Peers Alley Media
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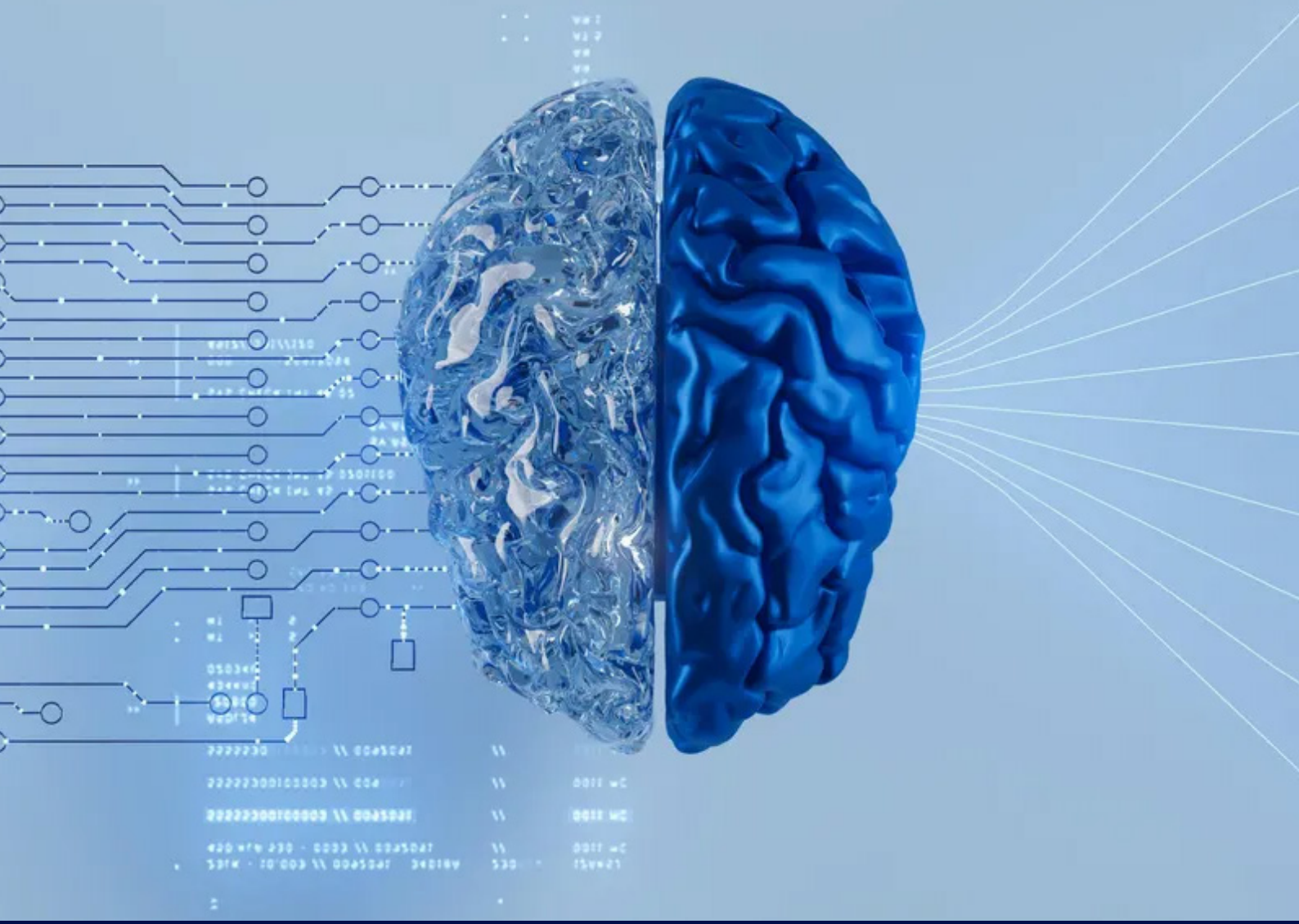
Virtual Joint Event

NEUROLOGY AND NEUROLOGICAL DISORDERS

&

ADVANCES IN ADDICTION MEDICINE AND MENTAL HEALTH



JUNE 23-24, 2025 | BERLIN, GERMANY

NEURO CONCLAVE 2025 & ADV. AMMH 2025

SCIENTIFIC PROGRAM

DAY 01

MONDAY

JUNE 23, 2025

BST - BRITISH SUMMER TIME

09:00-09:10	**Inaugural Ceremony**

Sessions: Neurology | Neurosurgery | Neuroscience | Behavioral Neurology | Alzheimer's Disease and Dementia | Neurological Disorders | Sleep Disorders | Parkinson's Disease | Epilepsy | Addiction Medicine | ADHD | Addiction Psychiatry and Mental Health | Depression and Anxiety | Addiction Treatment

Distinguished Speaker Talks

09:10-09:30	Title: Biopsychosocial Factors in Cancer Pain: A Multidimensional Evaluation of Quality of Life, Mental Health and Mortality **Carla Retroz-Marques,** *Coimbra Hospital and University Centre, Portugal*
09:30-09:50	Title: Evolutionary Origin of Alpha Rhythms in Vertebrates **Takashi Shibata,** *Toyama University, Japan*
09:50-10:10	Title: The Influence of Sexual Violence on Suicide Risk Among Runaway Youth in South Korea: The Multiple Additive Moderating Effect of Peer Attachment and Parental Attachment **Dong Hyeon Kim,** *Yonsei University, Republic of Korea*
10:10-10:30	Title: The Role of Digital Mental Healthcare in Reducing Mental Health Stigma: Insights From the Covid- 19 Pandemic **Nauman Rasool,** *Yangzhou University, China*
10:30-10:50	Title: How the Brain Activity of Newborns Guided us to Design Digital Training Helping in Overcoming Dyslexia **Heikki Lyytinen,** *University of Jyväskylä, Finland*
10:50-11:10	Title: Construction and Practice of Internet-Enhanced Management Platform for Student Mental Well-Being **Yingjie Chen,** *Hangzhou Mistong Digital Technology Co., Ltd, China*

REFRESHMENT BREAK 11:10-11:30

11:30-11:50	Title: Understanding Neurodevelopmental Dynamics in Child Psychology: An Integrated Cognitive-Neuroscientific Approach **Galiveeti Poornima,** *Presidency University, India*
11:50-12:10	Title: Exploring the Links Between Meaning in Life, Smartphone Use and Well-Being: Insights from Empirical Research **Rajbala Singh,** *The LNM Institute of Information Technology, India*
12:10-12:30	Title: Effect of Trehalose on Autophagy Induction and Genes Expression in Young and Old Mice with Diabetic Model **Tatiana Korolenko,** *Scientific Research Institute of Neurosciences and Medicine, Russia*
12:30-12:50	Title: Smartphone Mediated Tracking and Analysis of Sleep Patterns in Indian College Students **Kalyan Pathapati Subbu,** *Dhirubhai Ambani University, India*
12:50-13:10	Title: Gender-Human Security Interface: Critical Perspectives with special reference to India **Sujit Lahiry,** *Panjab University Regional Centre, India*
LUNCH BREAK 13:10-13:40	
13:40-14:00	Title: Central Neurological Manifestations in a Sample of Syrian Patients with Systemic Lupus Erythematosus: Cross-Sectional Study **Lama Al_Darwish,** *Al-Sham Private University, Syria*
14:00-14:20	Title: Revolutionizing Teacher Education in Light of Positive Psychology: Evaluating PPIs Through the Lens of Culture **Elnaz Oladrostam,** *Shahid Beheshti University, Iran*
14:20-14:40	Title: Think Beyond Age - Secrets of Superagers **Priya Sharma,** *Jain (Deemed-to-be University), India*
14:40-15:00	Title: Mental Wellbeing and the Kama Sutra: A Synergy Between Hedonic and Eudaimonic Approaches **Aparupa Dasgupta,** *Clinical Psychology Centre of University of Calcutta, India*
15:00-15:20	Title: Validation Studies on a Noninvasive Neuromonitoring Method, Rheoencephalography (REG) **Michael Bodo,** *Uniformed Services University of the Health Sciences, USA*

15:20-15:40	Title: Unilateral Transcranial Photobiomodulation to a Cerebral Hemisphere with a Positive Emotional Valence: Results from Clinical Trials for Treating Opioid Cravings and for Depression
	Fredric Schiffer, *McLean Hospital, USA*
15:40-16:00	Title: Self-Paced, Technology-Based Interventions for Lay Citizen Response to the Opioid Overdose Crisis
	Wasantha Jayawardene, *Southern Illinois University, USA*
16:00-16:20	Title: Designing Against Bias: Identifying and Mitigating Bias in Machine Learning and AI
	David J Corliss, *Peace-Work, USA*
REFRESHMENT BREAK 16:20-16:40	
16:40-17:00	Title: Enhancing Play Skills in Children with Autism Spectrum Disorder Through Interventions Involving Typically Developing Peers and Adults: A Systematic Literature Review
	Goodson Chaidamoyo Dzenga, *University of Montana Western, USA*
17:00-17:20	Title: A Novel Approach to Modeling Brain Dynamics and Neurological Disorders
	Tomas Yufik, *Alliant International University, USA*
17:20-17:40	Title: Reporting on Human Trafficking Crimes: A National Transportation Survey
	Kezban Yagci Sokat, *San Jose State University, USA*
17:40-18:00	Title: An *In-Silico* Approach to Study the Interactions for 'Acute Pancreatitis Marker': Structural Biology of Human Lipase and Colipase
	Arundhati Banerjee, *West Bengal University of Technology, India*
NETWORKING	
END OF DAY 1	

SCIENTIFIC PROGRAM DAY 02

TUESDAY

JUNE 24, 2025

09:00-09:10	**Introduction**

Sessions: Neurology | Neurosurgery | Neuroscience | Behavioral Neurology | Alzheimer's Disease and Dementia | Neurological Disorders | Sleep Disorders | Parkinson's Disease | Epilepsy | Addiction Medicine | ADHD | Addiction Psychiatry and Mental Health | Depression and Anxiety | Addiction Treatment

Distinguished Speaker Talks

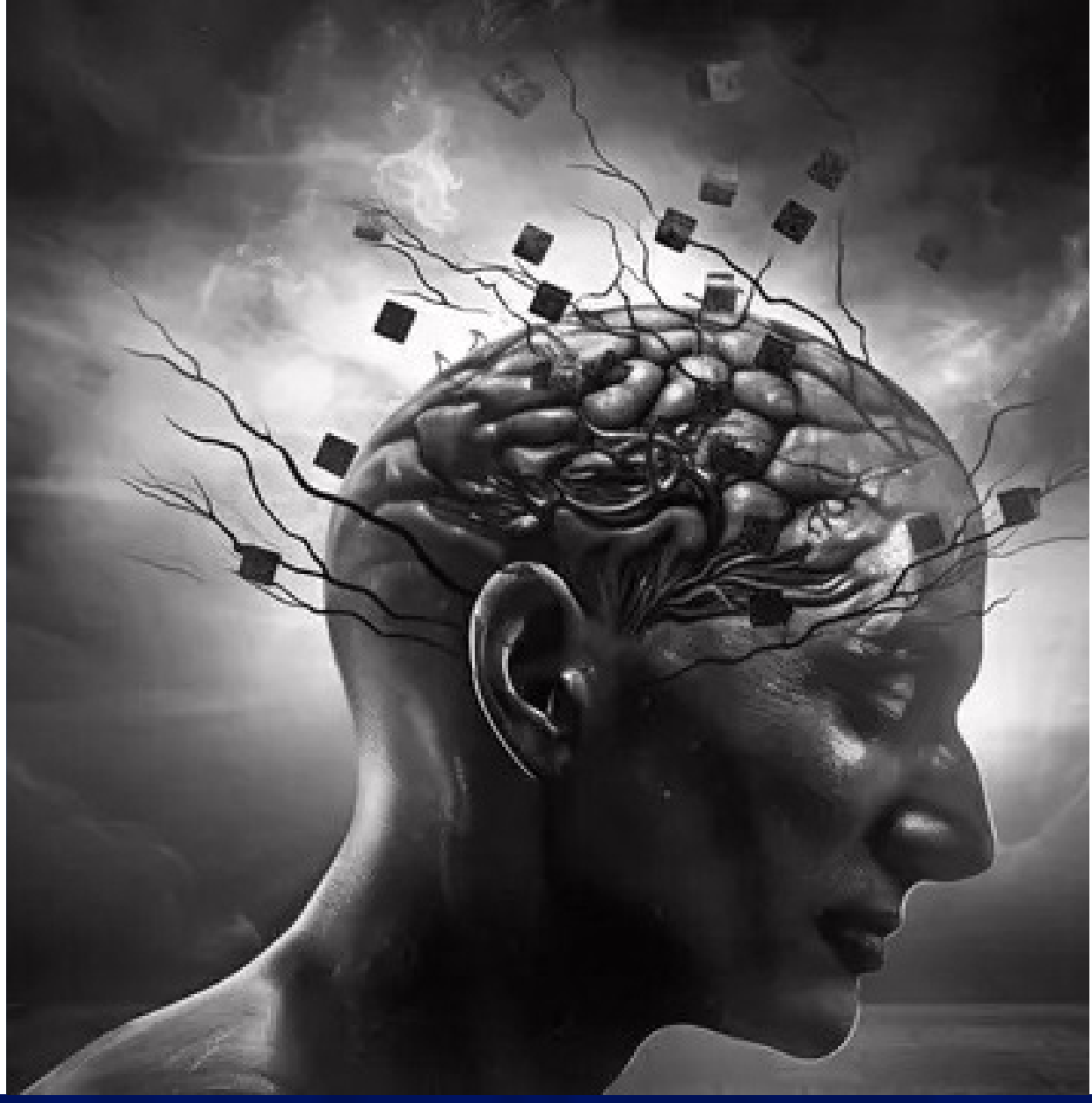
09:10-09:30	Title: A Newly Modified and Standardized Muscle Function Test for People with Multiple Sclerosis **Regula Steinlin Egli,** *Physiotherapie Langmatten, Switzerland*
09:30-09:50	Title: Cannabidiol: A Promising Candidate Drug for Promoting Health and Longevity? **Yanying Liu,** *Qingdao Huanghai University, China*
09:50-10:10	Title: Effect of Cerebral Oxygen Saturation Monitoring in Patients Undergoing Superficial Temporal Anterior-Middle Cerebral Artery Anastomosis for Ischemic Moyamoya Disease: A Prospective Cohort Study **Xuanling Chen,** *Peking University International Hospital, China*
10:10-10:30	Title: Utilizing Systematic Mendelian Randomization to Identify Potential Therapeutic Targets for Mania **Sen Hu,** *Zhengzhou University People's Hospital, China*
10:30-10:50	Title: NREM Sleep Dynamic and Epilepsy **Anna Szucs,** *Semmelweis University Behavioural Science* **Peter Halasz,** *Pécs Medical University, Hungary*
10:50-11:10	Title: The Crosstalk Between CREB and PER2 Mediates the Transition Between Mania- and Depression-Like Behavior **Xin-Ling Wang,** *Medical Center - University of Freiburg, Germany*

REFRESHMENT BREAK 11:10-11:30

11:30-11:50	Title: Mild Cognitive Impairment: Prevalence and Risk Analysis among Normal Middle Adulthood **Preeti Gazbare,** *Dr. D. Y. Patil College of Physiotherapy, Dr. D. Y. Patil Vidyapeeth, India*
11:50-12:10	Title: Performance Evaluation of Children at Risk for Schizophrenia using Ensemble Learning **Rathiya R,** *Dr. N.G.P Institute of Technology, India*
12:10-12:30	Title: Cortical Thickness Variations in the Precentral Gyrus: An MRI Study **Eti Sthapak,** *Dr. Ram Manohar Lohia Institute of Medical Sciences, India*
12:30-12:50	Title: An Efficient Multi-Biomarker Deep Learning Approach for Early Alzheimer's Disease Diagnosis using Multimodal Neuroimaging **Subhranil Das,** *School of Computer Science, UPES, India*
12:50-13:10	Title: Experimental Neurodegeneration Treatment with Trehalose **Tatiana Korolenko,** *Scientific Research Institute of Neurosciences and Medicine, Russia*
LUNCH BREAK 13:10-13:40	
13:40-14:00	Title: AI Agents for Addiction Medicine and Mental Health **Simon Hlekisana Muchinenyika,** *Namibia University of Science and Technology, Namibia*
14:00-14:20	Title: Impact of Food Colours on Brain: Neurotoxic Insights from a Rat Model **Diksha Bhatt,** *Government Nehru PG College, India*
14:20-14:40	Title: A Positive Psychological Group Intervention (PPI) in School for the Enhancement of Well-Being of Children whose Parents are Experiencing Psychological Economic Hardship **Christina Tassi,** *University of Ioannina, Greece*
14:40-15:00	Title: Toward Personalized Medicine in Parkinson's Disease: A Scoping Review of Biomarkers, Genetics and Treatment Stratification **Paula Abola,** *Constructor University, Germany*
15:00-15:20	Title: From Testing to Rehabilitation: Pilot Implementation of Cognitive Programs for Patients with Executive Deficits **Aneta Votavová,** *General University Hospital in Prague, Czech Republic*

15:20-15:40	Title: The Base-Ics of Taste: Deciphering Alkaline Sensation **Yali V. Zhang,** *University of Pennsylvania Perelman School of Medicine, USA*
15:40-16:00	Title: Prevention and Improved Treatment of Alzheimer's Disease by Simultaneous Attenuation External and Internal Stressors **Kedar N Prasad,** *University of Iowa, USA*
16:00-16:20	Title: A Review of the use of Video Games for Purposes Besides Entertainment: A Case for a Novel Approach for Teaching Assembly Language **Ernesto Rivera-Alvarado,** *Costa Rica Institute of Technology, Costa Rica*
REFRESHMENT BREAK 16:20-16:40	
16:40-17:00	Title: Influence of Race and Age in Sleep Duration and Mortality Relationship Among Adults in the United States: Results from the 2004 NHIS-NDI Record Linkage Study **Tolulope V. Adebile,** *Penn State College of Medicine, USA*
17:00-17:20	Title: Disability-Affirming Supervision: Future Directions in Applied Behavior Analytic Supervision **Grace Ecko Jojo,** *Simmons University, USA*
17:20-17:40	Title: Modulation of the Gut-Brain Axis By Malícia Honey (*Mimosa Quadrivalvis* L.) from the Jandaíra Bee *x*D.) in a Rodent Model of Obesity **Jailane de Souza Aquino,** *Federal University of Paraíba (UFPB), Brazil*
PANEL DISCUSSION	
END OF DAY 2	

NEURO CONCLAVE 2025
ADV. AMMH 2025



DAY 01

Virtual Joint Event

NEUROLOGY AND NEUROLOGICAL DISORDERS & ADVANCES IN ADDICTION MEDICINE AND MENTAL HEALTH

JUNE 23-24, 2025

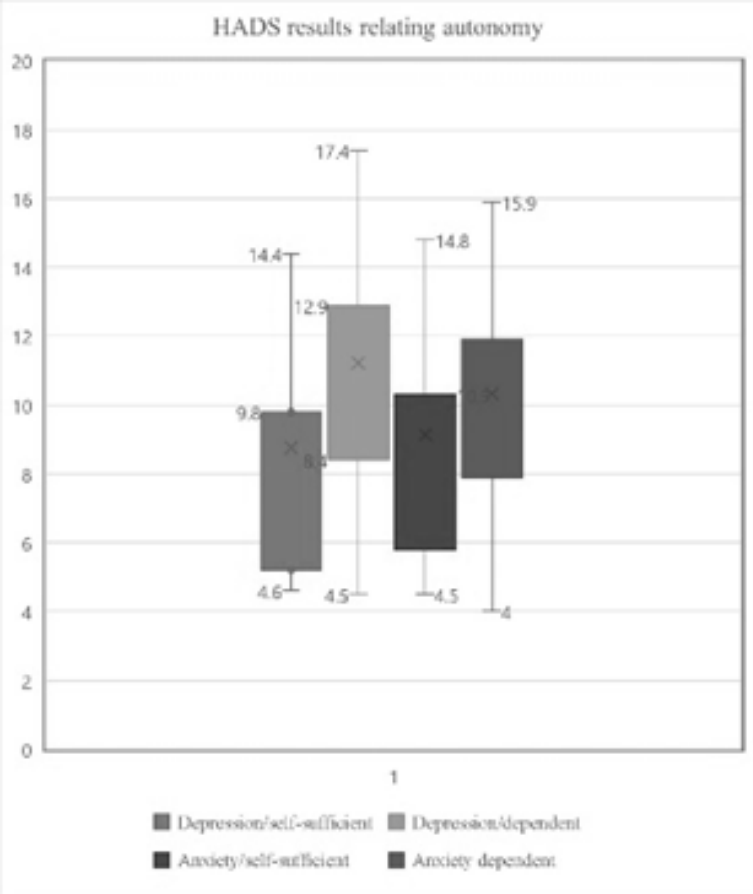
SPEAKER TALKS

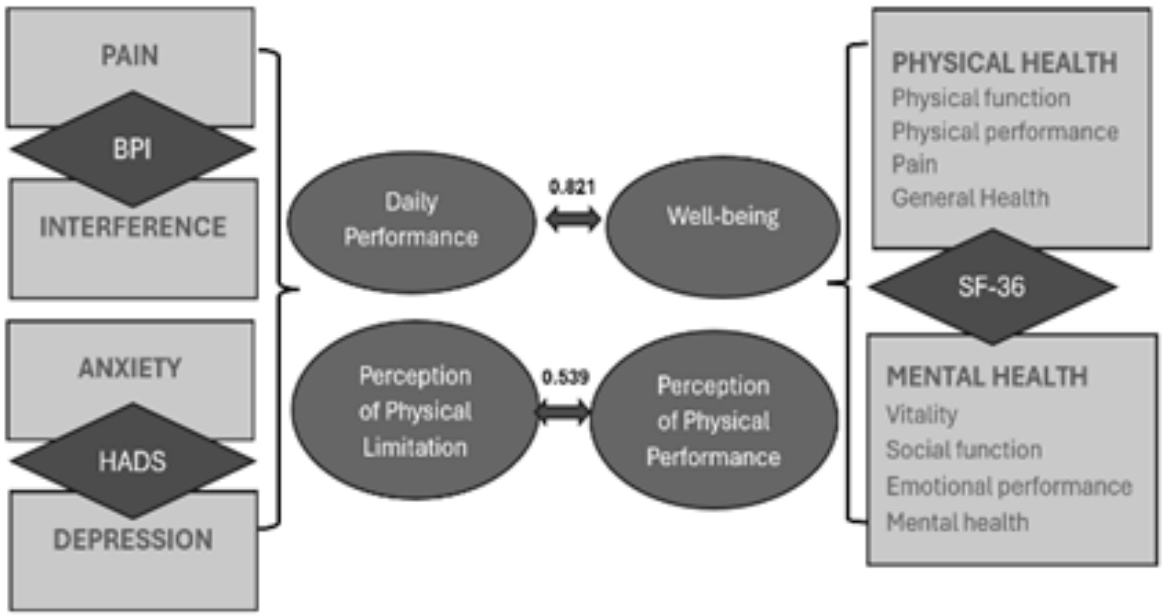
Biopsychosocial Factors in Cancer Pain: A Multidimensional Evaluation of Quality of Life, Mental Health and Mortality

