Akhmeteli holds a medical degree from Tbilisi State University, with additional international experience through ERASMUS training in Poland and dissection coursework in the Netherlands. She currently practices at Saneamenta Hospital and Skhilkaridze's Day Clinic. She has contributed to several national medical conferences as both speaker and attendee, focusing on clinical pharmacology, rheumatic diseases, and personalized medicine. Multilingual in Georgian, English, and French, she brings an international perspective to psychiatric practice and education in Georgia.

3) Mariami Sordia is a psychologist, psychotherapist, and researcher based in Tbilisi, Georgia. Since 2019, she has worked at Guga Sikharulidze's Mental Health Center, where she provides psychological assessments, therapy, and evidence-based interventions for individuals experiencing a wide range of mental health challenges. She is skilled in cognitive-behavioral therapy, psycho-counseling, and group facilitation, with a strong foundation in conflict resolution and trauma-informed care. She holds a Bachelor's degree in Psychology from Tbilisi State University and a Master's in Mental Health and Psychotraumatology from Ilia State University. Currently, she is pursuing a Master of Science in Psychology at Lund University, Sweden. Her clinical practice is complemented by her ongoing research activities and academic contributions in the field of psychotherapy.

Differences in Psychiatry and Psychology Approaches to Mental Health:

The panel opened with a nuanced and thought-provoking dialogue around the foundational distinctions and overlaps between psychiatry and psychology in the assessment and treatment of mental health conditions. Moderated as a conversational roundtable, the discussion aimed to clarify professional roles while addressing common misconceptions about these two allied fields.

A central theme was the distinction between normal emotional suffering and clinically diagnosable mental illness. The panel emphasized that, while everyday distress is a part of the human condition, it is only when such experiences lead to functional impairment, marked distress, and persist over time, that they may qualify for a psychiatric diagnosis. Both psychiatry and psychology use structured diagnostic frameworks—particularly the DSM-5 and ICD-11—to establish consistent and evidence-based diagnoses. These manuals, though not without limitations, offer validated criteria that help clinicians avoid overpathologizing while maintaining clarity in diagnosis and treatment planning.

The panelists delved into sensitive diagnostic areas, such as grief versus clinical depression, where the challenge lies in distinguishing situational reactions from mood disorders. Dr. Verdzadze emphasized that symptom clustering, duration, and contextual understanding are vital in these cases. Audience members were reminded that grief is not inherently pathological, and clinical insight is required to avoid medicalizing healthy emotional processes.

When exploring personality disorders, including borderline and narcissistic personality disorders, the panel acknowledged that these conditions are often chronic and complex. However, with long-term psychotherapeutic approaches such as Dialectical Behavior Therapy (DBT) and Schema Therapy, individuals can develop improved interpersonal functioning, emotional regulation, and self-awareness. While full remission is rare, functional recovery is achievable, especially when treatment is sustained and supported by a therapeutic alliance.

One of the most human-centered segments of the discussion addressed the presence of mental illness among mental health professionals themselves. Mariam Akhmeteli shared thoughtful reflections on how clinicians with lived experience—when well-managed—can offer exceptional empathy and insight to their patients. Ethical concerns such as self-disclosure, professional boundaries, and clinical stability were explored with openness and professionalism. The panel affirmed that self-awareness and ongoing supervision are essential in ensuring that such professionals continue to deliver competent care.

The topic of early screening for psychiatric conditions in children prompted a discussion on the balance between early intervention and the risk of overdiagnosis. While early support is often critical, panelists cautioned against labeling children prematurely. Instead, the emphasis should be placed on creating supportive environments, monitoring development, and avoiding stigmatization.

Complex questions around psychopathy in children and childhood-onset schizophrenia were also tackled. Panelists noted that while early indicators such as callous-unemotional traits, lack of empathy, and impulsivity may raise red flags, the diagnosis of psychopathy in children remains controversial and must be approached with caution. Similarly, early-onset schizophrenia—though rare—requires expert differentiation from developmental or behavioral disorders. Language delays, unusual thought patterns, and social withdrawal are often early signs, but comprehensive evaluation is essential to avoid misdiagnosis.

