MULTIDISCIPLINARY BRAIN SCIENCE-2021

INTERNATIONAL ACADEMIC CONFERENCE (VIRTUAL)

THE 8TH ANNUAL MEETING OF MONGOLIAN NEUROSCIENCE SOCIETY
MONGOLIAN NATIONAL UNIVERSITY OF MEDICAL SCIENCES

AUGUST 13–14, 2021
ULAANBAATAR, MONGOLIA

PROCEEDING

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ORGANIZING COMMITTEE

**Mongolian National University of
Medical Sciences**
Sumberzul N. MD., Ph.D., Prof.
Damdindorj B. MD., Assoc. Prof
Darambazar G. MD., Ph.D.
Byambasuren D. MD., Ph.D.
Gantsetseg T. MD., Ph.D.
Batsuren Ch. MD., Ph.D.
Choinyam B. MD, MSc.
Enkhnaran T. MD., MSc.
Enkhjin B. MD.

**International Brain Research Organization
Brain Awareness Week Dana Foundation
Graduate School, MNUMS
School of Bio-Medicine, MNUMS
School of Medicine, MNUMS
School of Nursing, MNUMS
National Center for Mental Health of Mongolia
Department of Neurology, MNUMS
Department of Psychiatry, MNUMS
Department of Basic Medical Science, MNUMS**

**International Brain Research Organization
Asia/Pacific Regional Committee (IBRO-APRC)**

Cheah Pike See (Chair, 2021)
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia

Battuvshin Lkhagvasuren (2019)
Mongolian National University of Medical Sciences
Ulaanbaatar, Mongolia

Aurnab Ghose (2019)
India Institute of Science Education and
Research Pune, India

Yun Wang (2019)
Beijing University of Chinese Medicine and
Pharmacology, Beijing, China

Tadashi Isa (2016)
Kyoto University, Kyoto, Japan

Wing-Ho Yung (2019)
Chinese University of Hong Kong, Hong Kong,
China

Yukiko Goda (2021-23)
Deputy Director and Team Leader RIKEN
Center for Brain Science, Wako, Japan

Bronwyn Kivell (2021-23)
Associate Professor, Victoria University of
Wellington, Wellington, New Zealand

Mongolian Neuroscience Society (MNS)

Battuvshin L. MD., PhD.
Damdindorj B. M.D., Assoc. Prof.
Darambazar G. MD., PhD.
Jambaldorj J. MD., PhD.
Chimeddulam E. PhD.

Otgon Z. MBA.
Enkhjin B. MD.
Enkhnaran T. MD., MSc.
Enkhzaya B. MD., MSc.

Volunteers

Ulemjjargal G., Batbayar M., Amarbayasgalant B., Amarbayar M.

Editors:	Publication manuscript:	Printed by
Battuvshin L. MD., PhD.	Choinyam B. MD., MSc.	Almaz press LLC
	Enkhnaran T. MD., MSc.	

CONTENTS

"MULTIDISCIPLINARY BRAIN SCIENCE 2021"
THE 8TH ANNUAL MEETING OF MNS
PROGRAM AT A GLANCE

DAY 1	13th August (Friday), 2021 TIME
	(Ulaanbaatar time, GMT+8)

OPENING CEREMONY (09:00-09:30)

	Damdindorj B., Vice President, MNUMS **Battuvshin L.**, President, MNS

PLENARY LECTURE I (09:30-10:30)

Chairs: Damdindorj B., Battuvshin L.

09:30-10:30	**Mu-Ming Poo**, Institute of Neuroscience, CAS, China *Title: Neural Plasticity and Brain Disorders*

Break time (10:30-10:45)

PLENARY LECTURE II (10:45-12:00)

Chairs: Battuvshin L., Bayasgalan T.

10:45-12:00	**Tadashi Isa**, Kyoto University, Japan *Title: How the brain works for recovery from spinal cord injury*

Break time (12:00-13:00)

INTERNATIONAL SYMPOSIUM on "Recent Advances in Brain Science I" (13:00-14:45)

Chairs: Enkhsaikhan L., Khongorzul B.

13:00-13:30	**Kea Joo Lee**, Korean Brain Research Institute, Korea *Title: Selective Regional Loss of Cortical Synapses Lacking Presynaptic Mitochondria in the 5xFAD Mouse Model of Alzheimer's Disease*
13:30-14:00	**Anton A. Varlamov**, Pushkin State Russian Language Institute, Russia *Title: Biological and cultural aspects of affective touch*
14:00-14:30	**Anurag Kuhad**, Punjab University, India *Title: Role of TRPV1/TRPV3 channels in olanzapine-induced metabolic alteration: involvement of hypothalamic energy sensing, appetite regulation, inflammation and mesolimbic pathway*
14:30-14:45	**Byambasuren Dagvajantsan**, MNUMS, Mongolia *Title: Study on multi-factors associated with cognitive impairment: "Mon-TimeLine" interdisciplinary research work*

Break time (14:45-15:00)

ORAL SESSION: NEUROSCIENCE, NEUROLOGY & NEUROIMAGING (15:00-16:00)

Chairs: Byambasuren D., Batsuren Ch.