Carla Retroz-Marques

Department of Anesthesiology, Coimbra Hospital and University Centre, Portugal

Patients with cancer pain are often subjected to a range of biopsychosocial conditioning factors, although the extent of their interactions remains unclear. This study aims to assess biopsychosocial dimensions using multidimensional questionnaires: (i) evaluate the role of self-sufficiency and marital status in the prevalence of psychological distress, such as anxiety and depression; (ii) examine the relationship between depression/anxiety and mortality; and (iii) assess statistical collinearity among three questionnaires regarding the dimensions of depression and anxiety, pain, and QoL. Specifically, it analyzes the impact, correlation, and collinearity of factors such as pain, anxiety, depression, activities of daily living, and quality of life. The study focuses on the relationship between individual autonomy, depression, and anxiety, and their subsequent impact on mortality. This prospective, observational, cross-sectional study was conducted over one year with 120 cancer patients. Data were collected utilizing the Brief Pain Inventory, the Hospital Anxiety and Depression Scale, and the Short-Form-36 questionnaire, and subsequently analyzed. The results reveal collinearity among the questionnaires and indicate that the loss of individual autonomy significantly worsens depression, though it does not have a comparable effect on anxiety. Statistically significant correlations were observed between depression and anxiety with mortality. The findings underscore the importance of early recognition of distress symptoms during the management of oncologic patients, alongside effective pain management. Mortality was strongly associated with high scores for depression and anxiety. Family caregiver support and social network involvement should be prioritized, and healthcare providers should promote individual autonomy to improve treatment outcomes. Although further research is needed, this study suggests that adopting a holistic approach to cancer care could not only improve quality of life but also potentially extend life expectancy.


HADS results relating autonomy
20
18
16
14
12
10
8
6
4
2
0
17.4
15.9
14.8
14.4
12.9
9.8
8.4
4.6
4.5
4.5
4
1
Depression/self-sufficient
Depression/dependent
Anxiety/self-sufficient
Anxiety dependent


PAIN
BPI
INTERFERENCE
ANXIETY
HADS
DEPRESSION
Daily Performance
0.821
Well-being
Perception of Physical Limitation
0.539
Perception of Physical Performance
PHYSICAL HEALTH
Physical function
Physical performance
Pain
General Health
SF-36
MENTAL HEALTH
Vitality
Social function
Emotional performance
Mental health

Biography

- Graduation of Medicine at Faculty of Medicine of University of Coimbra (FMUC) (1985-91)
- Consultant of Anesthesiology - Coimbra University Hospitals Centre (CHUC) (since 2010)
- Title of Jurisdiction (Competence) in Pain Medicine of The Order of Physicians
- Master's Degree in Anesthesiology and Pain Therapy of FMUC (2007)
- Master's Degree in Palliative Care in Faculty of Medicine of FMUC (2021)
- Doctoralis Theoretical Program in Health Sciences in FMUC (2010-2016)
- Member of Chronic Pain Clinic of CHUC (1999-present)
- Team Member Obstetrical of Anesthesia / Analgesia During Labor (since1999)
- Teaching in Nationals and Internationals Programs Ph.D./ Masters/ Postgraduate/ Courses
- Guidance Training in Anesthesiology and Pain Therapy
- Clinical Chronic Pain Investigation
- Clinical Laboratory Investigation in Anesthesiology
- Clinical Trials Drug Phase II, III, IV Anesthesiology and Chronic Pain.
- Scientific Research Published DOI(s):10.1136/bcr-2022-254058; 10.1136/bcr-2021-247510; 10.1016/j.bjane.2013.07.020; 10.1186/1471-2253-14-s1-a8; 10.1155/2014/693191;
- BMJ Invited Scientific Peer Reviewer
- Courses And Academic Events Completed
- Member of Medical Organizations

Evolutionary Origin of Alpha Rhythms in Vertebrates

Takashi Shibata[1,2], Noriaki Hattori[3] and **Satoshi Kuroda[1]**

[1]Department of Neurosurgery, Toyama University, Japan
[2]Department of Neurosurgery, Toyama Nishi General Hospital, Japan
[3]Department of Rehabilitation, Toyama University, Japan

Human alpha rhythms are most prominent during eyes-closed rest, but their evolutionary origins in vertebrates remain unclear. This presentation examines their significance in mammals by comparing the brain structures of fish, reptiles, birds, and mammals. Nocturnal mammals first appeared during the age of dinosaurs. To adapt to darkness, they might have developed alpha rhythms to shift attention from external stimuli to internal cognitive processes. In mammals, alpha rhythms not only travel as waves across the six-layered neocortex but might also be regulated by mechanisms that control their amplitude fluctuations called waxing and waning. In contrast, the pallium of fish, reptiles, and birds has a simpler structure with organized nuclear formations. Despite this, early forms of alpha-like rhythms might have existed. Mammalian brains exhibit a unique neuronal migration pattern, where neurons move from deep regions to form the six-layered neocortex. Non-mammalian species lack this transition, preventing the development of similar structures and mammal-like alpha rhythms. However, recent studies suggest that some highly evolved birds have developed a pallium with fiber structures resembling the cortex, allowing them to generate low-frequency oscillations (4–25 Hz) similar to alpha rhythms. This indicates that mammals and birds independently evolved advanced cognitive and motor abilities through convergent evolution. By comparing these differences, this review aims to summarize current research on the role of alpha rhythms in cognitive development, particularly in humans.

Biography

1990: Graduated from the Faculty of Medicine, Toyama Medical and Pharmaceutical University.

2000: Completed graduate studies at Toyama Medical and Pharmaceutical University.

Qualifications

- Board-Certified Neurosurgeon.
- Board-Certified Stroke Specialist.
- Certified Clinical Rehabilitation Physician.
- Certified Neurorehabilitation Physician.

The Influence of Sexual Violence on Suicide Risk Among Runaway Youth in South Korea: The Multiple Additive Moderating Effect of Peer Attachment and Parental Attachment

Dong Hyeon Kim[1], Jae Yop Kim[2] and **Ki Ju Han[3]**

[1]School of Social Welfare, Yonsei University, Republic of Korea
[2]Department of Social Welfare, Yonsei University, Republic of Korea
[3]Youthshelter FOR YOU, Republic of Korea

Runaway Youth are highly vulnerable to various forms of violence, such as domestic violence, school violence, robbery, and physical assault. However, those without an adequate and safe place are vulnerable to sexual violence. Sexual violence is strongly associated with suicide risk, but peers and family are important factors in attenuating the negative outcomes of sexual violence; however, research on this relationship is insufficient because previous studies have focused only on runaway youth's problematic behavior. This study's specific aims were as follows: 1) to verify the association between sexual violence and suicide risk among runaway youth, and 2) to assess whether peer and parental attachment moderated the association between sexual violence and suicide risk among runaway youth.

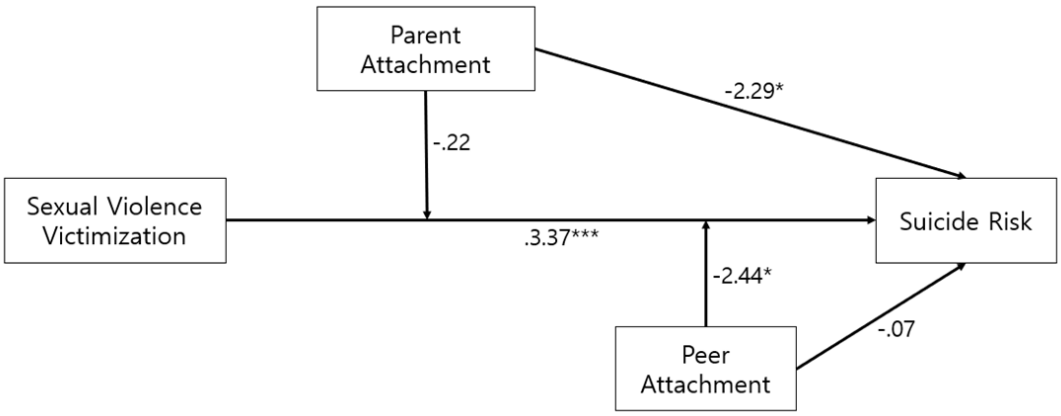
The participants comprised 232 runaway youth (51.3 % girls); more than half were aged 17–19 years and approximately two-thirds of them had experienced child abuse. Self-administered questionnaires were provided to the participating runaway youth in youth shelters in South Korea. The data were analyzed using a multiple additive moderating model that simultaneously included moderating and control variables. In total, 18.5 % of runaway youth were exposed to sexual violence (10.6 % boys, 26.1 % girls). Sexual violence victimization affected suicide risk among runaway youth. Peer attachment alleviated the negative relationship between sexual violence and suicide risk, and acted as a protective factor. Although the moderating effect of parental attachment was not significant, it significantly influenced suicide risk.

Our findings demonstrate that runaway youth are vulnerable to sexual violence victimization, especially severe types of sexual violence. Our study verified the role of peer and parental

attachment in the association between sexual violence and suicide risk among runaway youth. These findings suggest the need to improve positive peer and parent relationships to mitigate suicide risk among runaway youth.

Table 2
Sexual violence victimization among runaway youth.

Variable	Total (n = 232)	Male (n = 113)	Female (n = 119)
	n (%)	n (%)	n (%)
1. Obscene calls, messages, and mail	21 (9.1 %)	7 (6.2 %)	14 (11.8 %)
2. Unwanted exposure of pornography	7 (3.1 %)	2 (1.8 %)	5 (4.3 %)
3. Stalking	7 (3.1 %)	1 (0.9 %)	6 (5.1 %)
4. Unwanted exposure of genitals	10 (4.3 %)	1 (0.9 %)	9 (7.6 %)
5. Sexual harassment	19 (8.3 %)	4 (3.6 %)	15 (12.9 %)
6. Sexual assault	14 (6.0 %)	2 (1.8 %)	12 (10.1 %)
7. Severe sexual assault	14 (6.0 %)	3 (2.7 %)	11 (9.3 %)
8. Attempted rape	9 (3.9 %)	1 (0.9 %)	8 (6.8 %)
9. Rape	10 (4.3 %)	1 (0.9 %)	9 (7.7 %)
Exposure to sexual violence at least once	43 (18.5 %)	12 (10.6 %)	31 (26.1 %)



Biography

Dong Hyeon Kim, M.S.W., is a doctoral student in the School of Social Welfare at Yonsei University. He has served as a counselor for adolescents at several Youth Counseling & Welfare Centers and as a researcher at the Institute for Social Welfare Research at Yonsei University. His research interests include adolescents' mental health and psychiatric disorders, particularly in the context of trauma and violence. Currently, his research focuses on suicide, non-suicidal self-injury, and high-risk adolescents, such as out-of-school youth and runaway youth.

The Role of Digital Mental Healthcare in Reducing Mental Health Stigma: Insights from the Covid- 19 Pandemic

Nauman Rasool[1,2]

[1]College of Food Science and Engineering, Yangzhou University, China
[2]Department of Human Nutrition and Dietetics, Bahauddin Zakariya University Multan, Pakistan

During the Covid-19 pandemic, individuals in China with mental health challenges faced significant stigma, exacerbating stress and social isolation. To address this issue, a study was conducted in China using digital media arts as a framework. Researchers randomly distributed 1,300 surveys utilizing a five-point Likert scale, expecting a 50% response rate. However, only 500 responses were deemed suitable for analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM). The study highlighted the critical role of digital health tools in improving mental health and their adoption within China's healthcare system. It focused on the implementation of digital healthcare innovations, a previously underexplored area in mental health research. The findings have significant theoretical and practical implications for enhancing mental health systems through digital technologies while raising awareness about digital healthcare tools. Overall, the pandemic underscored the necessity of prioritizing mental health, making these findings crucial for policymakers seeking to integrate digital solutions into healthcare frameworks.

Biography

Dr. Nauman Rasool is a researcher and academic contributor specializing in food science, nutrition, and public health. His work focuses on the intersection of functional foods, mental well-being, and digital health solutions. Dr. Rasool has authored several peer-reviewed articles and actively participates in international conferences. His research aims to promote innovative, interdisciplinary approaches to improving global health outcomes through sustainable nutrition and mental health initiatives.

How the Brain Activity of Newborns Guided us to Design Digital Training Helping in Overcoming Dyslexia

Heikki Lyytinen

UNESCO Chair on Inclusive Literacy Learning to All (Emeritus), University of Jyväskylä, Finland

In the well-known Jyväskylä Longitudinal study of Dyslexia (JLD) we have followed in Finland children at familial risk for dyslexia from birth to adulthood. At the age of 3-5 days after birth, we recorded brain activity to tone pips of sinusoidal sounds using an oddball-design with 1000 Hz standard and 1100 Hz deviant sinusoidal sounds to observe so-called mismatch negativity (MMN). At the age of 8 years, we diagnosed who of them had faced dyslexia and found that only those who did not show MMN. This means that dyslexia is a result of auditory insensitivity. We noted that such insensitivity is open to be corrected by focusing the training on the perceptual differentiation of phonemes that are most close acoustically, ie. such as those represented by l, m and n. Intensive preventive drilling was shown to be sufficient to overcome dyslexia. It is very important to provide the training at an appropriate time, which is when they are entering school – because after facing the consequences of dyslexia most start avoiding such training. But even successful training to sound out text accurately is not enough for school learning, ie. to comprehend schoolbooks. Also, taking this final step towards full literacy was documented using brain measurements, as will be told in my presentation.

Construction and Practice of Internet-Enhanced Management Platform for Student Mental Well-Being

Yingjie Chen[1], Yuchen Bian[2] and **Mengwei Wu[1]**

[1]Hangzhou Mistong Digital Technology Co., Ltd, China
[2]Hangzhou No.2 High School of Zhejiang Province, China

The school mental health education center faces numerous challenges, such as a weak teaching workforce, low levels of specialization, urban-rural development imbalances, and the absence of standardized procedures for addressing psychological crises. To address these issues, the Hui Lan Psychological Education Master Studio at Hangzhou No. 2 High School, in collaboration with Hangzhou Mistong Digital Technology Co., Ltd. has developed the Internet-Enhanced Management Platform for Student Mental Well-being.

Following the NCIP (Needs, Context, Ideation, and Presentation) Design Methodology, we developed the platform through six phases: needs analysis, context identifying, user analysis, stakeholder analysis, competitor analysis, and presentation. The platform establishes a management cycle of "Identification---Monitoring---Intervention" and provides:

1. A psychological crisis assessment model
2. Standardized workflow management system
3. Comprehensive student mental health record system
4. Training and educational resources

Implementation results show:

- More accurate identification of vulnerable groups using the updated High School Student Mental Health Assessment Scale
- Effective collaboration between mental health teachers and homeroom teachers through the platform

- Structured workflow for new teachers and enhanced professional skills through learning resources
- Pilot applications in designated regions and schools have yielded remarkable results

Fig. 1. Funnel-Shaped Distribution of School Psychological Screening and Follow-Up Intervention Implementation

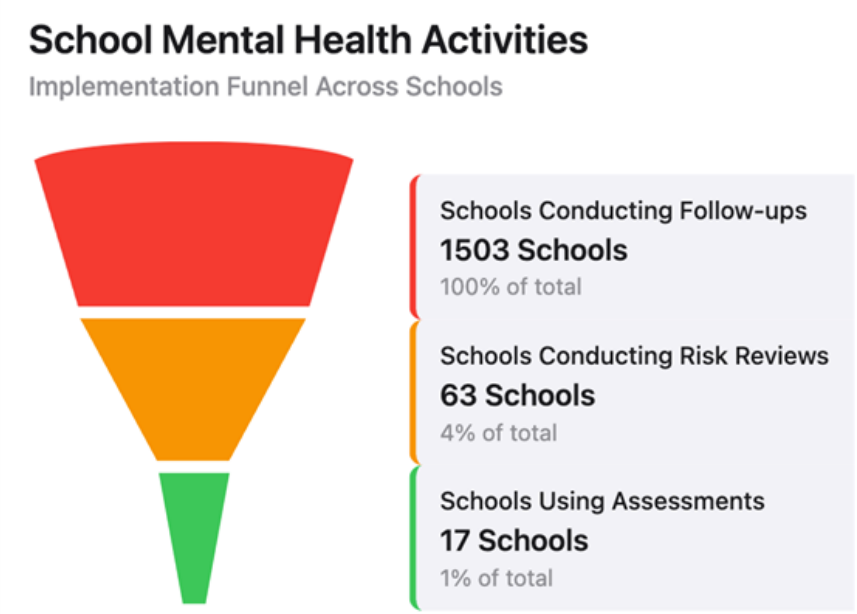


Table 1. Scenario Analysis of the Management Platform

Core Scenario	Role	Pain Point/Demand	Value of Requirement	Priority
For students who require early warning after observation but have not been screened, support is needed to import them into the system to complete subsequent intervention work.	Psychological Teacher	Import basic information of students requiring early warning into the system and be able to view and follow up normally	Business Process Closure	P0
After the screening is completed, students requiring early warning need to be assessed through professional observation, interviews, and secondary screening to determine if intervention is needed.	Psychological Teacher, Class Teacher	1. Assign students requiring early warning to class teachers for observation and record observations. 2. Interview students requiring early warning and record interviews. 3. Review early warning. 4. Follow-up records can be viewed coherently.	Business Process Closure	P0
After confirmation of early warning, professional intervention methods are needed for psychological counseling. Different intervention methods are applied based on low, medium, or high risk.	Psychological Teacher, Class Teacher, Parent, School Leader	1. Low-risk students are assigned to class teachers for ongoing observation and record-keeping until the alert is lifted. 2. Medium-risk students are assigned to psychological teachers for regular counseling and record-keeping until the alert is lifted. 3. High-risk students are reported to school leaders and parents are interviewed, with results recorded. 4. High-risk students are referred, with referral results recorded. 5. Intervention records can be viewed coherently. 6. Change in student risk level	Business Process Closure	P0
End the intervention based on the situation and effectiveness of the intervention		1. Lift the student's early warning, return to normal, and record the lifting explanation. 2. If the student's intervention is not effective, record the loss explanation.	Business Process Closure	P0

Biography

Yingjie Chen is a Director of Mistong Psychological Research Institute, Hangzhou, China

Research Focus

- Digital transformation of K-12 mental health education
- Big data-driven psychological crisis intervention modeling
- Development of school-based psychological curriculum systems

Academic Achievements

- Led the development of the "Student Mental Health Management Platform", awarded First Prize in UNESCO's 6th Global Future Education Design Competition (2023, as team leader)
- Co-developed the "High School Student Mental Health Assessment Scale" with Beijing Normal University team; related paper selected for International Conference on Applied Data Science (Fudan University, 2023)

Practical Impact

- Adopted by over 10 prestigious high schools across China, including : Hangzhou No.2 High School, Chengdu No.7 High School, and Hebei Hengshui High School.
- The psychological assessment system has been adopted by over 2,000 high schools annually since 2021, serving more than 3 million students each year, with cumulative assessments exceeding 10 million to date.