A particularly fascinating portion of the discussion revolved around the gut-brain axis and its potential role in psychiatric illness, particularly schizophrenia. Dr. Sordia raised the hypothesis that autoimmune activity, inflammation, and microbiome alterations may influence psychiatric symptoms. Though research in this area is still in its infancy, the possibility that future treatments may include gut-targeted therapies signals a promising and holistic direction for psychiatry.

Another innovative topic was the application of light and dark therapy in managing bipolar disorder. Panelists explained how regulating circadian rhythms through controlled exposure to light and darkness affects the suprachiasmatic nucleus in the hypothalamus, leading to stabilized melatonin levels and improved mood regulation. As non-pharmacological tools gain traction, such therapies exemplify how neurobiological understanding is shaping modern psychiatric interventions.

Substance-induced psychosis was also explored. The panel outlined a comprehensive approach involving detoxification, antipsychotic medication, and psychoeducation. Outcomes vary based on the substance involved, duration of use, and baseline psychiatric vulnerability. Some individuals recover fully, while others experience persistent psychosis, requiring long-term management.

When discussing therapeutic modalities, panelists reaffirmed the clinical and neuroscientific foundations of Cognitive Behavioral Therapy (CBT), known to induce neuroplasticity and help rewire maladaptive thought patterns. Art Therapy was also highlighted for its capacity to bypass verbal defenses and access deeper emotional material, particularly in individuals who struggle with verbal expression. A brief grounding exercise using the 5-4-3-2-1 sensory technique was demonstrated for the audience, offering a tangible tool for anxiety reduction and self-regulation.

An overarching theme throughout the discussion was the rising prevalence of loneliness and its profound impact on mental health. Loneliness, the panel noted, is more than an emotional state—it disrupts neuroendocrine functioning, affects dopamine and cortisol levels, and weakens resilience. Framing loneliness as a public health issue resonated with many attendees, particularly in light of post-pandemic isolation and social fragmentation.

The panel also addressed a commonly posed yet deeply misunderstood question: “Is psychiatry a pseudoscience?” The response was swift and unified—psychiatry and psychology are empirical, evidence-based sciences, grounded in clinical trials, neuroscientific research, and decades of systematic study. While challenges in diagnosis and treatment exist, the notion that these disciplines are ineffective or unfounded stems from stigma and misinformation, not from the data.
Although time constraints prevented deeper dives into certain questions—such as the use of AI in mental health, elderly psychiatric care, and panelists' personal career journeys—these were acknowledged as important areas for future exploration in both research and conference programming.

The session closed on a deeply reflective note, with each panelist sharing personal insights into the humanistic responsibilities of mental health practice. They emphasized that psychiatry and psychology are not static sciences, but evolving disciplines that must continually respond to societal changes, scientific discoveries, and ethical imperatives. Above all, the panel called for a continued commitment to compassion, precision, and public education, recognizing that mental health care is not merely a clinical act, but a profoundly human endeavor.

Accepted Abstracts:

Project STYX 2025 emerges as a unique platform at the intersection of clinical psychiatry, forensic medicine, and law—fields often siloed but increasingly interdependent. This year's conference reflects a growing recognition that understanding the human mind, behavior, and responsibility requires dialogue across disciplines and borders.

The proceedings you have been exploring are more than a compilation of academic work—they represent the voices, questions, and insights of a new generation of thinkers and professionals. From keynote addresses delivered by pioneers in neuroscience and law, to case-based panels exploring human rights and medical ethics, each contribution invites reflection on where we have been—and where we must go.

In the accepted abstracts section that follows, students and early-career researchers bring forward bold questions, empirical findings, and novel perspectives. Their work not only enriches academic discourse, but also signals the future of interdisciplinary inquiry in psychiatry, medicine, and justice.

This volume stands as a testament to the commitment of our contributors, reviewers, and organizers. It is our hope that the ideas presented herein will continue to provoke discussion, inspire collaboration, and influence practice long after the final session concludes.