15:00-15:15	**Anujin D.,** MNUMS, SOM, Department of Neurology *Title: Clinical features of restless legs syndrome in the general population in Mongolia*
15:15-15:30	**Gansuvd O**., MNUMS, MJH, Department of Neurology *Title: Young patient with ganglionopathy*
15:30-15:45	**Tuvshinbayar N**., Nursing School, MNUMS *Title: Determination of bone density in children with cerebral palsy*
15:45-16:00	**Myagmardagva B**., Graduate school, MNUMS *Title: Sleep quality of middle age Mongolian women*

DAY 2   14th August (Saturday), 2021

TIME (Ulaanbaatar time, GMT+8)

INTERNATIONAL SYMPOSIUM on "Recent Advances in Brain Science II" (09:30-10:30)

Chairs: Darambazar G., Battuvshin L.

09:30-10:00	**Tetsuya Hiramoto**, Kyushu University, Japan *Title: What is brain marathon? How to relax brain?*
10:00-10:15	**Fei Peng**, Southern Medical University, China *Title: Cognition in a miniature brain*
10:15-10:30	**Gantsetseg Tumur-Ochir**, MNUMS, Mongolia *Title: Alcohol related disorders in Mongolia*

Break time (10:30-10:45)

INTERNATIONAL SYMPOSIUM on "Recent Advances in Brain Science III" (10:45-13:00)

Chairs: Nasantsengel L., Battuvshin L.

10:45-11:30	**Michael KH Ling**, University Putra, Malaysia *Title: Development of the central nervous system*
11:30-12:00	**Ranjana Bhandari**, Punjab University, India *Title: Effects of Catechin on a rodent model of Autism Spectrum Disorder: Implications for nitric oxide cascade in the neuroinflammatory pathway*
12:00-12:30	**Nansalmaa Nyamjav**, National University of Mongolia, Mongolia *Title: Cognitive activity: Brain. Language. Environment. Man*
12:30-12:45	**Oyuntsetseg Erdenebayar**, MNUMS, Mongolia Title: Oxytocin administration efficiently effected on metabolic and feeding function in natural pre-menopausal and menopausal rats

| 12:45-13:00 | **Elena Molchanova**, Kyrgyz Republic
Title: Mental Health Rehabilitation in the Kyrgyz Republic |

Break time (13:00-14:00)

ORAL SESSION: PSYCHIATRY & PSYCHOLOGY (14:00-15:15)

Chairs: Bayarmaa V., Bayarmaa Ts.

14:00-14:15	**Bayarmaa Ts.**, MNUE *Title: Possibility to use systematic psychotherapy techniques in online psychology consultation*
14:15-14:30	**Enkhzaya B.**, Southern Medical University, China *Title: Reliability of the Sleep Disorder Screening Questionnaire*
14:30-14:45	**Enkhnaran T.**, Graduate school, MNUMS *Title: Prevalence of the nonorganic sleep disorders and relationship with the PSQI questionnaire*
14:45-15:00	**Oyunsuren J.**, Department of Psychology, University of Humanities *Title: Factor structure of the Touch Experience Attitude Questionnaire (TEAQ–MNG - 55)*
15:00-15:15	**Enkhjin B.,** Graduate school, MNUMS *Title: Tension-type headache and quality of life in Mongolia*

Break time (15:15-15:30)

DAY 2 14th August (Saturday), 2021

POSTER SESSION: NEUROSCIENCE, NEUROLOGY, NEUROIMAGING, PSYCHIATRY & PSYCHOLOGY (15:30-17:20)

Chairs: Chimeddulam E., Maralgua O.

15:30-15:40	**Munkhtsetseg O.**, MNUMS, SOM, Department of Neurology *Title: Primary headaches in people with temporomandibular joint symptoms*
15:40-15:50	**Indra A.,** MNUMS, SOM, Department of Endocrinology *Title: Body composition and stroke risk: Mon-Timeline study*
15:50-16:00	**Enkhzaya B.,** Southern Medical University, China *Title: The association between Alexisomia and Mental Health among Mongolians*
16:00-16:10	**Enkhnaran T.,** Graduate school, MNUMS *Title: Impact of autonomic activity on anthropometric measurements and HADS*
16:10-16:20	**Oyunsuren J.,** Department of Psychology, University of the Humanities *Title: Anxiety and Depression among students during online learning amid lockdown*
16:20-16:30	**Enkhjin B.,** Graduate school, MNUMS *Title: Validation of the WHOQOL-BREF in the Mongolian general population*