Understanding Neurodevelopmental Dynamics in Child Psychology: An Integrated Cognitive-Neuroscientific Approach

Galiveeti Poornima and **Sukruth Gowda**

Presidency University, India

Child psychology plays a pivotal role in decoding the complex interplay between neural development and behavioral outcomes during early life stages. This abstract explores the neurocognitive processes that influence emotional regulation, learning capacity, and social adaptability in children. By integrating recent findings from cognitive neuroscience and developmental psychology, the study emphasizes the importance of early diagnosis and intervention in conditions such as ADHD, autism spectrum disorder, and childhood anxiety disorders.

Advancements in neuroimaging and machine learning have opened new frontiers in identifying atypical developmental trajectories and predicting long-term outcomes. This abstract also highlights the role of environmental and genetic factors in shaping neurodevelopment and cognitive resilience. Emphasis is placed on a holistic, personalized approach in pediatric mental health care, which includes neurobiological assessments, behavioral therapies, and family-centered interventions.

The findings presented aim to foster a deeper understanding of child brain-behavior relationships and propose future directions for interdisciplinary research and clinical practices to promote optimal psychological well-being in children.

Biography

Dr. Galiveeti Poornima is an Associate Professor at the Presidency School of Computer Science and Engineering, Presidency University, Bengaluru. She holds a Ph.D. in Computer Science from the same university and specializes in machine learning and deep learning applications in healthcare and accessibility domains. Her research contributions include AI-driven diagnosis systems for skin lesions, sign language recognition, and climate-health studies.

Dr. Poornima has authored numerous journal articles, book chapters, and conference papers on emerging technologies in AI and data science. She has also served as an editor and session chair in international conferences and is actively involved in professional service as a reviewer and TPC member. Her current interests include developing intelligent systems for social good, with a focus on public health, sustainability, and inclusive technologies. She is a certified Oracle Cloud Infrastructure Generative AI professional and a recognized mentor in national AI and data science workshops.

Exploring the Links Between Meaning in Life, Smartphone use and Well-Being: Insights from Empirical Research

Rajbala Singh

The LNM Institute of Information Technology, India

Based on two empirical studies, the paper reflects on the intricate connection between meaning in life (MIL), smartphone usage and well-being (WB). The first study explored how MIL's four core needs-purpose, values, efficacy and self-worth—are related to smartphone usage behaviors. Findings suggest that individuals who meet these needs are more likely to use smartphones in a healthy and balanced way, leveraging technology to strengthen relationships, personal growth, and overall WB. Additionally, strengthening efficacy beliefs helps individuals gain better control over smartphone-related habits, reducing smartphone addiction. Thus, increasing awareness about MIL can encourage more purposeful smartphone use and manage problematic smartphone habits while curbing addiction effects. The second study investigated how smartphones mediate the relationship between MIL and WB. Results suggest that people with a strong sense of MIL utilize smartphones to enhance their social connections and emotional support, thus improving their WB. Smartphones may substitute for genuine human connection for those without MIL, resulting in problematic usage patterns. The study emphasizes that smartphones can significantly maintain or strengthen WB when used purposefully and in moderation. Together, these findings emphasize the importance of understanding the psychological drivers of smartphone usage behavior. MIL profoundly influences how individuals use smartphones. Smartphones can facilitate positive outcomes such as emotional support and social engagement when individuals perceive their lives as meaningful. Alternatively, excessive smartphone use can undermine WB and lead to negative consequences such as addiction and social isolation. A balanced approach to smartphone usage, mindful of one's social and psychological needs, is crucial for maintaining healthy digital habits and improving mental health outcomes. Future research may investigate intervention strategies

to promote the positive usage of smartphones for a greater perception of MIL and WB in different populations and contexts.

Biography

Rajbala Singh is an Associate Professor in the Department of Humanities and Social Sciences at The LNM Institute of Information Technology, Jaipur, India. She holds a PhD from the Indian Institute of Technology Kanpur and has over 16 years of teaching and research experience. With a strong background in psychology and behavioral studies, she is actively supervising B. Tech projects and PhD students. Among her teaching and research interests are health psychology, organizational behavior, social psychology, and positive psychology. She has contributed to reputable national and international journals, conferences and books. She has served as a reviewer for various conferences of international reputation. She has been invited to deliver talks at renowned institutions on topics related to her expertise.

Effect of Trehalose on Autophagy Induction and Genes Expression in Young and Old Mice with Diabetic Model

Tatiana Korolenko[1], Aleksandr Pupyshev[1], Viktor Belichenko[1], Erik Korolenko[2] and **Natalja Bgatova[3]**

[1]Scientific Research Institute of Neurosciences and Medicine, Russia
[2]MSE Dept.,1461 Granville St., Canada
[3]Institute of Clinical and Experimental Lymphology, Branch of the Institute of Cytology and Genetics RAS, Russia

Autophagy is a conserve bulk degradation process to maintain cellular homeostasis (Lu et al., 2020). Impairment of autophagy has been reported to be involved in the pathogenesis of neurodegenerative diseases (Alzheimer disease, Parkinson disease). Autophagy has been regarded as a potential therapeutic target for treatment of neurodegenerative diseases; similar disorders observed as complications in such common diseases like T2 diabetes. *db/db* mice (carrying a mutation in the gene encoding leptin receptor, model of diabetes) show autophagy suppression. Our aim was to evaluate the effect of autophagy inducer trehalose on liver, heart and brain autophagy in *db/db* mice and to study possible diabetes markers. Thirty-eight male *db/db* mice and C57/BL mice (control) were used. A 3% trehalose solution was used as drinking water during 30 days of the experiment. Expression of markers of autophagy (LC3-II), neuroinflammation (IBA1), redox state (NOS), and neuronal density (NeuN) in the brain was assessed by immunohistochemical analysis. Expressions of markers of autophagy (*Atg8/Lc3b, Becn1, Park1*) and neuroinflammation in brain microglia cells were assessed. For behavioral phenotyping, the open field, elevated plus-maze, tail suspension, pre-pulse inhibition, and passive avoidance tests were used. The *db/db* model manifested inflammation symptoms: overexpression of TNF-α in the spleen and under expression of IL-10 in the liver and spleen (cytokine imbalance). Simultaneously, we revealed decreased expression of chitotriosidase (*CHIT1*) and acid mammalian chitinase (CHIA) in the liver of *db/db* mice. Trehalose treatment reduced blood glucose concentration and glycated hemoglobin. Treatment of *db/db* mice by trehalose was followed by increased

autophagy induction in the heart and liver (increased autolysosomes volume density studied by morphometric electron-microscopic method). Trehalose exerted beneficial cardiac effects possibly via increased lipophagy (uptake of lipid droplets). The autophagy activation by trehalose had several positive effects on the heart and liver of *db/db* mice; therefore, lipophagy activation seems to be a promising approach in therapy for diabetes.

Conclusion: Trehalose exerted some beneficial peripheral and systemic effects and partially reversed behavioral alterations in *db/db* mice. Thus, trehalose as an inducer of mTOR-independent autophagy may be effective at alleviating neuronal and behavioral disturbances accompanying experimental diabetes.

Materials and Methods

Animals

All experiments were conducted in compliance with the Scientific Research Institute of Neurosciences and Medicine Ethical Committee Recommendations pertaining to research involving laboratory animals. Specific pathogen-free mice of *db/db* strain (BKS. CgDock7m+/+Leprdb/J, stock #000642; Jackson Laboratory; Bar Harbor, ME, USA) were used. 5-month-old *db/db* male (5) and female (5) mice (drinking water *ad libidum*) were used as group one. Institute of Cytology and Genetics SB RAS (Novosibirsk, Russia) Second group included male (5) and female (5) *db/db* mice as genetic model of diabetes [1, 2] purchased from the SPF vivarium of the Institute of Cytology and Genetics SB RAS (Novosibirsk, Russia) drinking 3% trehalose solution during 30 days (instead of water) (second group). The mice had *ad libidum* access to food or drinks (water or 3% trehalose depending from group). Mice of the 3rd group included 14 mice of wild type (5 male and 9 female), drinking water during 30 days and used as a control to the group 1 (*db/db* mice drinking water). All mice were maintained on a 12 h dark cycle in a temperature-controlled environment. Animals were killed by decapitation, no additional drugs were used as antipain measures.

Electron microscopic study of autophagy in brain cells (neurons and hippocamp) was provided, as was described earlier [3,4]. Brain samples for electron microscopy were fixed in 4% paraformaldehyde in the Hank's medium and 1% OsO4 solution (Sigma, St. Louis, MO, USA) in phosphate buffer (pH 7.4) for 1 h, dehydrated in ethanol of ascending concentrations, and embedded in Epon (Serva). Semifine 1 μm sections were prepared on a Leica EM UC7 microtome, stained with toluidine blue, and oriented for electron microscopy. Ultrafine sections with a thickness of 70–100 nm were contrasted with a saturated aqueous solution of uranyl acetate and lead citrate and analyzed under a JEM 1400 electron microscope (JEOL Ltd., Tokyo, Japan) (Multiple-Access Centre for Microscopy of Biological Subjects, Institute of Cytology and Genetics, Novosibirsk, Russia).

Results Discussion

Autophagy attenuation has been found in neurodegenerative diseases, diabetes mellitus, ageing and atherosclerosis [ ]. In experimental models of neurodegenerative diseases, the

correction of autophagy in the brain reverses neuronal changes [ ]and behavioral deficits and possibly seems to be a promising therapy for neuropathologies. Our aim was to study the effect of an autophagy inducer, trehalose, on brain autophagy and behavior in a genetic model of diabetes with signs of neuronal damage (*db/db* mice). Earlier we have shown positive effects of 2% trehalose solution drinking in *db/db* mice [3, 4]. According to our earlier results obtained 2% trehalose treatment significantly reduced blood glucose concentration and level of glycated hemoglobin in male *db/db* mice [3, 4]. Increased autophagy induction was observed in liver and heart cells by electron microscopic method according to increased autolysosomes volume density registered by morphometric electron microscopic method [3,4]. So, in general autophagy activation by trehalose revealed positive effects on the heart and liver cells of *db/db* mice. It was suggested, that lipophagy (uptake of lipid droplets by endosomes) activation by trehalose in heart and liver was also responsible for positive effects of trehalose *in vivo*. So, in this work possible neuroprotective effects of trehalose have been investigated. In some experimental models of neurodegenerative diseases, the correction of autophagy in the brain reverses neuronal and behavioral deficits and hence seems to be a promising therapy for neuropathologies [ ]. Our aim was to study the effect of an autophagy inducer, trehalose, on brain autophagy-related gene expression in model of diabetes with signs of possible neuronal damage (*db/db* mice). A 2% trehalose solution was used as a drinking water during 30 days of the experiment. Expressions of markers of autophagy (*Atg8/Lc3b, Becn1, Park1*), neuroinflammation in brain microglia cells (*Aif1*) were assessed. Study of autophagy-related genes expression was performed in cells of cerebellum (there is increased interest to their role in neurodegeneration recently [ ]) and in neurons. According to review by Wang et al., 2024 [1] type 2 diabetes is primarily characterized by insulin resistance and pancreatic β-cell dysfunction, and autophagy defects in β-cell is one of major causes of the progression of this disease, especially at the early stage. During autophagy proteins and organelles that induce cellular stress and inflammation, maintaining the normal function of internal insulin signalling and blood glucose homeostasis, and at the same time enhancing insulin sensitivity, thereby leveraging glucose and lipid metabolism.

Conclusion

Does trehalose enhance autophagy in brain cells (neurons, glia versus Liver and heart, Cellular damage? What does autophagy gene expression give, Choosing more informative indicators.

Biography

- Korolenko Tatiana Alexandrovna was born in Tashkent, Soviet Union in 1940 (May 26).
- Graduated from the middle school in Tashkent in 1947 with the gold medal.
- Student of Tashkent Medical Institute in 1949-1950 (in 1950 transfer to Novosibirsk Med. Univ.).
- Student of Novosibirsk Medical University in 1950-1955.
- Scientific research worker in1956-1960.
- Presentation of PhD in Moscow Institute of Psychiatry, 1962
- Scientific research worker, Central Research Laboratory of Novosibirsk Medical Institute.1962-1975.

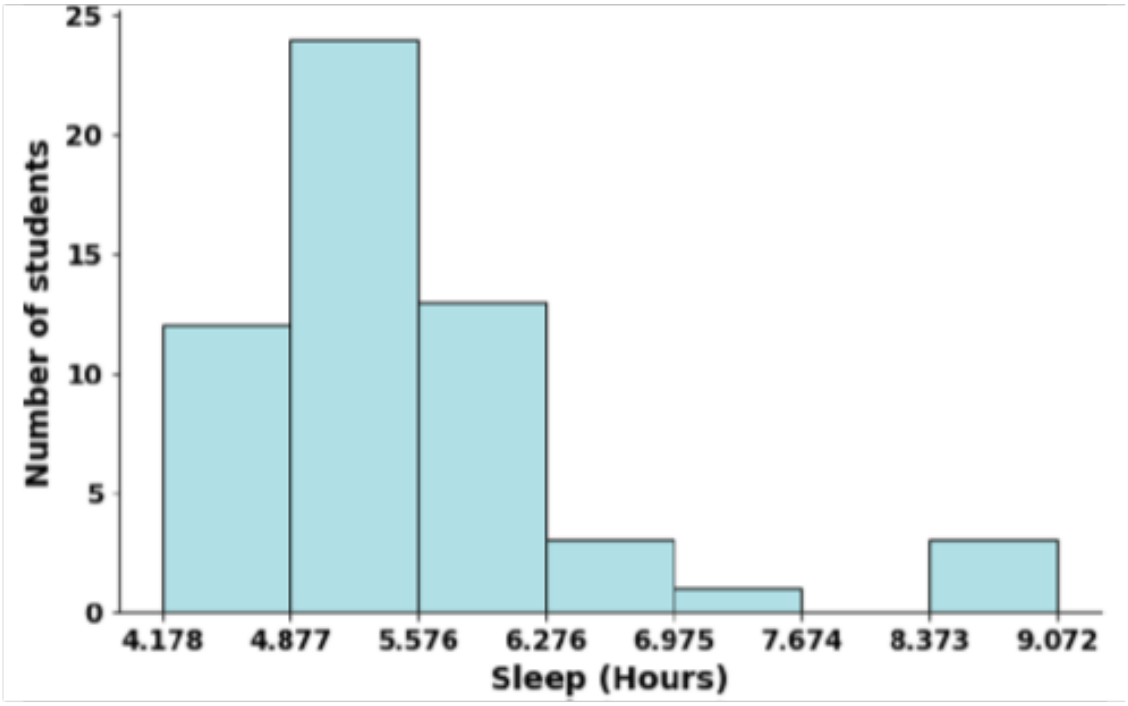
- Presentation of Doctoral Dissertation on Biochemistry 1978.
- Scientific research worker, Professor in Biochemistry, Dr. Med. Sci., Head of works of 14 aspirants.
- Research Institute of Physiology, Novosibirsk, Russia.
- Participation in the Scientific Conferences in European countries, US, Canada, Japan.
- Member of European Group study Lysosomes.

Smartphone Mediated Tracking and Analysis of Sleep Patterns in Indian College Students

Kalyan Sasidhar[2] and **Maitri Vaghela**[1]

[1]Adani University, India
[2]Dhirubhai Ambani University, India

Sleep is one of the essential bio-makers for human health. Poor sleep is associated with reduced cognitive performance. With most smartphone users in India being college students, the focus is now on exploring smartphone usage's impact on students' sleep. Umpteen news articles in India have reported binge-watching, social media use during the night, and other mobile phone-related interruptions as causes of improper sleep and irregular sleep patterns. However, such studies may involve bias while self-reporting and are limited to a one-time exercise. To understand the reality, we need to accurately quantify the sleep duration, patterns, mobile usage before and after bedtime, number and duration of interruptions. In this first-of-its-kind study in India, we infer novel insights into the sleep patterns of a cohort of 40 college students. We implement a mobile sensing-based approach for the study by installing a custom-developed mobile app on all phones. We extract sleep activity and infer the sleep duration, bed-in and wake-up times, and interruption duration from the sensor data collected from the phone's built-in sensors. The study brings about new insights into college student sleep patterns and, interestingly, shows that students have a regular sleep cycle and good sleep quality. Only one-fourth of the students revealed irregular sleep patterns, and we did not observe any mobile-related interruptions 30 min past bedtime.



Sleep time distribution: majority of the students fall into the 4.87–6.27 h bins. The distribution is skewed to the left indicating an average sleep duration of about 6 h

Biography

Dr. Kalyan Pathapati Subbu is currently an associate professor at DAU. He obtained a PhD in Computer Science from University of North Texas, USA in 2011. After his PhD, he worked as a postdoctoral researcher at Nanyang Technological University, Singapore. He works in the areas of mobile and pervasive computing designing and developing systems for societal benefits. All his work falls under the mobile sensing domain. He is currently handling two government funded projects. One of the projects funded by ICSSR looks at understanding mobile phone usage among college students and predicting association with mental health disorders and the other funded by DST aims to develop an indoor navigation system for public governance.

Gender-Human Security Interface: Critical Perspectives with Special Reference to India

Sujit Lahiry

Professor of Political Science, Panjab University Regional Centre, India

The theme of human security was first articulated by Mahbub-ul-Haq in the United Nations Development Programme's Human Development Report in 1994. Freedom from fear and freedom from want are the two cardinal principles of human security. Human security puts individual as the prime referral point in its exposition and analysis. Since, there is a lot of emphasis upon gender-specific discourses in the last three decades this article seeks to bring into limelight the critical perspectives of the interfaces between gender and human security, with special reference to India. This article raises some fundamental and pertinent questions. What impact does gender have on human security? What are the different dimensions of Human Security? To what extent we have been able to establish a gender-specific human security discourse in India? This article tries to answer all these substantive questions and establish a gendered-human security discourse in contemporary India.

Biography

Dr. Sujit Lahiry, Ph.D is a Professor of Political Science at Panjab University Regional Centre, Sri Muktsar Sahib, Punjab, India. He has One Book, titled *World Order Discourses: Search for Alternatives* (Rawat Publications, 2011); and 32 Research Articles in Edited Books and various national and international journals, like *Discover Global Society- Springer Publications, World Affairs – Wiley Publications, World Affairs - Sage Publications, The Review of International Affairs (Institute of International Politics and Economics, Belgrade, Serbia), Millennial Asia: An International Journal of Asian Studies – Sage Publications, Man & Development, Mainstream,* etc. His article, 'Globalization and Its impact on Social Welfare: Critical Perspectives with special reference to India', has been published in the Edited Book, *Social Welfare Policies and Programmes in South Asia*, edited by Rajendra Baikady, et al (Routledge, 2020). His Article, 'Alternatives in World Politics: Reading Structuralism in International Relations', in *Advances in Sociology Research Vol. 36,* has been published by Nova Science Publishers Inc (New York, US) in 2021. His latest Article, 'Poverty, Inequality and Politics of Marginality in India: State and Civil Society's Affirmative Action', has been published in *The Routledge Handbook of Poverty in the Global South*, edited by Rajendra Baikady et al. (Routledge, 2024).

Central Neurological Manifestations in a Sample of Syrian Patients with Systemic Lupus Erythematosus: Cross-Sectional Study

Lama Al-Dariwsh[1], Naram Khalayli[2] and **Maysoun Kudsi[2]**

[1]Faculty of Pharmacy, Al-Sham Private University, Syria
[2]Faculty of Medicine, Damascus University, Syria

Introduction: The authors aimed to study systemic lupus erythematosus (SLE) central neurological patterns and their correlations with the disease activity.

Patients and methods: The authors' retrospective observational study was carried out on admitted SLE patients. The patients' demographic data, clinical examinations, laboratory tests, imaging studies, and systemic lupus erythematosus disease activity index (SLEDAI) were recorded.

Results: Thirty-six SLE patients had neurological manifestations from 203 patients, but 8 patients were excluded. 90.2% were females. The age of neuro-lupus manifestation was 24.1+2.9 years. Neurological manifestations were the initial presentation in 25% of patients. General seizures were the frequent manifestation. SLEDAI was 29.51±18.43, while it was 18.3±9.2 among patients without neuropsychiatric systemic lupus erythematosus (NPSLE). Twenty-five percent of patients had pleocytosis on cerebrospinal fluid (CSF) analysis. Small lesions were seen in 57.1% of patients on brain MRIs, and large lesions were observed in 10.6%. These findings were compatible with the disease activity.

Discussion: Central nervous system involvement ranged between 10 and 80%, and much more with active disease. The frequent finding was general seizures. Psychosis and cognitive impairment were relatively frequent. Adult NPSLE manifestations had developed before or around the time of SLE diagnosis and within the first year after diagnosis. These manifestations were directly correlated to the disease activity. Abnormality in CSF is characterized by slight pleocytosis, and elevation of protein with normal fructose. MRI is the neuroimaging test of choice for NPSLE in clinical practice.