Project STYX 2025 Editorial Committee
Tbilisi, Georgia
June 2025

From Symptoms to Sentences: The Role of Psychiatric Screening in Predicting Crime:

Namariq Hashim; Eman Omer Elimam (Tbilisi State Medical University, Georgia).

Psychiatric evaluation of inmates shows a prevalence of psychiatric conditions among those incarcerated, raising questions about the value of early mental health screening in predicting crime. This review aims to assess the potential association between the presence of psychiatric illness and criminal behavior, along with the role of psychiatric screening in early detection and prevention. Additionally, it evaluates the effectiveness of risk assessment tools. A literature review was conducted using research databases including, yet not limited to, Scopus, PubMed, and NIH, and included primarily observational studies from 2000–2025. The data included adult and juvenile populations from multiple countries; all experimental studies were excluded. Antisocial personality disorder, bipolar disorder, conduct disorders, and ADHD were common among the prison population. A study from the Bureau of Justice showed that 56% of state prisoners, 45% of federal prisoners, and 64% of local jail inmates have mental health conditions such as mania, depression, and psychotic disorders, which suggests a link between psychiatric conditions and criminal involvement. Assessment tools such as Vanderbilt Assessment Scales, DSM-5 criteria-based questionnaires, PCL-R, and BVC can support both diagnosis and risk profiling; however, their predictive validity remains a question. Findings showed that psychiatric conditions are disproportionately prevalent among justice-involved groups, establishing a link between psychiatric vulnerability and criminal involvement. Existing literature differs on the basis of the quality of data and the criteria used for diagnosis, as well as findings from different jurisdictions. Proper and ethical usage of assessment methods as screening tools holds potential that requires validation, especially in forensic contexts like parole assessments or pretrial evaluations, and must consider both individual rights and society's safety.

Keywords: Psychiatric screening, criminal tendencies, psychosis, risk assessment, crime prevention.

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Cobenfy: An FDA-Approved Novel Treatment for Schizophrenia:

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Ivane Javakhishvili Tbilisi State University

Schizophrenia is a chronic psychiatric disorder characterized by positive, negative, and cognitive symptoms. According to APA guidelines, antipsychotic therapy is the treatment of choice (Ramey & Silva Almodóvar, 2025). The FDA approved a novel drug called Cobenfy in September 2024, which acts on the cholinergic receptors (Smith et al., 2025). In this review, we explore the role of xanomeline-trospium chloride (Cobenfy) in the management of schizophrenia, compare efficacies with current antipsychotic treatment, and understand adverse effects and discontinuation rates. A literature search was conducted across databases such as PubMed, ScienceDirect and Cochrane Library using keywords such as "Schizophrenia", "Cobenfy", "Xanomeline-Trospium", "Novel Antipsychotic", "Pharmacotherapy", "Psychiatric disorders". In clinical trials so far, Cobenfy had similar outcomes in terms of PANSS (average reduction of 9.6 and 8.4 points for PS and NS, respectively) when compared with traditional antipsychotics (aripiprazole, risperidone, and olanzapine) but has a much lower risk of neuromotor and sexual effects, and weight gain (Fabiano et al., 2024). It also showed an improvement in NS (such as blunted or flat affect) as per PANSS Marder Negative Factor Scores (Horan et al., 2024). Additionally, it has a potential benefit for patients with residual PS and those unresponsive to antipsychotic therapy (Fabiano et al., 2024). However, Cobenfy has the highest all-cause discontinuation rate compared to risperidone (RR: 0.64) and olanzapine (RR: 0.6). Mild to moderate GI (nausea, vomiting, dyspepsia) and rare anticholinergic (constipation, urinary retention, tachycardia) adverse effects occurred with low incidence (Kaul et al., 2025; Wright et al., 2024). It is associated with hepato-renal toxicity; however, its low sedation and cognitive burden may improve clinical and psychiatric assessments and reduce aggression, supporting ethical use in forensic settings without compromising autonomy (Hasan & Abid, 2024). Cobenfy represents a major development in the pharmacotherapy of schizophrenia. Although it has multiple risks, it offers advantages over conventional antipsychotics due to fewer antidopaminergic side effects. However, more RCTs are required to assess its safety and efficacy in the long term (Hasan & Abid, 2024).