16:30-16:40	**Zolzaya B.,** Graduate School, MNUMS *Title: Relationship between malocclusion and mental distress among the Mongolian population*
16:40-16:50	**Tsolmontuya A.,** Graduate School, MNUMS *Title: Assessing Mental distress using Brain Over-activity Scale in the primary care units*
16:50-17:00	**Gantulga J.,** Graduate school, MNUMS *Title: Mental disorders and COVID-19*
17:00-17:10	**Mongoljin A.,** Graduate school, MNUMS *Title: Mental Health Status in COVID-19 patients*
17:10-17:20	**Otgontsetseg S.,** Mongolian National University of Education *Title: Exploring the possibility of using method of neural cell drawing for psychotherapy*

CLOSING REMARKS (17:20-17:30)

WELCOME MESSAGES

MULTIDISCIPLINARY
BRAIN SCIENCE
2021

Dear Distinguished Guests and Dear Friends,

I'm pleased to welcome you to the 8th annual meeting of Mongolian Neuroscience Society on "Multidisciplinary Brain Science 2021", co-organized by the Graduate school of Mongolian National University of Medical Sciences.

Hereby, I would like to express my sincere gratitude to the distinguished guests, colleagues, participants. I am proud to tell that today we are welcoming honorable speakers from Chinese Academy of Sciences, Korean Brain Research Institute, Kyoto University, Kyushu University, University Putra Malaysia, Panjab University, Pushkin State Russian Language Institute, American University of Central Asia, Southern Medical University, Mongolian National University and MNUMS.

This year the conference is gathering 6 distinct countries from around the world. The countries that are presenting will be Russia, China, Japan, Kyrgyzstan, Malaysia and Korea. Therefore, I am sure this conference provides unique opportunity to Mongolian researchers, doctors and scholars. We really hope that this conference will be the important stage to get a result in a long-lasting cooperation and create a community-based relationship for the participants.

Neuroscience is embodying the title as frontier science of mankind's next discovery. Along with this title, the field itself is rapidly growing in popularity and being more and more endorsed by the field's most respected specialists and the exposure of the mainstream media has been serving well. Since promoting neuroscience up to its respected name is one of our main missions. Neuroscience has progressed tremendously and integrated various research activities with multidiscipline. A number of researchers in computational/systems neuroscience and in information/communication theory are investigating problems of information representation and processing. These researchers bring different perspectives and points of view to a common set of neuroscience problems.

I truly believe that we have plenty of new ideas for our researches and build our gorgeous human relationships at this conference. Once again, on behalf of the Organizing Committee of Mongolian Neuroscience Society and Graduate School of Mongolian National University of Medical Sciences, we would like to show our deepest gratitude to you for the tremendous contribution.

I look forward to the success of this event.

Damdindorj Boldbaatar MD., Ph.D.

Vice President, Mongolian National University of Medical Sciences

On behalf of the Mongolian Neuroscience Society, it is my great honor and pleasure to welcome you to the MULTIDISCIPLINARY BRAIN SCIENCE 2021 - The 8th Annual Meeting of the Mongolian Neuroscience Society.

First of all, I must thank everyone who made this conference possible, namely the executives and members of the International Brain Research Organization (IBRO), the Graduate School and School of Biomedicine of Mongolian National University of Medical Sciences, and the Mongolian Neuroscience Society. Most sincere gratitude must be addressed to our distinguished Guest Speakers for dedicating their valuable time to our audience and kindly considered sharing their newly found discovery in neuroscience with us.

To organize our academic conference for continuously eight years was not easy but extremely fruitful to Mongolian neuroscience development. Those conferences were a great opportunity to interact with scientists and researchers in different fields of neuroscience, and they allowed us to learn and share diverse research techniques with each other.

I sincerely hope that this conference will deliberate and discuss all the different facets of neuroscience come up with recommendations that will lead to a progress in the development of neuroscience in Mongolia and in the region.

I congratulate you for your commitment and active participation and wish you all the success.

Let us collaborate for the sake of brain science.

Battuvshin Lkhagvasuren, MD., PhD.
President, Mongolian Neuroscience Society

PLENARY SPEAKERS

MULTIDISCIPLINARY
BRAIN SCIENCE
2021

MU-MING POO

Scientific Director, Institute of Neuroscience, Chinese Academy of Sciences, China;