Conclusion: Central neurological involvement in SLE was seen early in the course of the disease, and correlating to the disease activity.

Table - The neuro-manifestations of SLE ptients

Manifestation	**Frequency (percentage), *N* (%)**
Headache	8 (28.57)
Seizure	6 (21.42)
Cognitive dysfunction	3 (10.7)
Psychosis	3 (10.7)
Cranial neuropathy	3 (10.7)
Peripheral neuropathy	2 (7.14)
Stroke	2 (7.14)
Aseptic meningitis	1 (3.57)

MMSE score	
24–30	25(89.28)
18–23	2(7.14)
0–17	1(3.57)

Biography

Lama Al-Darwish is a dedicated pharmacist, medical researcher, and social worker. She holds a Bachelor's degree in Pharmacy from Al-Sham Private University and is currently pursuing a Bachelor's in Health Science at the University of the People. Lama has contributed extensively to scientific literature, with multiple publications in high-impact journals and awards, including the **IHOP6 Best Arab Research Abstract 2024**. As an active **speaker at international conferences**, she shares insights on autoimmune diseases and neurological disorders. Lama has also served as a **research reviewer for esteemed journals**, including the *International Journal of Surgery*, PLoS One and *Annals of Medicine and Surgery*. With strong skills in research, data analysis, and public speaking, she aspires to bridge the gap between healthcare and innovation, ultimately becoming a leader in pharmaceutical research and healthcare management.

Revolutionizing Teacher Education in Light of Positive Psychology: Evaluating PPIs Through the Lens of Culture

Elnaz Oladrostam[1], Teymour Rahmati[2] and **Musa Nushi[1]**

[1]Department of English Language & Literature, Shahid Beheshti University, Iran
[2]Department of English, School of Medicine, Guilan University of Medical Sciences, Iran

Positive psychology (PP) focuses on the constructive effects of positive emotions on optimal performance. The purpose of conducting the present study was to integrate PP in to a foreign language teacher education course to assess whether making practitioners cognizant of basic tenets of positive psychology affects their teaching positively. To this end, first a comprehensive measure of PERMA profiler was administered to practitioners to evaluate their well-being. Results revealed that PP tenets and principles needed to be taught through PP interventions (PPIs). Therefore, some participants were selected and they were given instruction on the main PP principles. They were asked to write about their reactions to the teaching program. Retrodictive thematic analysis of teacher's verbatim written reflections demonstrated that teachers felt they made great breakthrough in their instructional practice and their well-being as well as love of their career were augmented. Moreover, plethoric underlying PP elements were extracted from their writings. However, it was noted that in order for these PPIs to be effective, they should be in conformity with cultural patterns and norms. In other words, these PP activities must be divided in to collectivist, individualistic, and both-way interventions to be effectual.

Biography

Elnaz Oladrostam is a PhD graduate of applied linguistics from University of Tehran (UT), Iran. She has published a number of papers in different well-known peer-reviewed journals. She is currently a lecturer at Department of English Language and Literature at Shahid Beheshti University (SBU). Her main area of interest is positive psychology and its applications in language learning and teaching.

Think Beyond Age - Secrets of Superagers

Priya Sharma and **Nagaveni Hegde**

Department of Physiotherapy, Jain (Deemed-to-be University), India

SuperAgers are individuals who have exceptional memory performance in older age, achieving scores equal to or greater than those of younger individuals. The emerging field of geroscience aims to accelerate research into the fundamental processes behind aging, potentially leading to better therapeutic therapies. This phenotype dispels the notion that exceptional memory is exclusive to young individuals and challenges preconceived notions about the aging process. Extraordinary memory may be correlated with characteristics that prevent memory deterioration in later age, such as academic achievement and cognitively stimulating activities. Effective cognitive aging is a new field that has been studied from various angles, leading to various definitions. Understanding factors linked to SuperAgers is crucial as maintaining functioning in older persons is crucial for quality of life and personal autonomy. This research highlights the multifactorial nature of aging, indicating that both lifestyle choices and innate biological factors may collectively contribute to successful aging and the superaging phenomenon. SuperAgers report higher levels of Positive Relationships with others than other people who are similarly aged and intellectually sound, implying that this aspect of psychological well-being might play a significant role in remarkable cognitive aging. Improved global cognition has been linked to dietary intervention with MedDiet supplemented with either extra virgin olive oil or nuts. The behaviors seen typically among individuals living in blue zones are: eating a plant-based diet; exercising, walking, gardening; feeling purposeful; being a part of a community; learning to relax; and not eating too much in food after dusk. While the blue zones are areas with a high percentage of centenarians—are spread out across the globe.

Biography

Priya Sharma is currently working as Assistant Professor in Department of Physiotherapy at Jain (Deemed-to-be University), Bangalore, India. She completed her Master in Physiotherapy in Neurology from Amity University, Noida, India. She is a researcher and academic scholar with innovative expertise in evidence-based healthcare.

Mental Wellbeing and the Kama Sutra: A Synergy Between Hedonic and Eudaimonic Approaches

Aparupa Dasgupta[1] and **Dr. Soheli Datta**[2]

[1]Clinical Psychology Centre of University of Calcutta, India
[2]Department of Applied Psychology, University of Calcutta, India

Background: The concept of mental well-being has often been misinterpreted. It has been subjected to the notion that Hedonic and Eudaimonic traditions are distinct, with nothing binding them together. However, Indian philosophical texts like *Kama Sutra* bridged these two approaches, offering a more integrated view of well-being. Several centuries after *Kama Sutra* was composed, neuroscientific research reflected a change in the experience of pleasure and its significance as the brain evolved and became more complex. The evolving brain's perception of pleasure includes both immediate gratification and deeper, more lasting states of mental well-being. This highlights ancient literature's profound understanding while predating these modern views in neuropsychology.

Objectives: The paper aims to explore the extent to which ancient principles found in texts like *Kama Sutra* correspond with current neuroscience research. It seeks to assess how contemporary neuroscience supports *Kama Sutra's* concept of channelling primordial urges for long-term well-being through sophisticated cognitive processes.

Scope: The scope of the paper lies at the intersection of ancient philosophical texts and contemporary neuroscience, as well as the related concepts of hedonic and eudaimonic well-being.

Methodology: The methodology follows a narrative review approach, with keyword searches conducted in the Google Scholar database and reference lists of primary articles examined.

Results and conclusion: *Kama Sutra* emphasises the interaction between the forces of love and sex in the pursuit of one's full potential, transcendence, and the search for meaning. Modern neuroscience affirms the interconnected nature of love and sex, underscoring

the enduring relevance of *Kama Sutra's* insights, despite predating these scientific advancements. Research suggests that the brain mechanisms involved in fundamental pleasures (those associated with food and sexual activity) are related to those underlying higher-order, more complex pleasures (e.g., financial, creative, musical, compassionate, and transcendent pleasures). Thus, the ideas put forward by *Kama Sutra* have found robust support in modern neuroscience.

Biography

Aparupa Dasgupta is an MPhil student in Clinical Psychology at the University of Calcutta. She has earned a Master's degree in Applied Psychology, specialising in Clinical and Forensic Psychology. She has extensive experience in clinical settings, having trained at various government hospitals across Kolkata, where she conducted psychological assessments and therapy sessions. She has also qualified for the position of Assistant Professor by passing the University Grants Commission National Eligibility Test (UGC NET). Aparupa is published in Psychology of Sexuality & Mental Health (Springer) and has contributed to social research projects focused on vulnerable communities in West Bengal. Her research interests encompass diverse areas within psychology, such as evolutionary psychology, neuropsychology, social psychology, and clinical psychology, among others.

Validation Studies on a Noninvasive Neuromonitoring Method, Rheoencephalography (REG)

Michael Bodo[1], Jason J. Chang[2], Ryan Gensler[3] and **Rocco A. Armonda[4]**

[1]Uniformed Services University of the Health Sciences, USA
[2]Department of Critical Care Medicine, MedStar Washington Hospital Center and Department of Neurology, Georgetown University School of Medicine, USA
[3]Georgetown University School of Medicine, USA
[4]Department of Neurosurgery, MedStar Washington Hospital Center and Georgetown University School of Medicine, USA

The loss of cerebral blood flow autoregulation is experienced after severe neurological injuries. Its impairment leads to a cascade of secondary neurological injuries that often follow the primary neurological insult. However, although its maintenance is important, cerebral autoregulation monitoring remains and does not follow consistent clinical standards. The traditional neurocritical monitoring method is invasive intracranial pressure monitoring. Several methods have also been tested for noninvasive neuromonitoring. REG is a form of non-invasive monitoring based on bioimpedance measurement; however, it is not used in routine clinical practice today. This review presents selected results of in-vitro and in-vivo studies evaluating the REG pulse waveform quantification during cerebral blood flow alterations, correlations with the intracranial pressure and other cerebral blood flow measuring modalities, and calculation of the rheoencephalogram-based autoregulation index. A total number of 1027 human and 638 animal tests were involved. An *in-vitro* study documented the correlation between Doppler ultrasound flow and bioimpedance. In-vivo animal and human studies established a correlation with other modalities such as laser Doppler flow, carotid flow, near-infrared spectroscopy, and intracranial pressure as well as invasive and noninvasive cerebral blood flow autoregulation indexes. Studies documented that REG reflects cerebral volume change, cerebrovascular reactivity, intracranial pressure, cerebral blood flow autoregulation, and transient brain vasospasm before systemic reaction during complement activation. Human measurements documented: 1) REG is

more sensitive to a decrease in elasticity of brain arteries than Doppler; 2) Cerebrovascular damage caused by alcohol; 3) REG pulse wave morphology changes (peak 2) correlate with cerebral blood flow autoregulation's active/passive status; 4) Peak 2 increases during the Trendelenburg position. These studies support the idea that REG can be considered as a future non-invasive neuromonitoring modality.

Biography

Bodo, M., is a well-published expert in rheoencephalographic (REG) studies. His PhD dissertation involved several neuromonitoring methods, REG, and its data processing. His Cerberus system for primary stroke prevention was the only awardee of the French Minister of Scientific Research at Concourse Lepine (Patent and Innovation Expo, Paris, 1993). He was the PI of REG-related studies at Walter Reed Army Institute of Research (Silver Spring, MD) between 2005 and 2009. He performed several REG validation studies, see publications. His publications documented: 1) REG reflects cerebrovascular reactivity. 2) An identical lower limit of cerebral blood flow autoregulation measured with PRx and REGx using the ICM+ program. 3) REGx change coincided with REG pulse wave morphology change (peak 2 increase -identical to ICP pulse wave morphology alteration during ICP elevation). 4) REG pulse wave peak 2 increases during the head-down tilt position. 5) A software (DataLyser) was created by his suggestion to visualize, record, and process physiological signals, involving PRx/REGx calculation. 6) He is involved in developing a miniaturized REG device for space research, funded by the European Space Agency, which can be used for monitoring neurocritical patients, too.

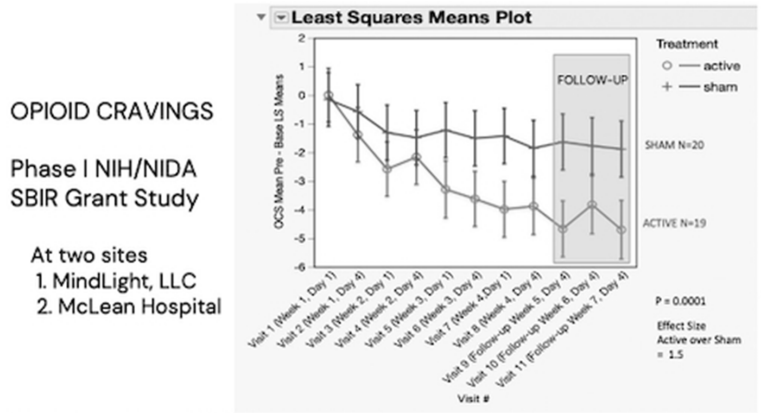
Unilateral Transcranial Photobiomodulation to a Cerebral Hemisphere with a Positive Emotional Valence: Results from Clinical Trials for Treating Opioid Cravings and for Depression

Fredric Schiffer[1,2,3]

[1]McLean Hospital, USA
[2]Harvard Medical School, USA
[3]MindLight, LLC, USA

In Dual-Brain Psychology, it is posited that emotional trauma becomes associate with one cerebral hemisphere (either left or right) as a trait. The opposite hemisphere is much healthier and this is reflected in troubled verses healthy personalities that are elicited when either hemisphere is stimulated with unilateral transcranial photobiomodulation (utPBM). This technique can be used as an adjunct to psychotherapy designed to treat the experiences of past traumas associated with one hemisphere, but in our clinical trials we have studied utPBM as a stand-alone treatment for opioid cravings, and anxiety and depressive disorders. In this talk, I will review the results from 3 completed clinical trials, all with positive results. No adverse reactions have been observed.

Opioid Cravings Following 4-Minute Unilateral Transcranial Photobiomodulation Treatments



These data are from a published double-blinded placebo-controlled NIH funded clinical trial.

Schiffer F, Khan A, Bolger E, Flynn E, Seltzer WP, Teicher MH. An Effective and Safe Novel Treatment of Opioid Use Disorder: Unilateral Transcranial Photobiomodulation. Front Psychiatry. 2021;12:713686.

We are currently conduction an FDA Phase II clinical trial using utPBM for the treatment of fentanyl addiction. We have an FDA breakthrough designation for the ongoing clinical trial. We have conducted and published MRI, DTI, fMRI, NIRS, EEG, and EP studies in support of Dual-Brain Psychology suggesting that the most important neural structure related to the psychopathology of trauma is the cerebral hemisphere.

Biography

Fredric Schiffer is an assistant professor of psychiatry, part-time, at Harvard Medical School and a research associate at McLean Hospital. He has developed a theory of psychology that is the subject of his recent book *Goodbye Anxiety, Depression, Addiction, & PTSD: The Life-Changing Science of Dual Brain Psychology*. The theory has been studied extensively at Harvard and its support and applications have been articulated in multiple peer-reviewed publications. Dr. Schiffer is also the Founder and CEO of MindLight, LLC which has received 2 SBIR grants from the US National Institute on Drug Abuse. He has a private practice of psychiatry in Newton, Massachusetts, USA.

Self-Paced, Technology-Based Interventions for Lay Citizen Response to the Opioid Overdose Crisis

Wasantha Jayawardene[1], Matthew Kase[2], Dametreea Carr[3], Chesmi Kumbalatara[1], Roy Magnuson[2] and **Michael Hecht[3]**

[1]Southern Illinois University, USA
[2]Illinois State University, USA
[3]REAL Prevention LLC, USA

In the U.S., one person dies of drug overdose nearly every five minutes. Existing interventions, such as medication-assisted treatment and reducing opioid prescriptions, have minimally reduced overdose mortality. In most opioid overdose fatalities, there was a potential bystander present, but unfortunately, the overdose reversal medication, naloxone, was not administered. Therefore, a call-to-action has been issued for training laypersons to administer naloxone, which is now available to anyone without prescription. However, training underserved groups and improving their self-efficacy in overdose management remain challenges. This abstract presents two studies that aimed to strengthen social support networks and interactive outreach training programs.

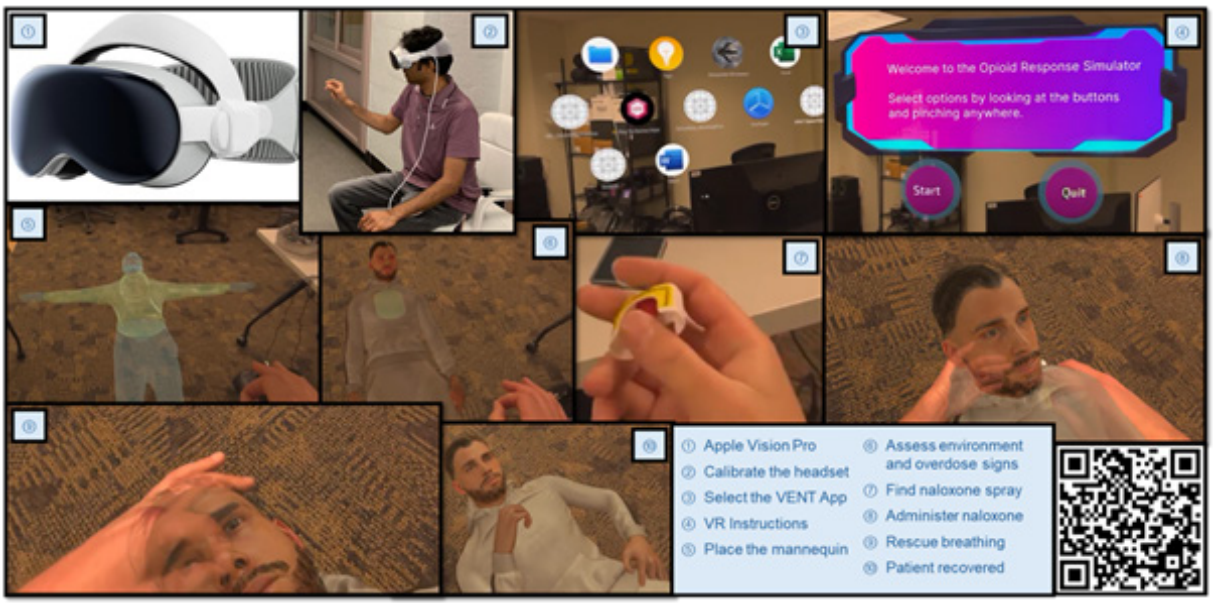
Opioid Rapid Response System (ORRS) is a theory-based platform for citizen recruitment and online naloxone training. Outcomes were evaluated in a randomized, unblinded two-arm waitlist-controlled trial, recruiting adults who did not self-identity as a certified first responder. Participants (N=220) were recruited using either personal or communal messages and then randomly assigned to online naloxone training and waitlisted-control conditions. Pre-post online surveys revealed that ORRS significantly improved knowledge of overdose signs/management and self-efficacy, and reduced concerns, but did not improve intent to respond which suffered from a ceiling effect.

Table-1: Changes in scale scores in ORRS training and waitlist conditions and effect sizes

Scale	Mean difference		*p* value	Effect size (d)
	Waitlist condition (n = 81)	ORRS condition (n = 59)		
Knowledge in opioid overdose signs	0.06	0.23	<0.001	1.17
Knowledge in opioid overdose management	0	0.28	<0.001	1.72
Confidence in overdose management	0.02	0.45	<0.001	1.39
Concerns related to overdose management	0	0.39	<0.001	1.31
Intent to help overdose patients	-0.12	-0.06	0.614	0.17

Virtual Reality Embedded Naloxone Training (VENT) is a naloxone training that utilizes mixed reality to increase the learner engagement and reduce anxiety associated with attending a victim in real life. It allowed trainees to interact with virtual objects while seeing their surroundings, e.g., administering naloxone spray to a virtual patient. VENT was field-tested with diverse participants (N=25) and environments. VENT significantly improved knowledge in recognizing an overdose and confidence in administering naloxone, rescue breathing, and chest compressions, while increasing intent to help and reducing uncertainty responding to overdoses. Participants found VENT more engaging than traditional training, noting its realism, simulated patient responses, immersive experience, and effectiveness in boosting knowledge and confidence.

Figure-1: A Step-by-Step Illustration of Virtual Reality Embedded Naloxone Training (VENT)



Biography

Dr. Wasantha Jayawardene is an Assistant Professor in the School of Human Sciences, Southern Illinois University (SIU), USA; he also serves as an Adjunct Professor in the School of Medicine. He obtained MD from People's Friendship University of Russia, Moscow, and MS in Health Promotion and PhD in Health Behavior (with minor in Neuroscience) from Indiana University School of Public Health Bloomington, USA. After completing his postdoctoral fellowship, he served as an Assistant Scientist and Associate Scientist in Indiana University. His research focuses on addiction and mental health, where he employs advanced methodologies, including randomized controlled trials, meta-analyses, and analysis of data from non-traditional sources. He has published 70 manuscripts in peer-reviewed journals and 76 conference abstracts, conducted several large surveys, evaluated health programs, and served as the Principal Investigator of 7 grant-funded projects, an expert panel member, and invited speaker. He is the director of Social Perception Lab, SIU.

Designing against Bias: Identifying and Mitigating Bias in Machine Learning and AI

David J Corliss

Peace-Work, USA

Bias in machine learning algorithms and AI is one of the most important ethical and operational issues in technology today. This subject is especially important in neuroinformatics, where algorithm developers may be less familiar with neurological science and medical practitioners may be less familiar with the strengths, weaknesses, and potential pitfalls of algorithms used in machine learning and AI. This paper presents techniques and best practices for the detection, quantification, and mitigation of bias, especially in modern AI systems such as LLMs. Common sources of bias and the mechanisms causing bias to the transmitted the final algorithm are described. Analysis of disparate impact is used to quantify bias in existing and new applications. Open-source packages such as Fairlearn and the AI Fairness 360 Toolkit quantify bias by automating the measurement of disparate impact on marginalized groups, offering great promise to advance the mitigation of bias. These design strategies are described in detail with examples.