Abbreviations:

- APA: American Psychological Association
- FDA: Food and Drug Administration
- PANNS: Positive and Negative Syndrome Scale
- PS: Positive Symptoms
- NS: Negative Symptoms
- RR: Relative Risk
- GI: Gastrointestinal
- RCT: Randomized Clinical Trial

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The Neuropsychological Pathway Linking Childhood Trauma to Criminal Behavior via Identity Disruption:

Pragati Pande
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Childhood adversities are known risk factors for adult criminal behavior. Such experiences often create identity crises by inducing structural changes in the brain and altering endocrine function. This abstract focuses on the association of childhood injury, identity disruption, and criminal intention from a biopsychosocial standpoint. Identity crisis increases vulnerability to substance abuse, aggression, and violence; behaviors which significantly increase the risk of criminal activity.

A literature review was conducted using Google Scholar and PubMed. Peer-reviewed studies establishing the relationships between child trauma, identity disruption, and subsequent offending were critically reviewed. Non-English papers, animal research, non-peer-reviewed sources, and papers not reporting on identity or criminal outcomes were excluded. Eventually five studies were synthesized in this review.

Studies have consistently shown that trauma alters the prefrontal cortex, amygdala, and hippocampus, key regions involved in decision-making, emotion, and memory. These changes affect executive function, emotional regulation, and create impulsivity. It also disrupts the limbic–hypothalamic–pituitary–adrenal (LHPA) axis, the body's core stress response system. This disruption, often marked by sustained cortisol elevation, weakens behavioral inhibition. In addition to the identity crisis, the complete absence of a cohesive identity emerges as a key mediator between trauma and criminality, reducing self-regulation and increasing the likelihood of unlawful actions.

This proposed model offers a focused pathway from trauma to crime via identity disruption. Future research should test this model using longitudinal and neuroimaging studies and develop biomarkers to assess identity-related risk. These findings have meaningful practical implications. Trauma and identity disruption screening tools could be integrated into schools, child protective services, and the justice system to allow early, targeted psychosocial interventions. Disrupted identity may be a valuable variable in risk assessment and rehabilitation planning in forensic contexts, guiding more personalized and effective interventions.

Keywords: childhood trauma, criminal behavior, identity disruption

Supplementary Material:

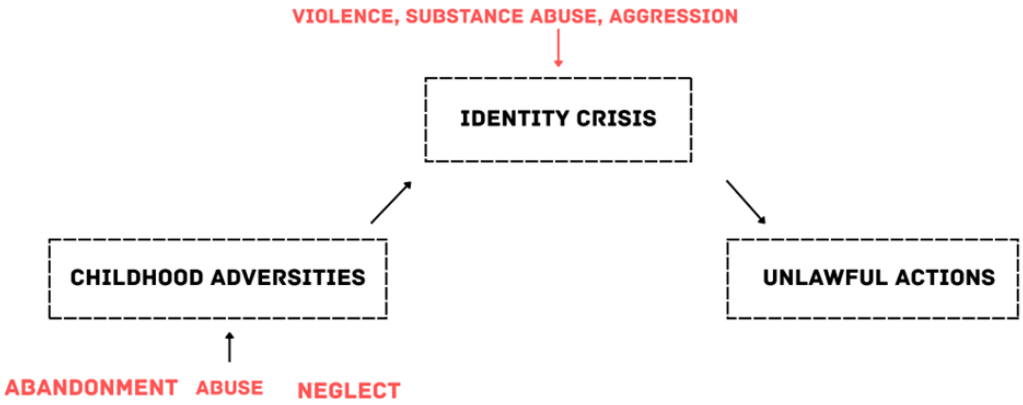

Fig.1: Model Demonstrating the mechanism of Criminal behavior

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The Amygdala on Trial: Ethical and Legal Ramifications of Using Neuroimaging to Predict Criminal Behavior:

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Neuroimaging research has become prominent for studying amygdala functions in psychopathy and aggression while generating discussions about the capabilities of brain scans to predict violent behavior. This research investigates the scientific, ethical, and legal implications of using amygdala-based neuroimaging to assess the potential for violent behavior in individuals with psychopathic traits. The use of neuroscience in legal proceedings generates ethical challenges regarding individual liberty, criminal accountability, and the admissibility of scientific evidence under standards such as Frye (general acceptance) and Daubert (scientific validity and reliability) (National Judicial College, 2020).