Director, Shanghai Center for Brain Science & Brain-Inspired Technology, China

Mu-Ming Poo is the Scientific Director of Institute of Neuroscience, Chinese Academy of Sciences, Director of Shanghai Center for Brain Science and Brain-Inspired Technology, and Paul Licht Distinguished Professor in Biology Emeritus at University of California, Berkeley. He studied physics at Tsinghua University in Taiwan and received PhD in biophysics from Johns Hopkins University in 1974. During 1976-2012, He had served on the faculty of UC Irvine, Yale, Columbia, and UCSD, and UC Berkeley. He was the founding director of Institute of Neuroscience, CAS (1999-2019), a member of Chinese Academy of Science, Academia Sinica, and Hong Kong Academy of Science, and an international member of US National Academy of Science. He was awarded Ameritec Prize, International Science & Technology Cooperation Award of P. R. China, Qiushi Distinguished Scientist Award, and Gruber Neuroscience Prize. Poo's research interest in the past includes neuronal polarization, axon guidance, synaptic plasticity and neural circuit functions. His recent interest is focused on the use non-human primates as animal models to study higher cognitive functions and human brain disorders. He currently serves on many editorial boards including Neuron and is the Executive Editor-in-Chief of National Science Review. He is one of the main organizers of the China Brain Project ("Brain Science and Brain-Inspired Technology") and International Mesoscopic Brain Connectome Project.

TADASHI ISA

Vice Dean,

Professor, Department of Neuroscience, Graduate School in Medicine,

Vice Director, Institute of the Advanced Study of Human Biology,

Yoshida-Konoe-cho, Sakyo-ku, Kyoto 606-8501, Japan

EDUCATION AND QUALIFICATION

2018 Oct	Vice Director, Institute for the Advanced Study of Human Biology (WPI-ASH-Bi), Kyoto University
2018 Oct	Vice Dean, Graduate School of Medicine, Kyoto University
2017-present	Chair, Human Brain Research Centre, Graduate School of Medicine, Kyoto University.
2015-pesent	Professor of Neuroscience, Graduate School of Medicine, Kyoto University.
1996-2015	Professor of the National Institute for Physiological Sciences, Okazaki, Japan
1995	Associate Professor of Gunma University Medical School, Japan
1993-5	Lecturer of Gunma University Medical School, Japan
1989-93	Assistant Professor of the Institute for Brain Research, Faculty of Medicine, the University of Tokyo, Japan
1988-90	Visiting Scientist in the University of Guteborg, Sweden
1985-89	PhD in Medicine, the University of Tokyo
1979-85	BSc of Medicine, the Faculty of Medicine, the University of Tokyo

PROJECTS

- Recovery from brain & spinal cord injury
- Neural mechanism of blindsight
- Neural mechanism of flexible decision making
- Eye movement and attention systems in common marmosets
- Structure and function of the superior colliculus
- Development of selective circuit manipulation techniques

INTERNATIONAL SYMPOSIUM ON "RECENT ADVANCES IN BRAIN SCIENCE"

MULTIDISCIPLINARY
BRAIN SCIENCE
2021

KEA JOO LEE

Leader, Neural Circuit Research Group
Korea Brain Research Institute

The goal of my research is to understand structural and molecular mechanisms underlying synaptic remodeling in physiological and pathological conditions. To investigate these issues, I have studied how learning and/or brain disorders modify the pattern of synaptic connectivity and reorganize molecular composition of synapses in the brain. I have utilized systematic neurobiological approaches including live confocal and three-dimensional electron microscopy, molecular cell biology, biochemistry, and behavioral tests. In long-term perspective, I hope to provide key insights into neuronal circuit plasticity as well as therapeutic regimens for synaptic impairments involved in brain disorders such as Alzheimer's disease, autism, and epilepsy.

ANTON ALEKSEEVICH VARLAMOV

Head, Laboratory for Language and Cognition, Pushkin State Russian Language Institute, Moscow, Russia

Director, Laboratory for Language and Cognition, Pushkin State Russian Language Institute, Moscow, Russia

Deputy Director for Research, "Our Sunny World", Rehabilitation center for children with Autism Spectrum Disorders

Previous position: Chair in Cognitive Neuroscience, Moscow State Education University

EDUCATION:

Novosibirsk State University, Faculty of Humanities, 1998.

PhD. of Biological Sciences, specialty "Psychophysiology", 2004, State Research Institute of Physiology, Siberian Branch of the Russian Academy of Medical Sciences, Novosibirsk.

Dissertation: "Psychophysiological analysis of the peculiarities of perception and experience of emotions in alexithymia."

RESEARCH INTERESTS:

Attention and perception, Bayesian brain, affective touch, emotions, autism, neurodevelopmental disorders, personality traits, evolution of language.

ANURAG KUHAD

M. Pharm., PhD., MNASc, MNAMS
Assistant Professor of Pharmacology University
Institute of Pharmaceutical Sciences, UGC-CAS
Panjab University, Chandigarh – 160 014

Dr Anurag Kuhad is currently working as Assistant Professor of Pharmacology at University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh. Dr Kuhad is a B. Pharm (2002) Gold Medalist from Guru Jambheshwar University, Hisar He secured 98.91 percentile in GATE, 2002. Dr Anurag has completed his M. Pharm (Pharmacology-2004) & Ph.D (Pharmacology-2010) from University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh.