Biography

David J Corliss, PhD is the founder and Director the NGO *Peace-Work*, a volunteer cooperative of statisticians and data scientists applying statistical methods to issue-driven advocacy in human rights and providing analytic support for academic research teams. Dr. Corliss also serves as the Principal Data Scientist at Grafham Analytics, a data science consultancy. His work in best practices for ethical machine learning and AI includes teaching a course for the American Statistical Association on ethical challenges in data and analytics, serving on the steering committee of the Statistics section of the American Association for the Advancement of Science, and writing a column on Data for Good in Amstat News from the American Statistical Association, where he was recently elected to the Board of Directors.

Enhancing Play Skills in Children with Autism Spectrum Disorder Through Interventions Involving Typically Developing Peers and Adults: A Systematic Literature Review

Goodson Dzenga and **Nyasha Dzenga**

University of Montana Western, USA

Objective: This systematic literature review aimed to identify effective play interventions that involve typically developing peers or adults to enhance play skills in children with autism spectrum disorder (ASD). The goal was to evaluate how such interventions can improve social communication and behavioral outcomes for children with ASD, thereby fostering greater integration into community life.

Scope: The review analyzed 20 empirical studies published between 2000 and 2022. These studies included both single-case designs (SCDs) and group design studies, which were evaluated for methodological rigor and quality based on criteria from the Council for Exceptional Children (CEC; Cook et al., 2015).

Methods: The selected studies focused on play interventions involving typically developing peers or adults and aimed to improve play behaviors in children with ASD. The interventions were assessed for components such as following the child's interests, prompting, video modeling, live modeling, priming, and social stories. The studies were reviewed for their methodological rigor, including the use of appropriate experimental designs and the quality of evidence.

Results: The review found that most interventions were multi-component, incorporating strategies like prompting, video modeling, and live modeling. These strategies were more frequently used and showed positive effects in improving play skills. Priming and social stories were less commonly used but still contributed to positive outcomes. The findings indicated that combining multiple strategies, particularly those focused on social engagement and communication, was effective in enhancing play behaviors.

Conclusion: The review highlights the importance of individualized, contextually appropriate, and evidence-based play interventions for children with ASD. The findings suggest that multi-component interventions, particularly those that promote social interaction and communication, can significantly improve play behaviors and support community integration for children with ASD.

Biography

Dr. Goodson C. Dzenga is an Assistant Professor in Special Education at the University of Montana Western, specializing in Applied Behavior Analysis (ABA) and interventions for children with developmental disabilities, particularly Autism Spectrum Disorder (ASD). His research has been published in leading journals such as Advances in Neurodevelopmental Disorders (2024), where he co-authored a literature review on play interventions for children with ASD. Dr. Dzenga's work also explores the impact of meaningful play in early childhood, with an upcoming article in the International Journal of Early Childhood Development. He has co-authored studies on inclusive education policies in southern Africa (Journal of Special Education Practice, 2021) and Emotional/Behavioral Disorders (Learning Disabilities—A Contemporary Journal, 2023). His research also includes the use of video modeling to teach leisure activities to individuals with developmental disabilities, presented at the 2021 Applied Behavior Analysis International Conference. Dr. Dzenga is committed to evidence-based practices and fostering inclusive educational environments for diverse learners.

A Novel Approach to Modeling Brain Dynamics and Neurological Disorders

Tomas Yufik[2] and **Yan M.Yufik**[1]

[1]Virtual Structures Research, Inc., USA
[2]Alliant International University, USA

This presentation outlines a novel systems neuroscience perspective in the understanding and modeling of neuronal mechanisms in the brain. Under the new perspective, mechanisms that underlie cognitive capacities and those responsible for the production, distribution and utilization of metabolic energy are inextricably intertwined. Associating cognition with energy management makes possible a unified theoretical framework for representing a wide range of cognitive disorders, including Alzheimer's disease, autism, PTSD, schizophrenia, and Major Depression. The central notion in the theory is that of 'neuronal packets', i.e. neuronal assemblies stabilized by boundary energy barriers and representing objects in the environment (perceptually bounded and stable feature aggregations). Multitudes of packets form energy landscapes in the cortex, holding packets in energy 'wells' separated by 'hills'. Moving between packets in the landscape requires energy, the mechanism of attention shifting and focusing boils down to targeted energy delivery as necessary for smooth navigation. Energy delivery involves the limbic system and the frontal/prefrontal cortices and is dependent on the task and the flow of conditions in the environment. Our novel theory therefore proposes that different cognitive pathologies are manifestations of different dysfunctions and/or their combinations in the energy mechanism. For example, Alzheimer's symptoms result from the lowering of energy barriers caused by accumulation of plaques and neurofibrillary tangles, giving rise to the experience of progressive memory loss (loosing distinctions between objects) which ends with turning the perceived world into undifferentiated noise. By contrast, the autism spectrum disorders (ASD) manifest pathological growth of the barriers in some region and disruptions (discontinuities) in the landscape (presumably, as a result of excitation/inhibition imbalances), thus confining

attention and attention-dependent cognitive operations to the constrained region. In this way, the theory identifies common roots in a range of clinically distinct pathologies, which can suggest new approaches to diagnosis and treatment modalities.

Biography

Tomas Yufik is Clinical Psychologist, he attended Berkley University, San Francisco CA and State University of New York at Buffalo, NY. His research interests are focused on analyzing mechanisms and developing treatment methods for PTSD and other disorders. Tom is Professor at Alliant International University, Alhambra CA.

Reporting on Human Trafficking Crimes: A National Transportation Survey

Kezban Yagci Sokat[1], Marisa Auguste[2], Christi Wigle[3] and **Chris Baglin[3]**

[1]San Jose State University, USA
[2]Connecticut Transportation Institute, USA
[3]United Against Slavery, USA

Transportation plays a key role in combating human trafficking. This session presents the findings from the National Outreach Survey for Transportation (NOST) focused on forced labor, addressing the significant data gap regarding the intersection of human trafficking and transportation. NOST, the first-ever U.S. Department of Transportation (DOT) Combating Human Trafficking in Transportation Impact Award-winning proposal, is a comprehensive survey primarily for multiple modes of transportation. The survey aimed to identify what is and is not working on the frontlines of counter-human trafficking efforts and document unresolved challenges and recommendations from a total of 3,896 respondents from 1) transportation personnel, 2) victim service providers, and 3) trafficking survivors.

85% of the respondents state that they have never reported signs of human trafficking. Survivors said during recruitment, 46% of 127 human trafficking survivors were promised a transportation ticket if they wanted to leave; 57% wanted to leave but were not provided with transportation to exit. Among 173 respondents working in various state DOT construction units, only 26% feel slightly or very confident (19% and 7%, respectively) about identifying labor trafficking in their work environment. Participating transportation workers confirm specific training topics that may help to identify forced labor proximate to the work environment or within the community, transportation-related venues, and events. Respondents from multiple transport modes also provide valuable suggestions on how personnel and industry leaders can help combat human trafficking in supply chains. For the primarily U.S.-based transportation respondents, the most suggested strategy for encouraging companies to use products free from forced labor in their supply chains was

high penalties (1,229 respondents), followed by loss of tax benefits (850 respondents) (total n = 1,766). Organizations can utilize these results for their anti-trafficking plans in consultation with the local community and broader anti-trafficking stakeholders in the transportation industry.

Biography

Kezban Yagci Sokat is an Assistant Professor of Business Analytics at San José State University and a Research Associate at the Mineta Transportation Institute with a passion for using analytics to alleviating human suffering in the areas of public health, humanitarian logistics, and human trafficking.

In collaboration with local, national, and international efforts, Yagci Sokat leads various multi-disciplinary projects to combat human trafficking. Her efforts to combat human trafficking have been supported and recognized by government and organizations such as the United States Department of Transportation (USDOT), Valley Transportation Authority, and IBM. She was selected as a 2024 Influential Leader for her extensive efforts to society. She currently serves on USDOT Advisory Committee on Human Trafficking Research and Data Subcommittee. She was the chair of the Forced Labor Working Group and a member of the Analytics Working Group for the National Outreach Survey for Transportation.

An *In-Silico* Approach to Study the Interactions for 'Acute Pancreatitis Marker': Structural Biology of Human Lipase and Colipase

Arundhati Banerjee

Institute of Leadership, Entrepreneurship and Development Kolkata (Affiliated under West Bengal University of Technology), India

Lipase, an acute pancreatic marker protein, is a digestive enzyme which breaks down triacylglycerol into glycerol. Due to presence of bile salt, pancreatic lipase cannot function without colipase (its cofactor). Fluctuation of lipase level causes acute pancreatitis, cystic fibrosis and crohn's disease. So, it is essential to study about the molecular and residual basis of lipase and co-lipase interactions. In this study, amino acid sequences of human lipase and colipase protein were extracted. Manifold molecular modelling was performed to select the best 3D structure of lipase and colipase. Active sites in lipase were observed to participate in the interaction with colipase. Spontaneity of interaction and net area for solvent accessibility were evaluated. Free energy of folding or ΔG value was also analysed between before optimization and after optimization of homology models. More negative values of ΔG indicate more spontaneous and stable interaction of the protein. After optimization, both the homology models of lipase and colipase had a more negative ΔG value indicating spontaneity in their interaction with partner proteins (Table 1). Conformational shifts in both the proteins before and after optimization was observed (Figure 1). Compromising the loop conformations after optimization with the increase in helical and sheet like conformation reveals the compact conformation in lipase and colipase. Interactions after protein-protein docking simulations show that all three aromatic amino acids from lipase exhibited aromatic interactions. Charged residues, Arg and Lys were seen to interact from lipase. Among other hydrophobic interactions, 54% interactions were undergone by Ile and Leu. Only, tyrosine residues formed the aromatic interactions from colipase. Aromatic interactions by all three aromatic amino acids (Phe, Tyr and Trp) were seen from lipase protein. Charged residues, Arg and Lys were seen to interact from lipase. Among other hydrophobic interactions, 54% interactions were done by Ile and Leu from lipase and colipase (Figure 2). Tyrosine residues

(from 71st and 76th positions) formed the aromatic interactions from colipase. Therefore, the presence of hydrophobic interactions, aromatic interactions and presence of charged residues in the interaction of lipase and colipase shows a stable compact interaction. This study creates a new path for future research on human lipase and colipase for competent drug discovery as without an exploration to the residue level, it remains incomplete.

Figure 1. Conformational fluctuations in lipase and colipase, before and after optimization

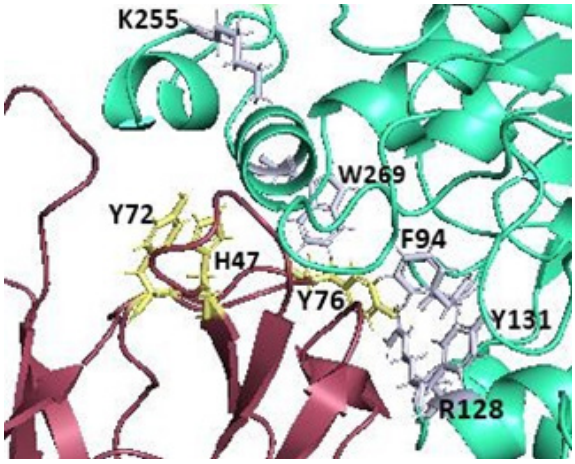


Figure 2. Few interacting residues (aromatic and charged residues) from lipase (limegreen shade) and colipase (raspberry shade). The residues from lipase and colipase have been shown in blue-white sticks and pale-yellow sticks, respectively.

Table 1. ΔG values and net area for solvent accessibility for lipase and colipase

Proteins/ Parameters	Lipase		Colipase	
	Before Optimization	After Optimization	Before Optimization	After Optimization
ΔG value (kcal/mol)	-395.96	-407.82	-55.13	-55.9
Net area for solvent accessibility (Å^2)	18036.15 Å^2	18574.76 Å^2	7012.86 Å^2	7114.47 Å^2

Biography

Dr. Arundhati Banerjee is currently working as an Assistant Professor in the Department of Allied Health Sciences under West Bengal University of Technology, West Bengal 713212, India. She completed her M.Tech. from Department of Biotechnology, National Institute of Technology, Durgapur in 2016. In 2017, she was awarded ICMR-SRF Direct Fellowship as well as CSIR-SRF Direct Fellowship in 2018. She completed her Ph.D. in 2022 as CSIR- SRF Direct Fellow with one-year fellowship extension from CSIR Extra-Mural Research Team, New Delhi. She has 28 international research articles among which 18 are SCI- Indexed and rest is having indexing under Scopus and PubMed. Her Scopus h-index is 6 and cumulative impact factor is 62.66. She has 12 international book chapters and 18 conference proceeding publications in Springer and IGI Global. She reviewed 75 articles under Elsevier, Springer, Taylor and Francis. She conducted workshop classes in 21 days Summer Training Programme at Bioinformatics Infrastructure Facility (BIF), West Bengal. She was also invited as a keynote speaker in ESMED General Assembly in August 2022. She has teaching experience for 4 years and supervised 3 UG projects and dissertations. Her inclination is to drive the youth minds for academics and research.

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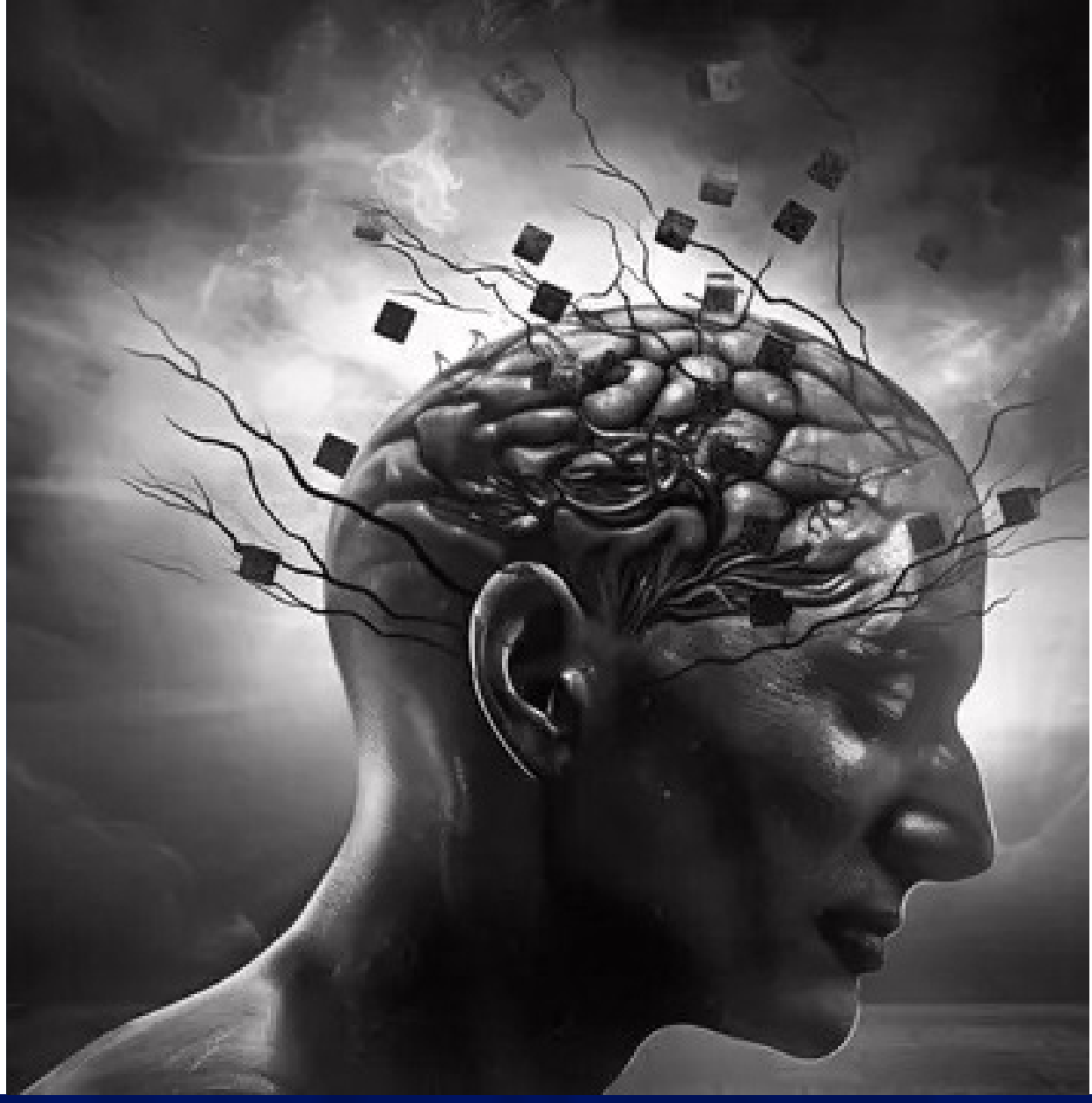


DAY 02

Virtual Joint Event

NEUROLOGY AND NEUROLOGICAL DISORDERS & ADVANCES IN ADDICTION MEDICINE AND MENTAL HEALTH

JUNE 23-24, 2025

SPEAKER TALKS

A Newly Modified and Standardized Muscle Function Test for People with Multiple Sclerosis

Regula Steinlin Egli[1] and **Nico Arie van der Maas**[2]

[1]Physiotherapie Langmatten, Switzerland
[2]Institut für Physiotherapieforschung, Switzerland

Introduction: The 6-point manual muscle test of Neurostatus EDSS is the most widely used test in MS. However, the test can be confounded by spasticity and may lead to biased test results when selective strength is measured. Therefore a modification of the manual muscle test for PwMS (mMMT) is of paramount importance for physiotherapy and occupational therapy so that the selective strength can be best maintained or even improved with controlled, targeted training.

Methods: In a single-center, prospective, cross-sectional, longitudinal study, we evaluated the reliability and validity of the mMMT. The influence of spasticity was assessed exploratively using plots and in subgroups using a linear mixed effects model (LME) for each test separately.

Results: The pooled overall intra-rater reliability for the mMMT (ICC=0.77 [0.65, 0.86]) showed a good reliability (ICC>=0.75). The mMMT did not meet the target Intra Class Correlation (ICC) margin of 0.7 for interrater reliability.

Conclusion: We concluded that the mMMT is a suitable tool for use in daily practice when administered by the same therapist. In order to improve the inter- and intra-rater reliability of the mMMT, specific criteria must be defined and adhered to, both in the starting position and in the execution of the test.

A follow-up study of newly standardized tests for MS-relevant muscle groups was conducted with a trained group of testers as part of a master's thesis. The calculated ICC values (inter- and intra-rater reliability) could be classified as moderate to very good (0.60 to 0.87 for the inter-rater reliability and 0.75 to 0.92 for the intra-rater reliability). This shows that the

standardization of the tests and the training of the testers significantly improved the reliability.

The newly standardized tests are described and published in a uniform and detailed manner. (Modifizierte Muskelfunktionsprüfung bei Multipler Sklerose, Springer, 2024, Steinlin Egli).

Biography

Regula Steinlin Egli has been a physiotherapist since 1983. The specialization and development of neurological physiotherapy has always been a major concern of hers. In 2001 she founded the world's first specialist group for physiotherapy in MS and in 2008 she was the first physiotherapist to be elected to the Scientific Advisory Board of the Swiss MS Society. Her growing experience and in-depth knowledge have led to numerous publications, including three textbooks. In 2014, she developed the course "CAS Neurophysiotherapy - Expert in Multiple Sclerosis" at the University of Basel, which she will lead until 2023. Today, she works mainly as a consultant, both in practice and in teaching.

Cannabidiol: A Promising Candidate Drug for Promoting Health and Longevity?

Yanying Liu

Qingdao Huanghai University, China

Longevity has been an eternal topic for humanity since ancient times, and how to combat aging and extend the human lifespan is also one of the urgent problems that scientists need to solve. However, the extension of the human life span is accompanied by an increase in the incidence of some age-related diseases such as Alzheimer's disease (AD) incidence rate. Therefore, maintaining good health and longevity is a fundamental starting point and ultimate goal for anti-aging. Cannabidiol (CBD) is a compound extracted from cannabis that can indirectly improve AD pathology and delay the aging process through either endogenous or non-cannabis receptor pathways. However, the role of CBD and its mechanism of action is not yet clear and deserves further exploration. Here, we summarize the research progress related to AD, aging, and CBD treatment in AD and aging, analyzing the relationships among AD, aging, and the research achievements of CBD, pointing out the limits and shortcomings in existing studies, and finally predicting the future research directions and trends in recent years. This study will provide new ideas and perspectives on understanding the relationships among AD, aging, and CBD treatment, better leverage the anti-aging effects of CBD, and promote human health and longevity.