This narrative review involved a search of interdisciplinary literature on amygdala-based neuroimaging, psychopathy, and legal implications using databases like PubMed and Google Scholar. The study of conduct-disordered juvenile offenders shows that distinct amygdala subregions correlate with particular traits of psychopathy, such as impulsivity and emotional detachment (Aghajani et al., 2016). Recent findings suggest that aggressive behaviors can result from early-life neural patterns. This review integrates key research with neurocriminology literature to assess the advantages and limitations of using amygdala-based evidence in court proceedings. Although abnormalities in basolateral and centromedial nuclei have been associated with empathy deficits and emotional coldness, the reliability of these neural markers in predicting violent behavior remains contested (Deming, Heilicher, & Koenigs, 2022; Glenn & Raine, 2014).

The use of brain scans in legal contexts faces substantial challenges due to misinterpretation, overgeneralization, and neuroessentialist biases that may compromise justice and defendants' rights. While neuroimaging offers valuable insight into the neurobiological mechanisms underlying aggression, its use in predicting criminal behavior requires caution. Although imaging can reveal associations between brain function and violent tendencies, it is insufficient to establish actions or moral responsibility. Without established guidelines, the unregulated introduction of such evidence risks biological reductionism and discrimination. Achieving justice requires collaboration between neuroscientists, ethicists, and legal experts to connect scientific findings with legal frameworks that preserve fairness and due process.

Keywords: **Amygdala, Neuroimaging, Forensic Psychiatry, Legal Ethics, Neurocriminology**

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Neuroimaging and Serial Violence: A Literature Review of Predictive Neuroscience in Forensic Psychiatry:

George Palickathara Roy, Tbilisi State Medical University, Georgia
Faheema Tasnim, Tbilisi State Medical University, Georgia

Background:
Forensic psychiatry and neuroscience are still at the early stages of understanding the neurobiological causes of extreme violent behavior which is often seen in serial offenders. Neuroimaging tools provide information regarding structural and functional brain anomalies which may play a role in impaired impulse control, empathy, and moral reasoning in very persistent violent individuals.

Methods:
A comprehensive search was done in PubMed, Scopus, and Google Scholar which included peer reviewed articles from 2015 to 2025. Studies which reported on neuroimaging in adults that had committed serial or repetitive violent crimes was used. Selection was done with respect to relevance to the topic and clarity of the neuroimaging results. Five most relevant and appropriate studies were used for the review.

Results:
The studies reviewed have identified a pattern of hypofunction in the orbitofrontal cortex and abnormal activity in the amygdala of serial offenders. We also see reports of disrupted prefrontal-limbic function which in turn affects emotional regulation and executive control. Poeppl et al reported that there is less activity in orbitofrontal and amygdala areas in serial offenders (Poeppl et al., 2018). Meijers et al connected frontal lobe dysfunction with poor impulse control (Meijers et al., 2017). Choy et al noted that prefrontal neuro modulation reduced aggressive intent (Choy et al., 2018). Chini Hanganu-Opatz reported that early life stress changed cortical maturation which in turn increased violence vulnerability (Chini & Hanganu-Opatz, 2020). Ligthart et al brought up very large ethical issues which include risk of false positive results and mental privacy violations (Ligthart et al., 2020).

Conclusion:
Neuroimaging provides valuable insight into the neural basis of serial violence and may aid forensic risk assessment. However, predictive use must be approached with ethical caution. Future research should focus on validation of predictive models and establish clear legal safeguards for their application.