Dr Kuhad did an excellent work in the area of diabetic neuropathy and associated cognitive decline. He is also working in the field of depression, antipsychotics induced weight gain, autism, stress, Alzheimer's disease, diabetic nephropathy, drug-induced nephrotoxicity and chronic fatigue syndrome. He has published more than 60 research paper in most prestigious, peer-reviewed and high impact value International Journals. He has also published 31 review articles, 8 book chapters and one article on social awareness. Recently, he published 1 Book entitled "Diabetic Neuropathy & Encephalopathy" with International publisher LAP LAMBERT Academic Publishing, Germany. As per Google Scholar, his research work has 4308 citations with h-index 36; i-10 - 60. He has an industrial experience of 2.5 years at Ranbaxy Research Laboratories Ltd. Gurgaon as a Research Scientist (RS) in the area of New Drug Discovery Research (NDDR).

Dr Kuhad worked on ICMR funded clinical research Project "Metabolic risk associated with antipsychotic drugs: A cross Sectional Study". He has completed three research project sanctioned by Ayush Herbs Inc. USA; Chemical Resources, Panchkula and Dr Dozo Laboratory, Mohali. Recently, He has been awarded UGC Start-up Grant for Newly Recruited Faculty by UGC, New Delhi and Fast Track Project from DST, New Delhi. He has been awarded with a highly prestigious "AICTE Career Award for Young Teachers (CAYT) 2013-14" by All India Council for Technical Education, New Delhi. Recently, he awarded with UGC Research Award by UGC, New Delhi. He is Program Coordinator of DST Inspire Internship Program at Panjab University, Chandigarh. The Department of Science & Technology, Government of Haryana awarded "Yuva Vigyan Ratan Award".

Dr Kuhad is regularly organizing International Brain Research Organization (IBRO) funded activities for promotion of Neuroscience research in India. He has organized four IBRO/APRC Chandigarh Neuroscience Schools and two IBRO/APRC Chandigarh Neuroscience symposia.

Dr Kuhad has been a recipient of various prestigious international recognitions as Rafaelsen Young Investigators Award 2012 at CINP, Stockholm, Sweden, International Association for Study on Pain (IASP) Travel Award, International Brain Research Organization (IBRO) Travel Award, IBRO Young Investigator Training Fellowship and Young Investigator Award at ICPH-2007, Japan & ICPH 2009, England.

BYAMBASUREN DAGVAJANTSAN

Head, Department of Neurology, School of Medicine, Mongolian National University of Medical Sciences

EDUCATION

2012   Postdoctoral Research Fellow, Department of Immunogenetics, Biogem laboratory, Graduate school of Sannio University, Italy.

2008   Ph.D (Doctor Philosophy in Medical science), Department of Neurology, Graduate school of Medicine, Tohoku University, Sendai, Japan.

1998   Master of Medical Science, Department of Neurology, Graduate training, National Medical University, Ulaanbaatar, Mongolia.

1994   Bachelor of Medical Science, National Medical University, Medical faculty, Ulaanbaatar, Mongolia.

AWARDS

2003   Granddad by Japan Mombukagakushyo Scholarship for PhD program and research.

2011   Granddad European foundation Erasmus Mundus Scholarship for postdoctoral research.

PUBLICATIONS

- Ekker M1, Jacob M#2, van Dongen M#3, Aarnio K4, Annamalai A5, Arauz A6, Arnold M7, Barboza M8, Bolognese M9, Brouns R10,11, Chuluun.B12, Chuluunbaatar.E13, Dagvajantsan Byambasuren14, Debette S15, et al. Global Outcome Assessment Life-long after stroke in young adults initiative-the GOAL initiative: study protocol and rationale of a multicentre retrospective individual patient data meta-analysis. BMJ Open. 2019 Nov 14;9(11):e031144. doi: 10.1136/bmjopen-2019-031144.(IF. 2.376); PMID: 31727655

- BaoLian Sheng., D.Byambasuren., A.Tugjamba., Ts.Dalkh. "Comparative study of bloodletting therapy and acupuncture treatment on headache caused by "Blood-Fire Origin" Central Asian Journal of Medical Sciences 2019 March#1(5)

- Byambasuren Dagvajantsan, Norito Kokobun Clinical diagnosis of hereditary neuropathy with liability to pressure palsies. Mongolian Journal of Neurology p.58 2018 № 1/9/

TETSUYA HIRAMOTO

Chief, Department of Psychosomatic Medicine, National Hospital Organization, Fukuoka Hospital, Fukuoka, Japan

BOARD CERTIFICATION

- Board Certified Specialist of the Japanese Society of Internal Medicine
- Board Certified Specialist of the Japanese Society of Psychosomatic Medicine
- Board Certified Specialist of the Japanese Society of Oriental Medicine