Biography

Yanying Liu is a professor currently teaching Medical Pathogenic Microbiology and Parasitology, Immunology, and Biochemistry at the Qingdao Huanghai University in China. She received her Ph.D. in Neurobiology from the Capital Medical University (China) in 2006. In the past decade or so, she has worked as a postdoc or research staff scientist engaged in scientific research related to neuroscience at SUNY Upstate Medical University or the University of South Dakota in the USA. Dr. Liu's research is related to several areas: Alzheimer's disease, Huntington's disease, stroke, and stem cells. Her current research interests are the mechanism of the aging process, brain hypoxia, and stroke.

Effect of Cerebral Oxygen Saturation Monitoring in Patients undergoing Superficial Temporal Anterior-Middle Cerebral Artery Anastomosis for Ischemic Moyamoya Disease: A Prospective Cohort Study

Xuanling Chen, Xuewei Qin and **Lan Yao**

Peking University International Hospital, China

Objective: Regional cerebral oxygen saturation (rSO_2) is linked with blood pressure. This study evaluated the influence of perioperative rSO_2 monitoring on the prognosis of ischemic Moyamoya disease (MMD) patients undergoing anastomosis surgery.

Methods: In this prospective cohort, patients with unilateral ischemic MMD of Suzuki stage ≥3 were included. The decision of rSO_2 was made by the clinician and the patient. The rSO_2 group maintained intraoperative rSO_2 levels through the modulation of blood pressure, inhaled oxygen concentration, carbon dioxide in arterial blood, and red blood cell transfusion. The non-rSO_2 group used conventional anesthesia practices. Perioperative mean arterial pressure (MAP), rSO_2 values, neurological complications, and postoperative results were assessed.

Results: A total of 75 eligible patients were categorized into a rSO_2 monitoring group (n = 30) and a non-rSO_2 monitoring group (n = 45). For the rSO_2 group, the preoperative $rSO_2$was significantly lower on the affected side ($P < 0.05$). After anastomosis, this value notably increased ($P = 0.01$). A moderate relationship was observed between perioperative rSO_2 and MAP before, during, and after surgery, with correlation coefficients (r) of 0.536, 0.50_2, and 0.592 ($P < 0.05$). Post-surgery MAP levels differed between the groups, with the rSO2 group showing decreased levels compared to pre-surgery and the non-rOS_2 group displaying elevated levels. Notably, the rSO_2 group reported shorter hospitalizations and decreased neurological complications. Patients with a hypertension history found postoperative MAP influencing hospital stay duration.

Conclusion: Perioperative rSO_2 surveillance enhanced cerebral perfusion and minimized postoperative complications in ischemic MMD patients. Thus, rSO_2 monitoring is advocated for MMD patients undergoing vascular anastomosis.

Biography

Graduated from the Peking University Third Hospital, specializing in anaesthesiology. Currently studying PhD in Anaesthesiology at the Peking University Third Hospital.

Currently working in the Department of Anesthesia at Peking University International Hospital as an Associate Chief Physician. Mastered monitoring tools such as transesophageal echocardiography, cerebral oxygen saturation, EEG, etc. I have participated in surgical anesthesia for critical patients, such as cardiac surgery, retroperitoneal tumor surgery, Neurosurgical intraoperative arousal surgery and thoracic surgery, etc. I also led and participated in 6 projects and participated in the major project of Science and Technology Innovation 2030 - Brain Science. Published 6 SCI articles.

Associate Editor for Frontiers in Medicine; Chinese Research Hospital Retroperitoneum and Pelvic Floor Committee secretary, Member; Chinese Research Hospital Retroperitoneum and Pelvic Floor Committee, Member; Beijing Perioperative Medicine Research Society Emergency Medicine Sub-committee, Member; Chinese Women Doctors' Association, Member; Beijing Medical Association Oncology and Anaesthesia Committee, Member; Beijing Medical Association of Oncology and Anaesthesia, Member.

Utilizing Systematic Mendelian Randomization to Identify Potential Therapeutic Targets for Mania

Sen Hu[1] and **Fang-Biao Xu**[2]

[1]Henan Provincial People's Hospital, Zhengzhou University People's Hospital, China
[2]The First Affiliated Hospital of Henan University of Chinese Medicine, China

Background: Mania has caused incalculable economic losses for patients, their families, and even society, but there is currently no effective treatment plan for this disease without side effects.

Methods: Using bioinformatics and Mendelian randomization methods, potential drug target genes and key substances associated with mania were explored at the mRNA level. We used the chip expression profile from the GEO database to screen differential genes and used the eQTL and mania GWAS data from the IEU database for two-sample Mendelian randomization (MR) to determine core genes by colocalization. Next, we utilized bioinformatics analysis to identify key substances involved in the mechanism of action and determined related gene targets as drug targets.

Results: After differential expression analysis and MR, a causal relationship between the expression of 46 genes and mania was found. Colocalization analysis yielded six core genes. Five key substances were identified *via* enrichment analysis, immune-related analysis, and single-gene GSVA analysis of the core genes. MR revealed phenylalanine to be the only key substance that has a unidirectional causal relationship with mania. In the end, SBNO2, PBX2, RAMP3, and QPCT, which are significantly associated with the phenylalanine metabolism pathway, were identified as drug target genes.

Conclusion: SBNO2, PBX2, RAMP3, and QPCT could serve as potential target genes for mania treatment and deserve further basic and clinical research. Medicinal target genes regulate the phenylalanine metabolism pathway to achieve the treatment of mania. Phenylalanine is an important intermediate substance in the treatment of mania that is regulated by drug target genes.

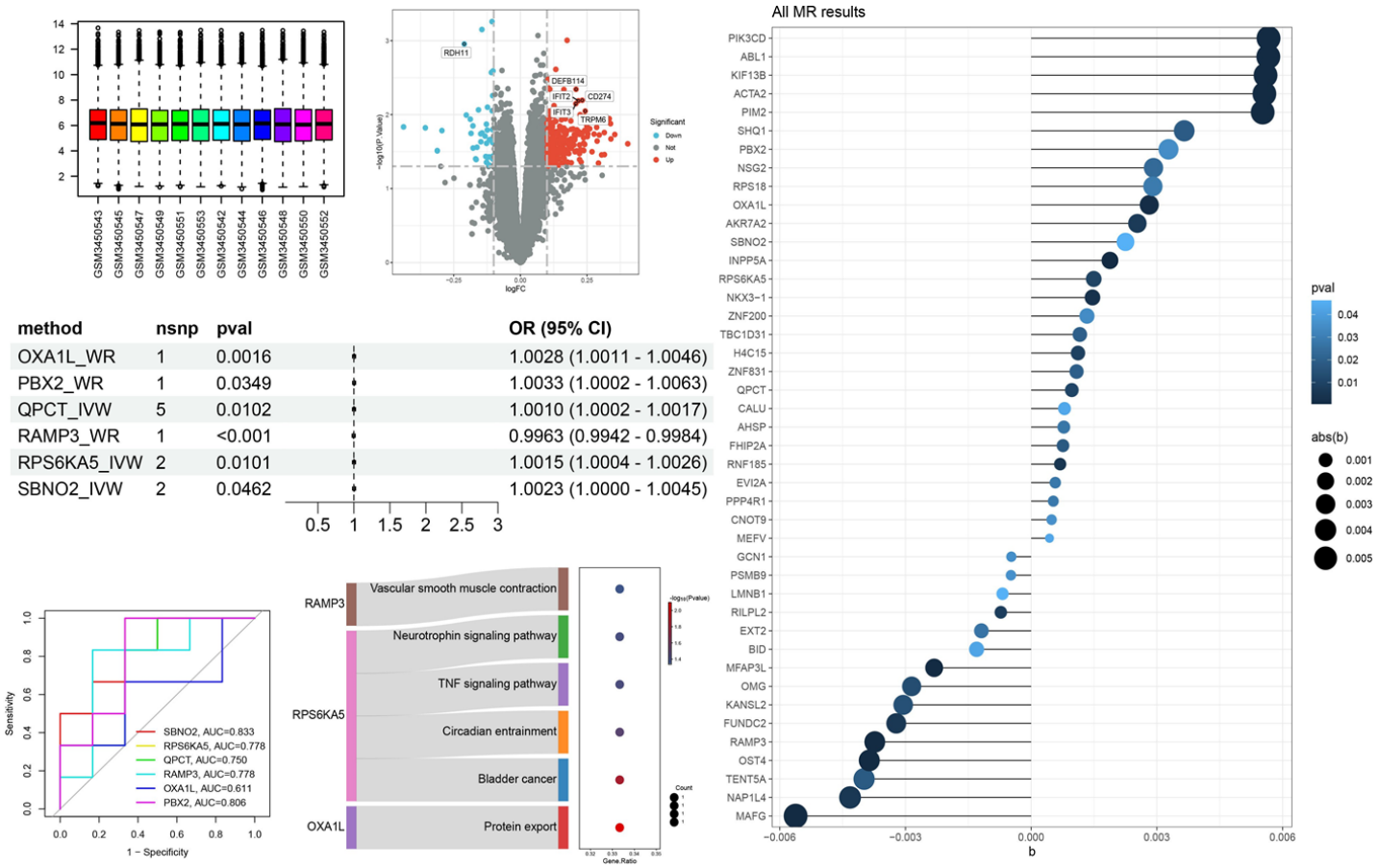


Figure 1. Identification of hub genes associated with manic episodes (A) Box plot of sample information in the GSE121963 dataset. (B) Volcano diagram of DEGs in the GSE121963 dataset. (C) Mendelian randomization results of eQTLs and manic episodes. (D) Mendelian randomization results of hub genes and manic episodes after coloc. (E) ROC curve of hub genes in manic episodes. (F) KEGG enrichment analysis of hub genes.

Biography

Sen Hu, Henan Provincial People's Hospital/Zhengzhou University People's Hospital, member of the Chinese and Western Medicine Branch of the Chinese Society of Traditional Chinese Medicine Information, deputy leader and secretary-general of the Department of Neurosurgery (Precision Therapy Group of Neuro-tumors) of the Henan Medical Popular Science Association, and secretary-general of the Zhong yuan Neuro-tumor Forum of the World Federation of Neurosurgical Societies (WFNS). He is proficient in R language, Python, and Stata data processing, and is committed to the research of electronic medical record structuring, big data, and data mining.

NREM Sleep Dynamic and Epilepsy

Anna Szucs and **Peter Halasz**

Pécs Medical University, Department of Neurological and Semmelweisz Medical University, Hungary

Sleep homeostasis and sleep homeostatic plasticity

The human NREM sleep is an important phylogenetical achievement providing refreshing for the synaptic network in a use dependent way The substrate and the measure of the synaptic homestasis is the sleep slow wave activity. The working mode of the synaptic homeostasis is the homeostatic plasticity increasing from morning to evening and downscaling after the first sleep cycles. When we stay awake in hight the homeostatic pressure increases exponentially during the day. Homeostatic plasticity is a powerful building force but carries the risk of overflow and transform to epilepsy (Sleep is the price of human cognitive abilities and epilepsy is the price of sleep homeostatic plasticity)

What is Epilepsy

Seizures are the end product of epileptogenesis - interictal discharges (spikes and pathological HFO) are the main player of epileptogenesis.

Epilepsies are not focal and not generalized, they are epileptic networks built on physiological brain networks (like memory, human communication, vigilance regulation, arousal regulation of NREM sleep, etc).

Epilepsies start with an initial brain lesion or a gen mutation, affecting different brain networks and consequently brain functions. The second step is a long term hidden evolution of structural and/or electrophysiological epileptic transformation. During this period interictal discharges are present, in a network specific manifestation indicating the increase of the affected network excitability

The essence of epileptic transformation (upregulation) is the derailment of the useful physiological plasticity by an exaggeration of plasticity, Seizures are the culmination points of this increased excitability, and frequently are elicited by the activation of the particular brain network harboroughing the epileptic transformation (like a hidden reflex- epilepsy)

NREM sleep enhanche the number of interictal discharges according to the distribution during the cyclicity, following the slow ave activity distribution,

We have several evidences for epilepsy is born in the womb of NREM sleep

Some examples are:

- In MTLE the sharp wave -ripple transformation to spikes and pathological (above 200 Hz) ripples during sleep (Buzsáki 2015, Gulyás and Freund 2015) ;

- In absence epilepsy the spindle production of the rNE may knock over to bilateral spike-wave pattern during slow wave sleep.

- In self-limited childhood epilepsy spectrum, the centrotemporal spikes (CTS) transform from CTS without ripple to CTS with ripple and further when epileptic encephalopathy is developed the electrical status epilepticus (ESES) transform to increase of rippling with pathological ripples, during slow wave sleep.

Practical conclusion is to use sleep recording by whole night records to understand more of the type of epilepsy, and the actual state of epilepsy with outcome predictions.

Biography

Dr. Anna Szűcs Ph.D.

- Medical degree: Semmelweis University Budapest, Hungary 1978.
- Member of the British Association of Neurologists.
- Specialisations: Neurology (1983) | Psychiatry (1986) | EEG (1995) | Psychiatry rehabilitation (2006) | Epilepsy specialist (2009) | Somnology (2016)
- Scientific Degrees: Ph.D. 2002, sleep disorders in neurologic diseases.
- Habilitation 2010, Paroxysmal events in sleep..
- Studies outside Hungary:1988. Sleep and Epilepsy Centre Montpellier; France.
- 1995. Marburg, Germany University Sleep Centre.
- 2002. Münich, Germany, Epilepsy Centre.
- Most of her time she has spent in Hungary working as a clinician both in hospital and outpatient settings; and for the last 15 years she has been coming and going to the UK to different hospitals, practising there as a consultant neurologist.
- Her jobs both in Hungary and the UK often involved teaching junior doctors.
- As a Ph.D. and habilitated doctor, she has more than 200 publications in peer reviewed journals (shown on PubMed); books and papers. The number of her independent citations is more than 3000.

The Crosstalk Between CREB and PER2 Mediates the Transition Between Mania- and Depression-Like Behavior

Xin-Ling Wang[1,2,3] , Yan-Bin Ji[4], Su-Xia Li[5,6] and **Tsvetan Serchov[2,3]**

[1]School of Basic Medical Sciences, Shandong University, China
[2]Centre National de La Recherche Scientifque (CNRS), Université de Strasbourg, Institut Des Neurosciences Cellulaires Et Intégratives (INCI), France
[3]Department of Psychiatry and Psychotherapy, Medical Center - University of Freiburg, Faculty of Medicine, University of Freiburg, Germany
[4]Department of Neurology, Qilu Hospital of Shandong University, China
[5]National Institute on Drug Dependence, Peking University, China
[6]Beijing Key Laboratory of Drug Dependence, Peking University, China

Bipolar disorder (BD) is a severe psychiatric disorder characterized by alternating manic and depressive episodes. The molecular mechanisms underlying the transition between mania and depression remain unclear. Utilizing a mania animal model induced by ouabain, we observed reduced phosphorylated level of cyclic AMP-responsive element-binding protein (pCREB) and Period (PER)2 expression in the cornu ammonis (CA1) region of the hippocampus, which were restored by lithium treatment. shRNA knockdown of *CREB* or *Per2* in CA1 region induced mania-like behavior, while overexpression of both factors resulted in depression-like behavior. Furthermore, our protein analyses revealed that the upregulation or downregulation of *CREB* or *Per2* influenced each other's expression. Co-immunoprecipitation results demonstrated that CREB interacts with PER2. Taken together, our data suggest for potential inter-regulatory crosstalk between CREB–PER2 in hippocampal CA1 region, which mediates the transition between mania- and depression-like behaviors.

Biography

Xin-Ling Wang studies into the role of circadian genes in mood disorders. She received her Ph.D. in Pathology and Pathophysiology from the University of Chinese Academy of Sciences in 2020. From August 2020 to September 2023, she worked independently at Shandong University, focusing on the pathogenesis of mood disorders. From September 2023 to August 2024, she worked in the same field as a postdoctoral researcher at the Institute of Cellular and Integrative Neuroscience (INCI), CNRS, in France. Since September 2024, she has continued the same project as CNRS at the Medical Center of the University of Freiburg.

Mild Cognitive Impairment: Prevalence and Risk Analysis Among Normal Middle Adulthood

Preeti Gazbare[1], Tushar Palekar[1] and **Manisha Rathi[2]**

[1]Dr. D. Y. Patil College of Physiotherapy, Dr. D. Y. Patil Vidyapeeth, India
[2]Venus Physiotherapy College, Swarnim Startup and Innovation University, India

Decline in cognitive function affects one's daily living at any age. Mild cognitive impairment (MCI) an intermediate stage between dementia & normal cognition is at growing trend globally and is a concerning feature in India. Cognitive issues are often associated with elders as dementia is found in 20/1000 population above 75years of age. However, research suggests cognitive decline begins around mid-20s and average memory declines can be detected by mid-30s. Thus, with this background we aimed to explore the dearth in literature regarding the prevalence of mild cognitive decline in the normal middle adulthood & its numerous risks factors.

Method: A community based, cross-sectional study conducted in Pune city of Maharashtra, India on 605 normal middle-aged adults. From the randomly selected wards of Pune district, camps were conducted to interview middle aged adults for demographic characteristics for the risk factors like age, gender, years of education, marital status, type of family, diet, sleep hours, body mass index, after their consent, along with assessment of cognitive functions, level of physical activity, type of lifestyle and stress using Addenbrookes cognitive examination-III, International physical activity questionnaire, Simple lifestyle indicator questionnaire, and Perceived stress scale-10 respectively. Statistical analysis for categorical data was analysed by chi square test and odds ratio(OR) calculated for risk factor by logistic regression with 95%CI.

Results: Survey found prevalence of MCI among normal middle-adulthood was 27.77% with 95%CI:24.35 to 31.47 with mean age of 49.21+6.53. Females showed more cognitive decline as compared to males (34.28%v/s22.05%). Risk factors like increasing age (OR:1.35,p<0.001), low education level (OR:1.8,p<0.0001), low physical activity (OR:1.61,p<0.0001), high stress

(OR:1.44,p<0.003), non-vegetarian diet (OR,1.34,p<0.02) were associated with MCI, whereas factors like lifestyle, marital status, type of family, BMI, sleep hours has non-significant results.

Conclusion: High prevalence of MCI in normal middle-aged adults in India suggest alarming issue of early onset of dementia. Increasing age, less education, low physical activity, high stress, non-veg diet are some significant modifiable risk factors associated with cognitive decline. Thus, an appeal for mandatory inclusion of screening tool for cognitive decline to prevent & intervene timely.

Biography

Dr. Preeti Gazbare is a physiotherapist with specialization in Neuroscience. She holds a Ph. D degree. With over 16+ years of academic experience, she has established herself as an expert in the field of neurorehabilitation. She is a professor at Dr. D.Y. Patil College of Physiotherapy affiliated to Dr. D.Y. Patil Vidyapeeth, Pune, where she has been actively involved in teaching, research, clinical and administration. Her research focuses on neuroscience, cognition, and physiotherapy research. Some of her notable publications are published in Scopus indexed journal, has copyrights to her credits. She is a reviewer in many journals and books of repute. She has received an award “Significant contribution to the Profession” in 2024 and Research excellence award in 2021. Dr. Preeti is actively contributing to the development of clinical practices in Neuro-physiotherapy and has been committed to the mission of transforming healthcare through innovation, collaborative research and mentoring the next generation of Physios.