Keywords: **Neuroimaging, Forensic Psychiatry, Serial Killers, Criminal Neuroscience, Violence Prediction**

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Diagnosis of Neurocognitive disorders before criminal behavior and reduction of the risk of criminality: A narrative review:

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Psychological, neurobiological, genetic, and environmental influences are the factors that create criminal behavior. Neuroimaging has provided evidence that certain changes in the functional and structural integrity of the brain influences violent, aggressive tendencies, and recidivism. Frontotemporal dementia (FTD), Temporal lobe epilepsy (TLE), antisocial personality disorder (ASPD) and Lewy body Dementia (LBD) are all Neurocognitive disorders (NCD) that have been associated with significant increased risk of criminal activity. The objective of this review is to understand criminal behavior associated with NCDs to predict and reduce the risk of criminality and recidivism using multidisciplinary studies.

The review focuses on the findings of lesion mapping, longitudinal cohort study, fMRI, structural neuroimaging analyses in individuals with criminal behavior. This review includes data from Nationwide Finnish register, Swedish cohort study, from Helsinki and Turku University Hospital, childhood predictors of antisocial behavior, predictors of recidivism.

NCDs exhibit varying associations with criminal behavior. In a preceding diagnosis, individuals with AD demonstrated lower incidence of criminal behavior (2.8%) compared to FTD (7.2%). Studies revealed diagnosis of NCDs reduced criminality by 50%. Neuroimaging studies identified structural and functional brain alterations that correlate to criminal behavior, including reduced gray matter volume, functional connectivity deficits in resting-state networks, lesions in moral cognition networks, as well as abnormal cortical gyrification. Other static variables—such as trauma and epilepsy—are relevant clinical risk modifiers.

Early detection of brain abnormalities affecting everyday impulse control, decision-making, and aggression control enables interventions that reduce the risk of criminal behavior and recidivism. Upstanding-citizens showing signs of criminal behavior in later decades of life can be a symptom of developing NCDs. The increased understanding in early diagnosis can reduce the risk and burdens on both an individual and societal level.

Keywords: **Neurocognitive disorders, Criminality, Neuroimaging, Forensic Neuropsychiatry, Recidivism**

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Beyond the Match: Enhancing Suspect Identification Through Forensic DNA Phenotyping:

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Forensic DNA phenotyping (FDP) is a technique to predict externally visible characteristics (EVCs) such as eye, hair and skin color from DNA. This is especially useful when standard short tandem repeat (STR) profiling doesn't yield a match. Recent advances allow analysis of low-quality or degraded DNA using massively parallel sequencing (MPS) assays like HPS-MPS-MiSeq and HPS-MPS-ION. These assays were tested for performance under forensic conditions, accuracy, and inter-lab reproducibility.

Both assays target 41 single nucleotide polymorphisms (SNPs) associated with pigmentation traits. Testing involved UV-induced degradation, species specificity, and inter-lab concordance using different DNA inputs. Sequencing was done on Illumina MiSeq and Ion Torrent PGM systems; data was analyzed through the HPS-MPS pipeline. Genome-wide association studies and facial landmarking were used to strengthen trait prediction. HIrisPlex-S models allowed multiplex SNP analysis and phenotype prediction from as small as 50pg of DNA.

Validation included human and non-human samples, such as bones aged 1-78 years. HPS-MPS-ION had a 92% genotyping success rate and 61-100% inter-lab concordance for DNA inputs above 100pg, outperformed HPS-MPS-MiSeq (84% success; 12-85% concordance). HPS-MPS-MiSeq retained complete 41-SNP profiles with >2000 reads post-UV degradation. HIrisPlex-S predicted eye color (97%), black hair (88%), and blond hair (70%).

These MPS-based assays are extremely useful in forensic casework when STR profiling is inconclusive. They allow phenotype prediction from compromised samples and support investigative efforts by narrowing suspect pools, guiding intelligence-led policing, or contributing to postmortem identification. FDP thus adds to the forensic toolkit by extracting meaningful biological information from limited or degraded DNA.