EDUCATION

- Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan: PhD 2009
- Medical Sciences Hiroshima University, Hiroshima, Japan MA 1996, Medical Sciences
- Medical Sciences Hiroshima University, Hiroshima, Japan: BA 1994, Medical Sciences

PUBLICATIONS:

1. Hiramoto T, Yoshihara K, Asano Y, Sudo N. (2017) Protective Role of the Hepatic Vagus Nerve against Liver Metastasis in Mice. Neuroimmunomodulation. 24:341-7.
2. Sawamoto R, Nagano J, Kajiwara E, Sonoda J, Hiramoto T, Sudo N. (2016) Inhibition of emotional needs and emotional wellbeing predict disease progression of chronic hepatitis C patients: an 8-year prospective study. Biopsychosoc Med. 10:24.
3. Yoshihara K, Hiramoto T, Oka T, Kubo C, Sudo N. (2014) Effect of 12 weeks of yoga training on the somatization, psychological symptoms, and stress-related biomarkers of healthy women. Biopsychosoc Med. 8:1.
4. Nishino R, Mikami K, Takahashi H, Tomonaga S, Furuse M, Hiramoto T, Aiba Y, Koga Y, Sudo N. (2013) Commensal microbiota modulate murine behaviors in a strictly contamination-free environment confirmed by culture-based methods. Neurogastroenterol Motil. 25:521-8.
5. Zhao P, Hiramoto T, Asano Y, Kubo C, Sudo N. (2012) Chronic psychological stress exaggerates the compound 48/80-induced scratching behavior of mice. Pharmacology, Biochemistry and Behavior. 105:173–6
6. Asano Y, Hiramoto T, Nishino R, Aiba Y, Kimura T, Yoshihara K, Koga Y, Sudo N. (2012) Role of gut microbiota in the production of biologically active, free catecholamines in the gut lumen of mice. American Journal of Physiology Gastrointesitinal and Liver Physiology. 303:G1288-95.

FEI PENG

Professor / Department of Psychology, School of Public Health, Southern Medical University, Guangzhou, China

Fei Peng is a Professor in Southern Medical University (SMU), China. Graduated from Queen Mary University of London in 2016 with a Ph.D Degree in Psychology, he established his own lab in SMU since, focusing on exploring cognitive capacities of the bee brain using behavioural experiments and computational tools including deep-learning-based motion tracking and computational modelling.

GANTSETSEG TUMUR-OCHIR

Senior Lecturer, Department of Mental Health, School of Medicine, Mongolian National University of Medical Sciences

2016 – PhD in Medical Science
Specialization: Psychiatry

SUB SPECIALIZATION:

1998 - "Applied psychology", 2004 - "Psychopathology", 2015 - "Psychotherapy"

SKILLS TRAINING:

Berlin, Germany – Accident Insurance

Warsaw, Poland – Addiction Treatment

Taipei, Taiwan – Bridging Asia to the World- A New Era for Psychiatric Treatment.

Irkutsk, Russia – Rehabilitation of Addiction

Hohhot, Inner Mongolia – Geriatric Care

PROFESSIONAL DEGREE:

2010 - "Senior" psychiatrist
2015 – "Leading" psychiatrist
2019 – "Mentor" psychiatrist

AWARDS AND REWARDS:

2007.05.25 – Chief Health Officer of the Capital City
2012.07.14 – Credential of MoH
2014.01.15 – Credential of MoESC
2016.12.28 – Leading Health Worker
2017.10.12 – Honored Worker of Health and Social Insurance
2019.10.22 – Leading Educational Worker
2015.11.22 - "Young Psychiatrist Award" as poster presentation of the WPA International congress of Psychiatry November 18-22. 2015; Taipei, Taiwan.
2016 – "Peer bully among the high-school students" research was chosen as the second-best presentation at the Inter-Sectoral Research Conference on Family Development Challenges and Solutions,
2017 - "Attitude Towards People with Disabilities and Workplace" research was chosen as the second-best presentation at the Inter-Sectoral Research Conference of Disability Study

MICHAEL KING HWA LING

Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, University Putra Malaysia

Position: Associate Professor in Genetics and Neurosciences

Dr. Michael KH Ling is a developmental neurogeneticist and an Associate Professor in the Faculty of Medicine and Health Sciences, University Putra Malaysia. He has an interest in the field of neurogenetics, genomics, and bioinformatics. He pursued his Ph.D. in Neurogenetics at Professor Hamish Scott's laboratory, University of Adelaide, Australia. He won a Dean's Commendation for An Outstanding Thesis Award and the CCB Award for his doctoral dissertation entitled, "Identification of transcripts involved in differentiation, proliferation and developmental networks of the mouse cerebral cortex". He has published various articles in peer-reviewed journals of high impact factors such as Genome Research, Genome Biology, Cell Reports, Cerebral Cortex, Science Advances and Nature Communications. He has also won various research (UPM R&D Silver Medal, best poster and oral presentations and travel grants) and academic (NSF, MIFRS, AFSI, UPMSTS, ASM-Lindau Foundation, IBRO/ISN Research Fellowship, IBRO and CAEN-ISN Return Home Grants) awards throughout his early career as a neuroscientist. He spent about 4-year as the IBRO/ISN Research Fellow in Professor Bruce Yankner's laboratory at Harvard Medical School, Boston, USA.