Performance Evaluation of Children at Risk for Schizophrenia using Ensemble Learning

Rathiya R[1] and **Kalamani M**[2]

[1]Assistant Professor, Dr. N.G.P Institute of Technology, India
[2]Professor, KPR Institute of Engineering and Technology, India

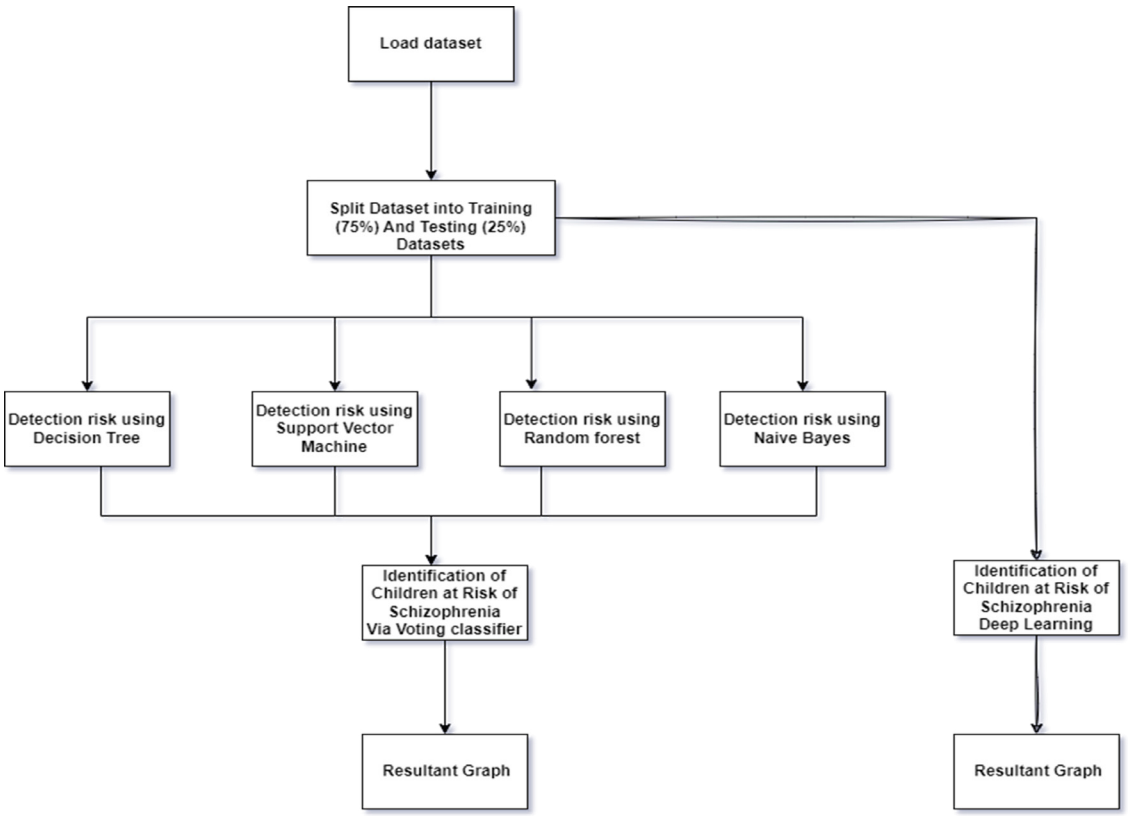
The study introduces a novel approach for the early detection of schizophrenia risk in children, employing machine learning algorithms including Voting classifier, Naive Bayes, Random forest, Decision tree, and SVM. Leveraging a comprehensive dataset featuring children's identifiers, gender, age, migraine status, BPRS score, medication usage (including clozapine and traditional neuroleptics), and EEG data, the study aims to enhance predictive accuracy. Through extensive evaluation on a diverse sample population, the research demonstrates the effectiveness of the proposed method in accurately discriminating between at-risk with high precision and recall. By enabling early intervention and targeted support, this approach holds for improving the timely identification and management of schizophrenia in children, thereby potentially leading to better long-term outcomes and quality of life for affected individuals.

Scope and Limitations of the Study

The innovative approach focuses on development of sophisticated machine learning models tailored to identify children at risk of developing schizophrenia, with a particular focus on the age group. By leveraging a comprehensive dataset comprising demographic, clinical, medication, and EEG data, you aim to explore a diverse range of advanced algorithms, including deep learning architectures, voting classifiers, naive Bayes, random forest, decision trees, and SVM. Through meticulous evaluation using established performance metrics like accuracy, precision, and recall, your primary objective is to construct predictive models with exceptional discriminatory capabilities. Ultimately, your project seeks to detect high-risk individuals effectively, enabling timely interventions and personalized support mechanisms to mitigate the potential long-term impacts of schizophrenia. This

initiative represents a significant step forward in the early detection and intervention of schizophrenia in children, with the potential to improve outcomes and quality of life for affected individuals and their families.

Block Diagram



Comparison Work

Algorithm	Accuracy	Precision	Recall	F-Measure
Voting	96.98	97.46	94.78	96.10
Naive Bayes	81.05	76.09	81.77	78.83
Decision Tree	83.81	79.96	78.12	79.03
Random Forest	75.28	81.21	82.35	81.78
SVM	76.44	75.54	78.54	77.01

Conclusion

The study on early detection of schizophrenia risk in children utilized various machine learning methods, including the voting classifier, Naive Bayes, Random Forest, Decision Tree, and Support Vector Machines. By leveraging a comprehensive dataset containing demographic information, clinical indicators, medication history, and EEG data, the proposed system showed promising results in accurately identifying at-risk individuals. The ensemble learning technique, particularly the voting classifier, showcased superior predictive accuracy compared to individual modules, emphasizing the effectiveness of combining diverse classifiers. While each module contributed respectable accuracies ranging from 75% to 83%, the voting classifier stood out, achieving an impressive accuracy in detecting schizophrenia risk in children. These findings underscore the importance of early intervention and highlight the potential of machine learning in improving long-term outcomes for those at risk of schizophrenia.

Biography

Rathiya completed her Bachelor of Engineering (B.E.) degree in Computer Science and Engineering from Ponjesly College of Engineering, Kanyakumari, India, in 2011, and her Master of Engineering (M.E.) degree from Noorul Islam University, Kanyakumari, India, in 2013. She is currently pursuing a Ph.D. under Anna University, Chennai, India, specializing in Deep Learning. Over the course of her academic career, she has authored 9 papers in international conferences, published 3 papers in international journals, and holds 4 patent publications. She has also published one book. Completed three NPTEL certifications, and received six NPTEL mentor certificates. She has submitted three projects to the Tamil Nadu State Council for Science and Technology (TNSCST) and received a grant of one lakh INR to conduct an online ATAL Faculty Development Program (FDP). Additionally, she has completed several courses to enhance her expertise organized by Infosys Springboard. She has also completed industrial training in Web Development, Full Stack Development, and the Internet of Things (IoT). Furthermore, she is certified as a coach for the "AI for Youth Program" in India, conducted by DELL Technologies, and is a lifetime member of the Indian Society for Technical Education (ISTE).

Cortical Thickness Variations in the Precentral Gyrus: An MRI Study

Eti Sthapak, Navbir Pasricha and **Rajan Bhatnagar**

Dr. Ram Manohar Lohia Institute of Medical Sciences, India

Introduction: Understanding cortical thickness provides insights into the structure-function relationships of the brain and aids in various neuroscientific studies and clinical applications. Our aim was to study variations in the thickness of cortical grey matter of precentral gyrus and changes related to laterality, gender and age.

Aims & Objectives:

1. To assess variations in the cortical thickness of precentral gyrus based on laterality and gender.
2. To analyze age-related changes in cortical thickness of precentral gyrus.

Material & Methods: This study examined 400 Magnetic Resonance Imaging (MRI) of Brain in axial sections. MR images was taken from GE 3.0 T MRI scanner, with T1 weighted sequences from picture archiving & communication system (PACS) of Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow. Age was ranging between 1 to 80 years. The results were statistically analysed by using paired t-test, ANOVA, Chi-square test.

Result: Precentral gyrus:

Laterality: The mean cortical thickness of right and left side in T1 weighted images of MRI brain were 3.15±1.36 and 3.09±0.55 mm respectively.

Gender variations: Mean cortical thickness of right and left hemisphere in T1 images of females were 2.9±0.50 and 2.95±0.52 and of males were 3.31±1.77 and 3.21±0.54 respectively.

Age: Cortical thickness was increased in group 2(21-40 years) and then decreased in age group 3(41-60 years).

Conclusion: Cortical thickness was found greater in males then females. Changes with age in the cortical thickness of precentral gyrus of left cerebral hemisphere in males were statistically significant. Knowledge of these variations will be helpful in differentiating between neurodegenerating diseases and normal brain aging.

Biography

- Dr. Eti Sthapak took her MBBS degree in 2002 from NSCB medical college Jabalpur and DLO in2005 from GMC Bhopal. She has completed her MD (Anatomy) in 2013 from JNMC Sawangi, Wardha, Maharashtra, India.
- Her teaching experience is 11years.At present she is working as Additional Professor in the Department of Anatomy at Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow, India.
- She is well conversant with teaching medical students. While working at the basic medical sciences, she acted as research guide to MBBS students in short term studentship ICMR project and co-guide to MD students in Anatomy. She was the contributor in organization of Soft Embalming workshops.
- She has 26 publications in national & international journal. Various oral paper and poster presented in national & international conferences. Published a chapter Urethral catheterization in a book- Manual of ICU procedure 2016.
- She received international travel grant award from Japanese Surgical Society for oral presentation in 114th Annual meeting held at Kyoto.
- She is a life member of Anatomical Society of India, Society of Clinical Anatomist and Society of Medical Anatomist.

An Efficient Multi-Biomarker Deep Learning Approach for Early Alzheimer's Disease Diagnosis using Multimodal Neuroimaging

Subhranil Das

School of Computer Science, UPES, India

This study presents a novel multi-biomarker and multi-tracer approach for the early diagnosis of Alzheimer's Disease (AD), integrating structural and functional modalities such as T1-weighted MRI, FDG-PET, PiB-PET, and cognitive assessments. The objective is to enhance the discriminative power in distinguishing Normal Controls (NC), Mild Cognitive Impairment (MCI), and Alzheimer's Disease (AD) subjects by exploiting anatomical atrophy, metabolic dysfunction, and amyloid deposition simultaneously. A combination of handcrafted and deep-learned features was extracted from key subcortical and cortical regions using FreeSurfer 6.0, GLCM, SIFT, and LBP, followed by classification using a suite of algorithms: Decision Tree Classifier (DTC), Hyperparameter-Tuned Random Forest Ensemble (HPT-RFE), and a Cascaded Probabilistic Siamese 3D Convolutional Neural Network (CPS-3DCNN). Extensive simulations on ADNI and OASIS-3 datasets demonstrated superior classification accuracies across binary (e.g., AD vs MCI) and multi-class scenarios, with CPS-3DCNN achieving 93.5% accuracy. Ablation studies confirmed the synergistic benefit of using quadruple biomarkers. The proposed model showed improved generalization on external test sets and outperformed state-of-the-art single and bimodal approaches.

Biography

Dr. Subhranil Das has been known for working for the different application areas of Artificial Intelligence. His major contributions are in the field of Robotics and Medical Image Processing. His research delves into various applications of Artificial Intelligence, including optimization techniques, deep learning for autonomous vehicles, and big data analytics. It also explores the use of AI in areas like predictive modelling, natural language processing, reinforcement learning, and computer vision, demonstrating the wide-ranging impact of AI across different domains. Dr. Subhranil Das has been nominated for Best Researcher Award in the Global Awards on Artificial Intelligence and Robotics,2022. Moreover, he was also Nominated as Best Researcher Award in the International Research Awards on Welding Technology, 2022. Dr. Subhranil Das is now working at UPES University as an Assistant Professor position in School of Computer Science. He also worked for 2 years of industrial experience at Bharat Consultants as an Electrical System Designer.

Experimental Neurodegeneration Treatment with Trehalose

Korolenko T.A, Pupyshev A.B, Akopyan A.A, Ovsyukova M.V, Dubrovina N.I, Tenditnik M.V, Korolenko E and **Tikhonova M.A**

Department of Experimental Therapy, Scientific Research Institute of Neurosciences and Medicine, Russia

Neurodegeneration prevention and treatment present important problem now. In the treatment of experimental neurodegeneration with disaccharide trehalose, various regimens are used, predominantly 2% solution, drunk for several weeks. We studied the effects of different regimens of dietary trehalose treatment in an amyloid-β (Aβ) 25-35-induced murine model of Alzheimer's disease (AD). Aβ-treated mice received 2% trehalose solution daily, 4% trehalose solution daily (continuous mode) or every other day (intermittent mode), to drink for two weeks. It was revealed the dose-dependent effects on autophagy activation in the frontal cortex and hippocampus, and the restoration of behavioral disturbances. A continuous intake of 4% trehalose solution caused the greatest activation of autophagy and the complete recovery of step-through latency in the passive avoidance test that corresponds to associative long-term memory and learning. This regimen also produced an anxiolytic effect in the open field. The effects of all the regimens studied were similar in Aβ load, neuroinflammatory response, and neuronal density in the frontal cortex and hippocampus. Trehalose successfully restored these parameters to the levels of the control group. Thus, high doses of trehalose had increased efficacy towards cognitive impairment in a model of early AD-like pathology. These findings could be taken into account for translational studies and the development of clinical approaches.

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Biography

- Prof. Tatiana A. Korolenko was born in Tashkent, Uzbekistan (USSR) in 1940
- Graduated from Middle school with gold medal in 1957.
- 1958-1959 -student of Tashkent Medical Institute.
- 1959-1962 — student of Novosibirsk Medical University, Novosibirsk, Russia.
- 1963-1970 — Scientific researcher, Biochemistry, Novosibirsk, Russia.
- 1970- Candidate Dissertation, Moscow, Russia.
- 1965 — Doctoral Dissertation, Novosibirsk, Russia.
- 1995 — work in Laboratory of Prof. Y. Natori, Tokushima University, Japan.
- 2000 — work in LMU, Munchen University, Germany.
- Up to 2024 Scientific researcher, Prof. Institute of Neurochemistry and
- Medicine, Novosibirsk, Russia; head of works of 14 aspirants of the Institute.

AI Agents for Addiction Medicine and Mental Health

Simon H. Muchinenyika

Namibia University of Science and Technology, Namibia

The use of computing technology in medicine is not new, as it has been practiced since the advent of computers. Artificial Intelligence (AI), for example, has been used in Addiction Medicine and Mental Health (AMMH) for early disorder detection, predictive diagnosis, addiction therapy, patient monitoring, and much more. Lately, AI agents are penetrating every sector of life because of their ability to work intelligently and autonomously. Unlike conventional AI solutions, which are primarily based on historical data, AI agents add some level of automation and adaptability because of how they are built and their ability to harvest real-time data. In addition, these agents work on behalf of the users to complete tasks without any intervention, making them ideal for AMMH. However, the successful implementation of AI agents in AMMH is not an easy task as it requires an interdisciplinary approach because of the complexity of the field. Even though the researcher has worked on AI agents in different domains, a collaboration between computer scientists, health professionals, and patients will be a massive step toward implementing AI agents in AMMH. In this presentation, AI agents are discussed with practical examples in AMMH, highlighting their designs and factors that make their implementation successful. By discussing these AI agents, the researcher intends to get input from AMMH experts and foster new collaborations that will make the development of the discussed AI agents a reality. In areas where limitations are identified, policymakers and practitioners are engaged with the hope of removing barriers. The researcher is convinced that this work will revolutionise AMMH.

Biography

Simon H. Muchinenyika is a Senior Lecturer and Head of the Software Engineering Department at the Namibia University of Science and Technology. He holds a PhD in Computer Science from the same university and a Master of Business Administration from the University of Nicosia, Cyprus. Simon is an ardent Computer Scientist passionate about solving everyday challenges to improve humanity through computing technologies. His main research interests are in software engineering, data science, cyber security, and AI agents. Some of his past projects included battery drainage optimization for mobile devices, solutions for open-street parking, enhancing ATM security through biometric authentication, and a customer review model of online sentiments. For detailed information about Simon, kindly visit https://orcid.org/0009-0002-1564-7344.

Impact of Food Colours on Brain: Neurotoxic Insights from a Rat Model

Diksha Bhatt[1], Krati Vyas[2], Shakuntala Singh[3], P.J.John[4] and **I.P. Soni[5]**

[1]Department of Zoology, Government Nehru PG College, India
[2]Medical and Health Department (IEC), India
[3]SSG Pareek PG College, India
[4]IIS University, India
[5]Environmental Toxicology Laboratory, Department of Zoology, University of Rajasthan, India

Synthetic food colors are widely used additives in processed foods, beverages, and snacks, raising concerns about their potential impact on human health, particularly brain function. In this study, we investigated the neurotoxic effects of two commonly used food dyes—Tartrazine and Sunset Yellow—at their acceptable daily intake (ADI) levels. Weanling Wistar rats were treated with these dyes for 40 days, spanning their critical growth period into maturity.

Biochemical analysis of the brain tissue revealed significant oxidative stress in treated groups compared to controls. Markers of oxidative stress, including elevated malondialdehyde (MDA) levels and decreased activities of endogenous antioxidants like superoxide dismutase (SOD) and catalase, were observed in the hippocampus and cerebral cortex. The findings indicate that prolonged exposure to these dyes, even at ADI levels, disrupts the delicate redox balance, potentially impairing cognitive functions and neurodevelopment.

This study highlights the potential risks associated with prolonged consumption of synthetic food dyes and underscores the need for stricter regulatory policies and public awareness. Our findings contribute to the growing body of evidence linking dietary components to brain health and emphasize the importance of evaluating the long-term effects of food additives on neurodevelopment and oxidative stress.

This research paves the way for further studies to explore the molecular pathways involved in dye-induced neurotoxicity and the implications for human dietary practices.

Biography

Dr. Diksha Bhatt is a dedicated researcher specializing in food toxicology, with expertise in brain and behavior toxicology. She is actively involved in raising awareness about the potential health risks associated with synthetic food colors. With a PhD in Food Toxicology, her research focuses on understanding the neurotoxic effects of food additives and their implications for human health.

Currently serving as Assistant Professor and Head of the Department of Zoology at Government Nehru PG College, Ashoknagar—an institute under the Department of Higher Education, Bhopal, Madhya Pradesh—Dr. Bhatt is committed to both academic excellence and public health advocacy. Through her work, she strives to bridge the gap between scientific research and community awareness, emphasizing the need for informed dietary choices and fostering a healthier, more informed society.

A Positive Psychological Group Intervention (PPI) in School for the Enhancement of Well-Being of Children whose Parents are Experiencing Psychological Economic Hardship

Christina Tassi and **Andreas Brouzos**

Laboratory of Educational Psychology, Counselling and Research, Department of Primary Education, University of Ioannina, Greece

The study examined the effectiveness of a 10-week group counselling positive psychological intervention (PPI) aimed at improving the well-being of children whose parents face psychological economic hardship. Conducted in primary schools in two areas of Greece, the sample included 270 sixth graders (M_{age}=11.07, *S.D.*=.26), divided into experimental (*n*=145) and control (*n*=125) groups. Self-report questionnaires assessed demographics, negative life events, emotional and behavioral problems, affectivity, life satisfaction, and psychological well-being before, after, and two months post-intervention. Results revealed a significant well-being improvement exclusively in the experimental group. Specifically, emotional and behavioral problems and negative affect decreased, while positive affect, life satisfaction, and psychological well-being increased. These improvements persisted in the follow-up. The findings underscore the intervention's value for enhancing children's well-being and suggest avenues for future research and practical applications.

Biography

Christina Tassi is a postdoctoral researcher in Educational Counseling at the University of Ioannina and a primary school teacher. She hold a Ph.D. in Educational Counseling (with Honors) and a Master's degree in Educational Sciences with a specialization in Psychology and Counseling. Her research focuses on positive psychology, particularly the well-being of children and adolescents from socioeconomically vulnerable backgrounds and siblings of individuals with autism. Her master's research was awarded "Best Group Research Article of the Year" (2018) by the Association for Specialists in Group Work, and her doctoral work was supported by the Hellenic Foundation for Research and Innovation (2019–2022). She has published in prominent journals such as *The Journal of Positive Psychology, Current Psychology,* and The *Journal for Specialists in Group Work*, and have presented at international conferences. She also teach counseling and research methodology, contributing to both research and practice in educational psychology.

Toward Personalized Medicine in Parkinson's Disease: A Scoping Review of Biomarkers, Genetics and Treatment Stratification

Paula Abola[1] and **George Jabishvili**[2]

[1]Constructor University, Germany
[2]FIECON, UK

Introduction: Personalized medicine is transforming Parkinson's Disease (PD) care by tailoring therapies to patients' genetic, biomarker, and clinical profiles. Given PD's heterogeneity, this strategy offers new possibilities for disease-modifying interventions beyond symptom management.

Methods: A systematic search of PubMed and EBSCO Megafile was conducted following PRISMA 2020 guidelines. Studies included addressed genetic profiling, biomarker discovery, individualized therapeutic strategies, or experimental/computational models relevant to personalized PD care.

Results: Twenty studies were included. Major themes identified included the use of genetic markers such as *LRRK2* and *GBA* mutations for patient stratification; advances in alpha-synuclein and other biomarkers for early diagnosis, though standardization remains a barrier; the application of patient-derived iPSC models and brain organoids to test genotype-specific therapies; and the integration of multi-omics and machine learning to refine disease subtyping and drug discovery. Challenges included limited access to genetic testing, a lack of validated biomarkers, and barriers to clinical translation.

Conclusion: Personalized medicine in PD is progressing rapidly, but significant barriers remain before it can be fully integrated into routine care. Future priorities include validating biomarkers, expanding pharmacogenetic infrastructure, and translating biologically informed strategies into clinical practice.

Biography

Paula Abola is a PhD student and researcher in Clinical Research at the University of Jamestown, with a research focus on decision-making in the pharmacological management of Parkinson's Disease. Her work explores patient and physician perceptions, predictive sociodemographic variables, and the role of health literacy in disease management decisions. She holds a Master of Science in Clinical Drug Development from Queen Mary University of London and a Bachelor of Science in Medicinal Chemistry and Chemical Biology from Jacobs University Bremen (now Constructor University).

Paula serves as an Adjunct Professor at Constructor University, where she teaches undergraduate courses in statistics, ethics, and leadership. She also serves as an Adjunct Profressor at Atlantic International University, where she teaches lectures on Chemical Biology and Research Methodologies and Statistics. She has published in peer-reviewed journals and has presented her findings at international conferences on neurology and movement disorders. Additionally, she is an active member of the Latvian Movement Disorder Society, contributing to the advancement of Parkinson's Disease research and patient care.