Keywords: **Forensic DNA Phenotyping, Massively Parallel Sequencing (MPS), HIrisPlex-S, Single Nucleotide Polymorphisms (SNPs), Short Tandem Repeats (STR), phenotype prediction.**

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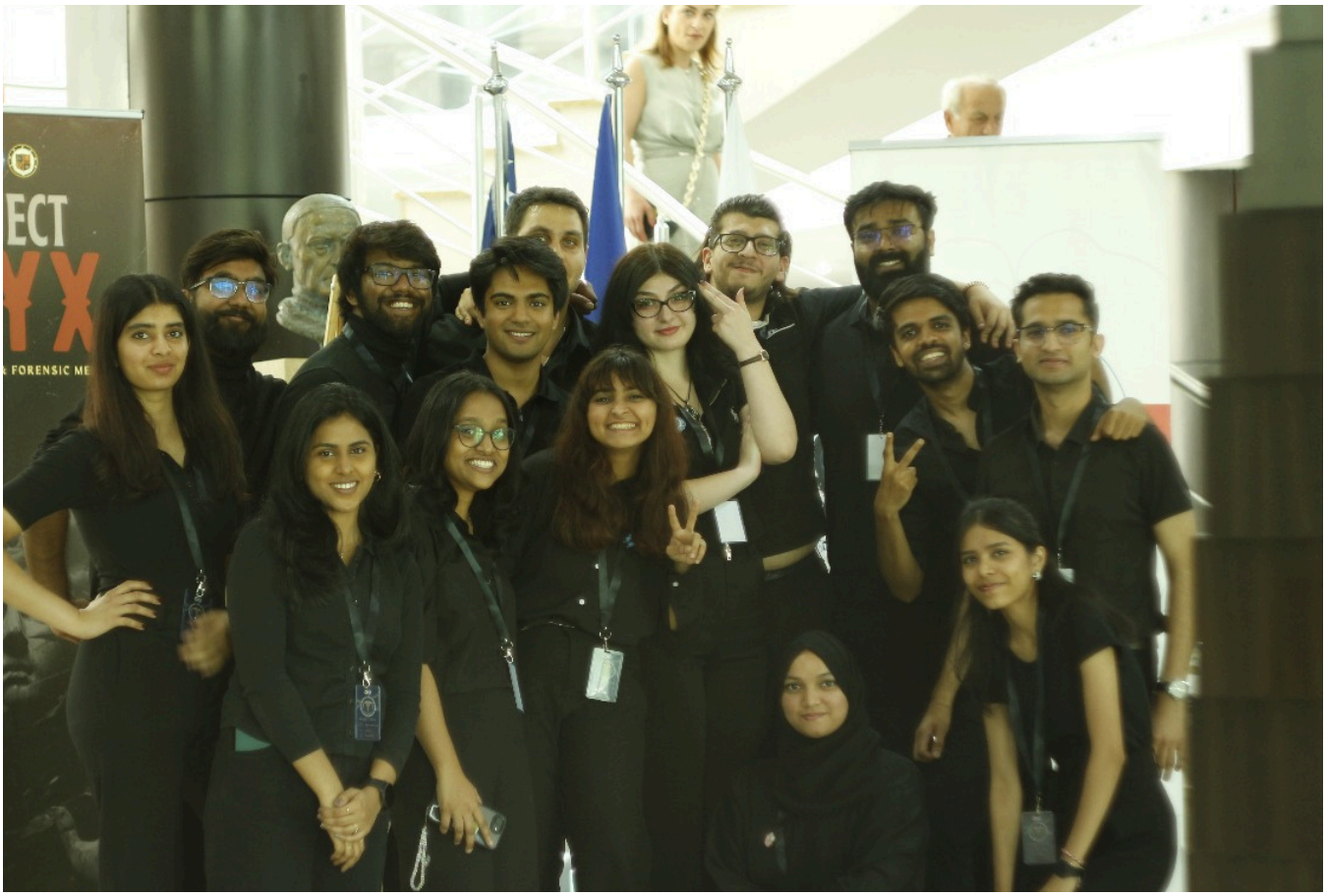

With dedication, vision, and countless hours of collaboration, this team brought Project Styx to life. We invite you to discover the minds behind the scenes — the individuals who transformed an idea into an interdisciplinary platform for dialogue, learning, and innovation in clinical psychiatry and forensic medicine.