Dr. Ling is an active member of the Malaysian Society of Neurosciences and was the past Vice President and Honorary Treasurer of the society. He was also the Malaysian representative to the Governing Council of International Brain Research Organization (IBRO) (2012-2019) and Federation of Asia-Oceania Neuroscience Societies (FAONS) (2012-2017), two sister organizations that oversee the development of neuroscience discipline in the world and Asia pacific regions, respectively. Currently, he is the elected council member of Asia Pacific Neurochemistry Society (APSN) (2020-2024). He is a strong advocate of science outreach programmes in the country via the Young Scientists Network-Academy of Science Malaysia (YSN-ASM) (2012-2021), a prestigious network where he served as one of the protem committee members during its establishment.

RANJANA BHANDARI

Assistant Professor, Department of Drug Delivery & Neuropharmacology, University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, India

I have an expertise in the area of neuropharmacology, drug delivery (formulation development) and pharmacokinetics. My area of research has been Autism Spectrum Disorders (ASD) and neuroinflamation and now since the start of my career as an independent PI since 2 years, I am also exploring the area of inflammatory and neuropathic pain. I am working towards the development of novel therapeutics for neuropathic pain. My experience during my PhD research work has been in the area of developing novel therapeutic interventions for children suffering from ASD as till date we have neither cure nor any therapy which could manage the core behavioural symptoms of these children. My work targeted the gut- brain dysbiosis occurring in ASD children as a result of leaky gut phenomenon. These children have abnormal gut-flora which results in the production of short-chain fatty acid such as propanoic acid.

These short chain fatty acids when cross the blood-brain barrier can cause behavioural, biochemical and oxidative stress responsible for mitochondrial dysfunction. These can lead to neuroinflammation and hence worsening the behavioural complications.

My research work has been focused on "Development of neuropsychopharmacotherapeutic interventions in order to tackle the neuroinflammation and oxidative stress as a result of gut-brain dysbiosis occurring in Autism Spectrum Disorders (ASD)". I developed various neurobehavioural tests for ASD in my lab and also developed an animal model for ASD. I had also worked in the development of surface modified nanocarriers for enhanced brain delivery of naringenin to target neuroinflammation in Autism Spectrum Disorders. These (PLGA) nanocarriers were surface modified by coating with ligands such as reduced glutathione (GSH) and Tween 80 for enhanced brain uptake by receptor mediated endocytosis and inhibition of P-glycoprotein (P-gp). I have also been involved with development of PK/PD modelling studies.

Benefit of the study: I developed Glutathione and tween 80 coated naringenin loaded PLGA

nanoparticles serve as multifactorial neurotherapeutics for management of ASD like phenotypes by virtue of enhanced brain delivery. Therefore, they have a strong clinical potential to be utilized as an adjunct neurotherapeutic approach in attenuating the neuropsychopathology associated with ASD (papers published). I had also additionally worked in the area of abnormal gut-microbiota in ASD patients in the Mental Biology Lab of Prof. Takumi at Riken Brain Science Institute, Japan as a Summer Intern for 2 months in 2015.

My Ongoing Work in the area of Autism Spectrum Disorders & Pain

Recently I got EARLY CAREER AWARD-2020 by INTERNATIONAL BRAIN RESEARCH ORGANIZATION (IBRO) for my project entitled "Development of Brain-targeted therapeutics for Autism Spectrum Disorders" amounting to 5000 USD where I would be developing novel delivery system of taurine loaded nanovectors conjugated with TET-1 peptide respectively and finally coating with chitosan and loading into enteric coated capsules for oral delivery. These are being developed as neurotherapeutic for targeting neurodegeneration in regressive autism. These would be patented and this technology would be commercialized.

I also have a start-up company "AKB INNOVANT HEALTHCARE PVT LTD." incubated at Panjab University which would be developing and patenting this technology. I also received International Brain Research Organization (IBRO) Short Stay Grant-2020 to work in collaboration with Prof. Andrew Lawrence at Florey Institute of Neuroscience, University of Melbourne, Australia to work on a project entitled "Unravelling the difference in the Brain-Reward Circuitry between Autistic & normal individuals" at Florey Institute Australia for a period of 3 months. Research Work related to pain: I got Pfizer-IIT Delhi Innovation Award-2020 for developing of a novel nanogel for diabetes and cancer chemotherapy induced neuropathic pain. I have also filed patent for this. I also received DST-Chandigarh grant entitled "A novel healthcare solution for diabetes and cancer neuropathic pain patients" amounting to 2700 USD. Hence, I believe with my experience in the area of autism and also pain I would do justice to the proposal which involves investigation of niclosamide as a therapeutic to control inflammatory pain response in neonates leading to the development of ASD via the NK-1 receptor pathway.