From Testing to Rehabilitation: Pilot Implementation of Cognitive Programs for Patients with Executive Deficits

Aneta Votavová and **Lenka Šťastná**

Department of Addictology of the General University Hospital in Prague, Czech Republic

Introduction/ Objectives: Cognitive functions play a key role in daily functioning, and their impairment is common among individuals with substance use disorders. Cognitive deficits can significantly impact the quality of life and treatment outcomes for patients with addictive behavior. The aim of this study is to implement and evaluate two cognitive rehabilitation programs focused on improving cognitive functions: the computer-based Cogniplus program and an author-designed pen-and-paper program.

Methods: To identify cognitive deficits, the authors used a test battery composed of the following: Anamnesis sheet, Beck Anxiety Inventory, Beck Depression Inventory, Addenbrooke's Cognitive Examination, Frontal Assessment Battery, Trail Making Test (versions A and B), Dysexecutive Questionnaire, Satisfaction with Life Scale, Five Point Test, and the Controlled Oral Word Association Test (COWAT). The research sample includes patients with confirmed cognitive deficits, who were randomized into one of three groups: the Cogniplus program, the pen-and-paper program, and a control group without intervention. The study is currently in the data collection phase, with cognitive rehabilitation actively being conducted with patients. Data collection takes place at the Clinic of Addictology, First Faculty of Medicine, Charles University, and General University Hospital in Prague.

Results: Preliminary results reveal typical deficits in cognitive functions such as memory, attention, inhibition, and its control. However, it appears that outpatient patients are often unable to attend and complete the entire 8-week program, which consists of 16 sessions. Frequent drop-out occurs, and some patients experience relapse during the program. In contrast, inpatients are able to regularly attend and complete the entire program. Feedback from patients indicates a preference for the pen-and-paper program, as they value the

human contact and interaction that this format provides.

Biography

Mgr. Aneta Votavová works as an addiction specialist at the Department of Addictology of the General University Hospital in Prague, where she focuses on diagnosing and treating addictions. She works with patients through individual psychotherapy, with a focus on integrative psychotherapy. She is currently pursuing her PhD in addiction science at the First Faculty of Medicine, Charles University, where she concentrates on the diagnosis of cognitive impairments and their subsequent rehabilitation. She also serves as a consultant and methodologist in the MOXO project at the Psychological Institute Re: Life, focusing on ADHD issues. Additionally, Aneta Votavová teaches at the First Faculty of Medicine, Charles University, regularly lecturing to students of addiction studies. She is a member of the Czech Association of Addictologists, the largest professional organization in the Czech Republic, bringing together experts in the field of addiction.

The Base-Ics of Taste: Deciphering Alkaline Sensation

Yali V. Zhang[1,2], Tingwei Mi[1], John O. Mack[1] and **Quinn Lyon[1]**

[1]Monell Chemical Senses Center, USA
[2]Department of Physiology, The Diabetes Research Center, University of Pennsylvania Perelman School of Medicine, USA

The ability to detect and respond to chemical properties of food is critical for survival across animal species. While the recognition of sour, sweet, bitter, salty, and umami tastes is well-established, whether animals can sense alkalinity, the high-pH property of food, remains an open question. Acidity is associated with the sour taste, suggesting a parallel mechanism might exist for detecting alkalinity as a distinct gustatory modality. Despite some early indications of an alkaline taste pathway, the underlying molecular and cellular mechanisms have remained elusive. To address this gap, we used the fruit fly, Drosophila melanogaster, as a model organism and uncovered a key gene, *alkaliphile* (*alka*). Deletion of this gene led to a marked reduction in the flies' aversion to high-pH foods. Through molecular and genetic studies, we demonstrated that *alka* is both essential for and sufficient to mediate the detection of alkaline stimuli.

Electrophysiological experiments revealed that the Alka protein functions as a novel chloride (Cl^-) channel, specifically activated by hydroxide ions (OH^-). Similar to mammalian olfactory sensory neurons, gustatory receptor neurons (GRNs) in flies exhibit a higher intracellular Cl^- concentration compared to the extracellular environment. Activation of the Alka channel by high-pH stimuli prompts an outward flow of Cl- ions, depolarizing the GRNs and triggering action potential firing. This process enables flies to detect and respond to alkaline food.

Our findings shed light on the molecular and cellular basis of alkaline taste sensation, revealing a previously unrecognized gustatory modality and advancing our understanding of how animals perceive their chemical environment.

Biography

Dr. Yali Zhang received his Ph.D. in Biochemistry, Cellular, and Molecular Biology from Johns Hopkins University School of Medicine, where he studied salt taste perception and bitter taste plasticity using the fruit fly, *Drosophila melanogaster*, as a model organism. During his postdoctoral training in the lab of Dr. Craig Montell at the University of California, Santa Barbara, Dr. Zhang's research interests expanded to food texture sensation, leading to the discovery of the first sensory receptor responsible for detecting food texture. In September 2017, Dr. Zhang joined the faculty of the Monell Chemical Senses Center at the University of Pennsylvania as an Assistant Professor and was promoted to Associate Professor in 2023. His lab aims to define the neural circuitry, molecular, and cellular mechanisms underlying taste perception and food intake. Dr. Zhang has made significant contributions to the field of taste biology, including identifying the first alkaline taste receptor in animals and elucidating a sour taste coding mechanism. His research has been published in prestigious journals, such as *Nature Metabolism*, *Neuron*, and *Science*. He has received numerous awards, including the Polak Young Investigator Award from the Association for Chemoreception Sciences (AChemS).

Prevention and Improved Treatment of Alzheimer's Disease by Simultaneous Attenuation External and Internal Stressors

Kedar N Prasad

University of Iowa, USA

Despite preventive recommendations of healthy diet and lifestyle and reducing exposure to environmental toxins for decreasing the incidence of Alzheimer's diseases (AD), this disease continues to rise in the USA and worldwide. In 2021, 6.2 million people aged 65 tears and over were living with AD, it rose to 6.9 million in 2024 and expected to rise to 13.8 million in 2060. Current treatments include elevating the levels of acetylcholine to improve cognitive function, but it lasts for a short time because of the continued death of cholinergic neurons. Recently, antibodies against beta-amyloids are being used for the treatment of AD, but their beneficial effects are limited by their toxicity. The main objective this review is to develop a plan that would attenuate both internal and external stressors. Poor diet and lifestyle, and excessive exposure to environmental toxins are considered external risk factors, while internal stressors include increased oxidative stress, chronic inflammation, reduced levels of acetylcholine, enhanced production of beta-amyloids, and hyperphosphorylation of tau proteins. Other internal stressors include intestinal dysbiosis, age-related decreased production of digestive enzymes, loss of collagen, and impaired Omega 3 function. Recommendations for decreasing external stressors include adopting of healthy diet and lifestyle, and reducing exposure to environmental toxins have not had any impact on the incidence of AD. We propose supplementation with a micronutrient mixture would reduce oxidative stress, chronic inflammation, and production of beta-amyloids and hyperphosphorylation of tau protein. Consumption of probiotics with prebiotics would reverse the harmful effects of intestinal dysbiosis, and digestive enzymes would restore loss of these enzymes. Additionally, taking collagen peptides would improve structure and function of the brain by restoring all collagen types, omega 3 which would replace impaired omega 3, and CBD which would reduce anxiety, depression and hallucination commonly observed in advanced cases of AD.

Biography

Kedar N Prasad obtained a PhD in Radiation Biology from the University of Iowa, USA in 1963, Post-doctoral training at the Brookhaven National laboratory. In 1968, he joined the University of Colorado Medical School and taught radiation biology and Nutrition and Cancer. He researched on cancer and Alzheimer's diseases funded by the National Institutes of Health.

Discoveries

- An elevation of cyclic AMP induced terminal differentiation in neuroblastoma cells in culture;.
- Butyric acid acts as a potent anti-cancer agent.
- Vitamin E succinate inhibited growth of cancer cells, but not normal cells.

Honors

- In 1982, he was invited by the Nobel Prize Committee to nominate a candidate for the Nobel Prize in Medicine.
- In 2017, he was invited to become a member of the Royal Society of Medicine, London.

Publications

He published over 250 papers in peer-reviewed journals. He authored or edited 33 books on radiobiology, neurodegenerative disease, and nutrition and cancer.

A Review of the use of Video Games for Purposes Besides Entertainment: A Case for a Novel Approach for Teaching Assembly Language

Ernesto Rivera-Alvarado and **Saúl Guadamuz**

Costa Rica Institute of Technology, Costa Rica

Assembly language is a technical skill required in several engineering degrees and technology areas. Nonetheless, these skills are often dubbed hard to learn by students due to the complexity of the internal hardware of a microprocessor. It is currently stated that new ways of teaching assembly language are welcomed. We believe that a video game could be an effective tool for teaching assembly as recent research has proved the benefit of using video games for purposes besides entertainment, specifically for developing problem-solving capabilities and learning practical skills. In addition, there are commercially successful entertainment-focused video games that use pseudo-assembly instruction for puzzle solving in the game dynamic. However, we could not identify a video game designed to teach the assembly language of real computer architectures.

In this research, we review the use of video games for purposes besides entertainment and make a case for the value of creating a specialized video game that teaches modern x86 assembly language to college students. We also present some in-game dynamics that use assembly language concepts and propose an evaluation method to check the efficacy of a video game created with this specific goal.

Biography

Ernesto Rivera-Alvarado is an Associate Professor in the School of Electronic Engineering at the Costa Rica Institute of Technology. It holds a B.Sc in Electronic Engineering, a Master's Degree in Business Administration, and a Master's in Computer Science. He is currently pursuing a doctorate program in engineering, specializing in video game design for teaching. His research interests are computer architecture, computer graphics, and video game design, which are used for teaching purposes besides entertainment.

Influence of Race and Age in Sleep Duration and Mortality Relationship among Adults in the United States: Results from the 2004 NHIS-NDI Record Linkage Study

Tolulope V. Adebile[1], Ruth Whitworth[2], Purbasha Biswas[2], Sarah Sejoro[2], Manyun Liu[3], Xinyan Zhang[4] and **Lili Yu[1]**

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[2]Georgia Southern University, USA
[3]Boehringer Ingelheim, USA
[4]Kennesaw State University, USA

Objectives: Limited information exists on age and racial disparities in sleep duration and mortality in the United States (US) population. This study compared the association between mortality and sleep duration within distinct races and age groups in the US.

Methods: This study used data on 26,915 US citizens (≥ 18 years) from the 2004 wave of the National Health Interview Survey, linked to the National Death Index prospective mortality through 2019. Cox proportional hazard models were used to obtain hazard ratios (HRs) and 95% confidence intervals (CIs) for mortality by sleep duration, race (Whites, Black/African Americans, and Others (AIAN, Asian, and Native Hawaiian or other Pacific Islander)), and age (< 40, 40–60, and ≥ 60 years), while controlling for covariates such as sex, education, smoking status, disease history, and other vital factors.

Results: Race and age significantly modified the sleep duration-mortality relationship. Compared to other races, White participants exhibited higher mortality risks at all hours except at 5–6 h [HR: 0.993, 95% CI: 0.923–1.069]. Likewise, sleep duration associated mortality risks varied by age. Those at greater risk included < 40 years sleeping for 1–4 h [HR: 2.461, 95% CI: 1.446–4.187], 40–< 60 years sleeping for less than 7 h and more than 8 h, and ≥ 60 years sleeping for 9 h [HR: 1.309, 95% CI: 1.162–1.475] and ≥ 10 h [HR: 1.662, 95% CI: 1.486–1.858].

Conclusion: Age and race were significant effect modifiers in the sleep duration-mortality relationship. Thus, it is important to consider these factors when evaluating mortality risks associated with sleep patterns.

Biography

Tolulope Adebile is a PhD student in Epidemiology at The Pennsylvania State College of Medicine. She holds an MPH in Biostatistics, an MSc in Food Technology, and a BSc in Food Science and Technology. Tolulope is passionate about how individual behaviors and environmental factors impact health outcomes. Her research focuses on improving chronic disease outcomes, particularly cardiometabolic conditions, through advanced statistical methods. By applying advanced statistical methods, she investigates the roles of diet and sleep on morbidity and mortality, with a strong interest in advancing health equity. She is proficient in SAS and R programming software and Microsoft Office.

Disability-Affirming Supervision: Future Directions in Applied Behavior Analytic Supervision

Grace Ecko Jojo

Simmons University, USA

The field of Applied Behavior Analysis has been undergoing a shift towards increase diversity, multiculturalism, cultural humility in the past few years. A collective call to action was sent in 2019 by multiple researchers in the field in a special issue of Behavior Analysis in Practice, calling for increase diversity and representation within the field, from the institutional level down to practitioners and researchers. Articles, discussions, and reports have been published on increased attention to cultural humility towards clients and stakeholders, as well as practitioners. Little attention has been provided, however, to the diversity of BACB® supervisees. Disability of supervisees has not yet been addressed in the field, and as practitioners and supervisors, it is critical to have the necessary knowledge and skills to be able to train and shape the behavior of supervisees with disabilities. The present review will focus on reviewing research and best practices from the field of psychology and how they can be used and adapted to the field of Applied Behavior Analysis.

Biography

Since becoming licensed in 2016, Grace has worked as the clinical director for a center for children diagnosed with ASD serving immigrant families in the Boston area, providing services, and training in both English and Spanish. During her tenure as clinical director, Grace has served clients in diverse settings, including the home, center, school, and community. Grace is currently completing her PhD in Applied Behavior Analysis at Simmons University where she is completing her dissertation.

Modulation of the Gut-Brain Axis by Malícia Honey (*Mimosa quadrivalvis* L.) from the Jandaíra Bee (*Melipona subnitida* D.) in a Rodent Model of Obesity

Jailane de Souza Aquino[1,2,3], Maria Luiza Rolim Bezerra[1,2], Mirela Gouveia-Nhanca[1,3], Alana Natalícia Vasconcelos de Araújo[1,2] and **Marcos dos Santos Lima[3]**

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The gut-brain axis is a complex bidirectional communication network between the gastrointestinal tract and the central nervous system, influenced by various factors including diet, microbiota, and bioactive compounds. Alterations in the gut-brain axis plays a critical role in metabolic and neurological homeostasis, and is increasingly associated with obesity-related complications. Functional foods with prebiotic and neuroactive properties offer promising results for the restoration of this axis. One such candidate is malícia honey (MH), which contains oligosaccharides, phenolic compounds, and other bioactives. This study aimed to investigate the effects of malícia honey (*Mimosa quadrivalvis* L.) produced by and produced by the stingless Jandaíra bee (*Melipona subnitida* D.), on gut-brain axis modulation in an obese rat model. Forty male Wistar rats were randomized into four groups: healthy (HG), obese (OG), and two honey-treated groups—healthy with MH (HGH) and obese with MH (OGH)—which received MH by oral gavage (1000 mg/kg). Chemical analysis revealed that MH contains procyanidins B1 and B2, epicatechin, and naringenin as major polyphenols (Table 1). MH supplementation increased organic acid levels in biological samples and enhanced brain deposition of procyanidin B2 and gallic acid in OGH rats. Notably, MH prevented the appearance of ischemic neurons and significantly reduced brain NF-kB expression (by 58.08%) (Figure 1). Moreover, MH reversed anxiety-like and depressive-like behaviors in obesity-induced rats. In conclusion, malícia honey demonstrated potent antioxidant and anti-inflammatory properties in the brain and effectively reversed neurobehavioral impairments associated with obesity. These findings suggest that malícia honey may be a valuable functional food for modulating the gut-brain axis.

Table 1. Organic acids, sugars and phenolic compounds of Mimosa quadrivalvis L. honey produced by the jandaíra bee (*Melipona subnitida* D.)

Organic acids (mg/g)	
Acetic	46.00 ± 0.01
Citric	3.30 ± 0.01
Formic	1.00 ± 0.01
Lactic	192.66 ± 0.04
Malic	3.10 ± 0.01
Propionic	1.00 ± 0.01
Tartaric	0.30 ± 0.01
Mono and disaccharides (mg/g)	
Glucose	74.60 ± 0.04
Fructose	74.30 ± 0.03
Maltose	21.90 ± 0.21
Rhamnose	n. d.
Phenolic compounds (µg/g)	
Flavanols and Procyanidins	
Epicatechin	143.41 ± 0.94
Epicatechin gallate	94.25 ± 0.75
Epigallocatechin gallate	24.12 ± 0.23
Procyanidin A2	45.00 ± 0.49
Procyanidin B1	192.44 ± 0.05
Procyanidin B2	158.96 ± 0.06
Flavanones	
Hesperidin	74.10 ± 0.84
Naringenin	119.93 ± 0.19
Flavonols	
Kaempferol-3-glucoside	25.39 ± 0.01
Myricetin	59.00 ± 0.01
Quercetin 3-glucoside	25.05 ± 0.27
Sum of flavonoids	**961.63 ± 3.84**
Hydroxybenzoic acids	
Gallic acid	6.04 ± 1.85

Hydroxycinnamic acids	
Caffeic acid	9.20 ± 0.83
Sum of non-flavonoids	**17.91 ± 2.38**

Biography

She is Head Researcher of the Experimental Nutrition Laboratory, Department of Nutrition, Federal University of Paraíba, João Pessoa, Paraíba (UFPB), Brazil. She is a member of the International Society for the Developmental Origins of Health and Disease (DOHaD). She is also a member of the IFMSA-SCORE Research Exchange, serving as an advisor to medical students on exchange programs in Brazil. She is the leader of the Research Group on Food, Bioactives, and Nutrition: Health and Disease—from Pregnancy to Senescence (GPABiN). She has published more than 100 research papers in national and international journals. Additionally, she has edited/authored six books and four patents. She holds a Research Productivity Scholarship of Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq - Level 2.

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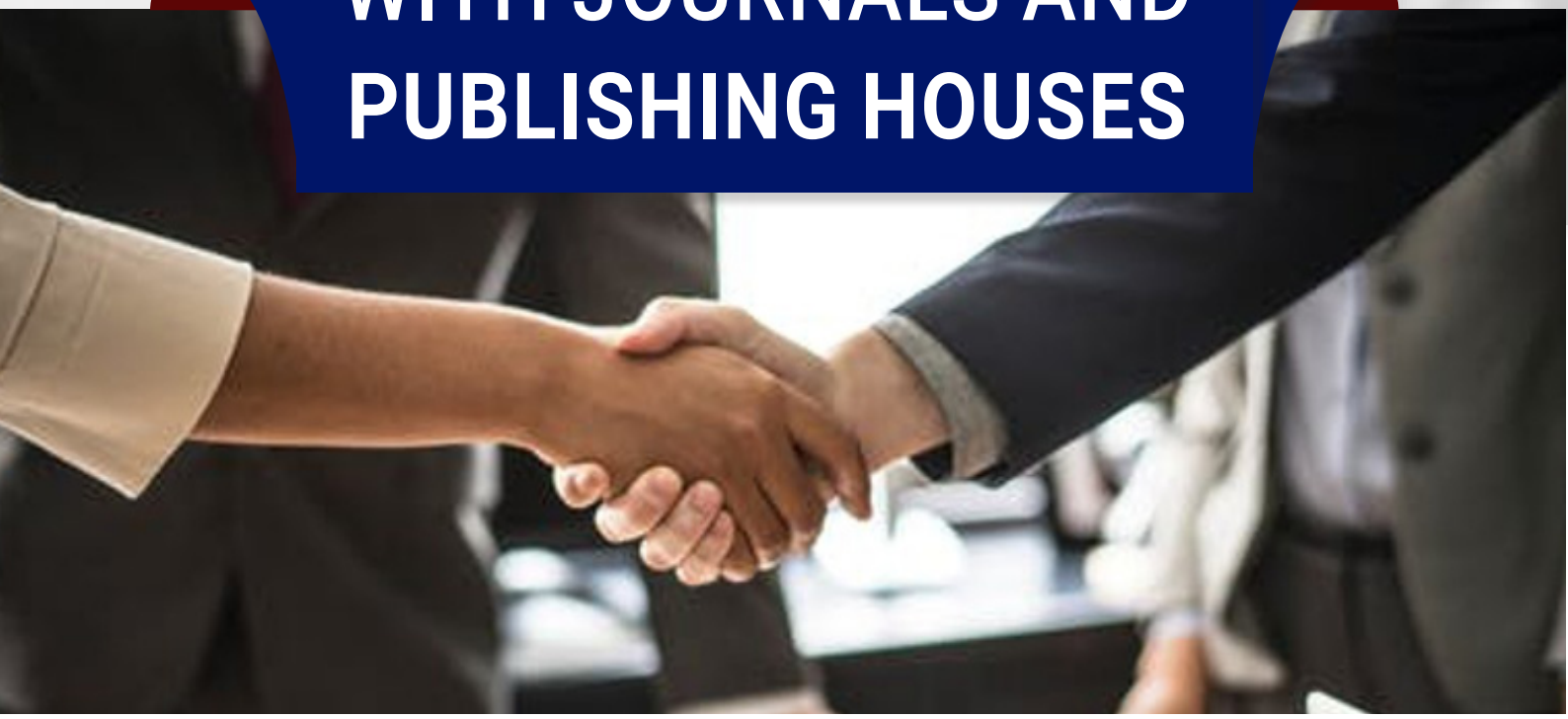

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