Thank you for being part of this experience — we hope to see you again at future editions of Project Styx.


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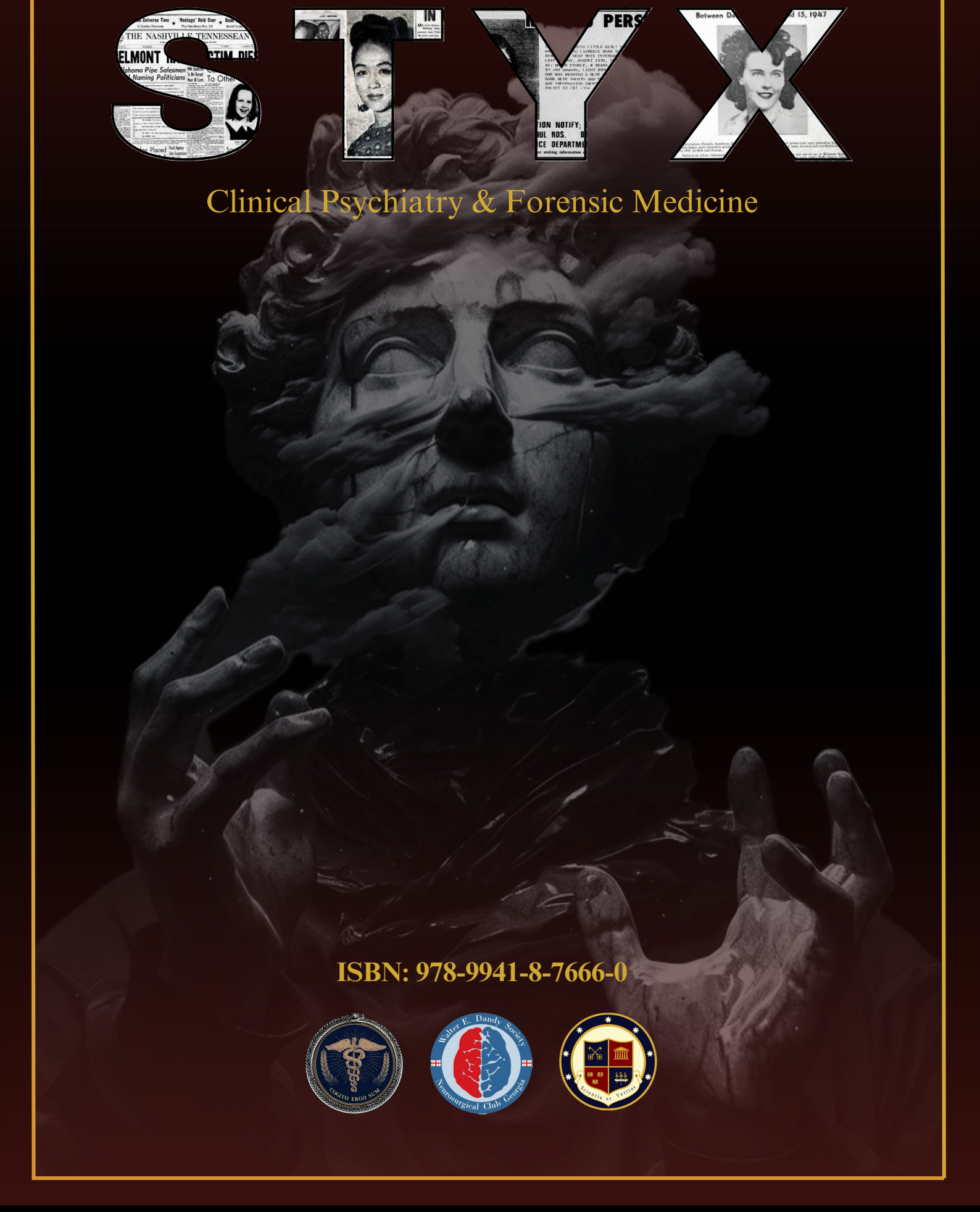

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