NANSALMAA NYAMJAV

Lecturer at the National University of Mongolia

ACADEMIC TITLES

Associate professor in 2004
Professor in 2012

EDUCATION

1983   Graduated from Ural Federal University, Russian Federation. Qualified to teach in Russian language, literature and linguistics.

1997   Ph.D in linguistics. Thesis: Semantical and Lexicographical Research of Metaphors on Model "Animal - Human" in Russian and Mongolian.

EMPLOYMENT

◆   1983 – Present   Lecturer at NUM

PROFESSIONAL AND RESEARCH INTEREST:

Modern theories of language: lexicology, lexicography, cognitive linguistics, neurolinguistics, sociolinguistics, psycholinguistics, intercultural communications

PUBLICATIONS AND ACADEMIC RESEARCHES:

Author of 19 monographs and textbooks for university and college students. Wrote 40 research papers, 28 of which were published locally and 12 were published abroad. 60 presentations were discussed at international and local academic conferences.

Led 49 research works, 4 dissertations of doctorate students, 27 diploma thesis of graduate students, and 7 diploma thesis of undergraduate students. Currently leading 10 doctorate students' research works on linguistics and translation and 3 graduate students' diploma thesis researches.

Edited 19 monographs, textbooks, handbooks, dictionaries, translated books and wrote academic reviews on 12 dissertations and 49 graduate students' diploma thesis.

OTGONTSETSEG ERDENEBAYAR

Researcher, Mongolian National University of Medical Sciences
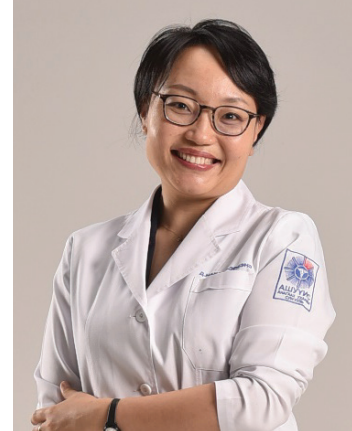
EDUCATION

2021	Ph.D. Tokushima University Graduate School of Biomedical Sciences, Tokushima Japan
2015	Specialty Degree of Obstetrics and Gynecology, Mongolian National University of Medical Sciences
2013	Master of Science in Medicine, Health science University of Mongolia
2011	Medical Doctor, Health science University of Mongolia

PUBLICATION

1. Effects of peripheral oxytocin administration on body weight, food intake, adipocytes, and biochemical parameters in peri- and postmenopausal female rats. Endocr J. 2020 Sep 2. Erdenebayar O, Kato T, Kawakita T, Kasai K, Kadota Y, Yoshida K, Iwasa T, Irahara M.
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4. Lipopolysaccharide promotes early endometrial-peritoneal interactions in a mouse model of endometriosis. J Med Invest, 2019. 66(1.2): p. 70-74. Keyama K[1], Kato T[1], Kadota Y[1], Erdenebayar O[1], Kasai K[1], Kawakita T[1], Tani A[2], Matsui S[3], Iwasa T[1], Yoshida K[1], Maegawa M[4], Kuwahara A[1], Matsuzaki T[1], Irahara M[1].
doi: 10.2152/jmi.66.70. PMID: 31064958.

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Consulting Psychiatrist and Psychotherapist, Republican Center for Mental Health, Bishkek, Kyrgyzstan

Associate Professor of Psychiatry, Kyrgyz – Russian (Slavonic) University, Department of Psychiatry, Psychotherapy, & Clinical Psychology

RESEARCH ACTIVITY

2010 – present: Policies in mental health services, epidemiology of stress disorders and process of interethnic communication in Southern region of Kyrgyz Republic.

2007 – present: Cognitive models of a "norm" and a "disorder" in Kyrgyz traditional culture, influence on treatment and prognosis of mental disorders

2006 – present: Fractal geometry and dynamic chaos theory in psychiatry and clinical psychology

2006 – present: Psychological anthropology and possibility of traditional Kyrgyz rituals using in modern psychotherapeutic practice

2001 - present: Cognitive models of adaptive phenomena in healthy people and people with mental disorders.

1997-2001: Psychotherapeutic use of adaptive phenomena in mental disorders. 1995-1998: Alexithymia as a psychological phenomenon: cross-cultural study 1986-1990: Coordinator of the Kyrgyz Medical Student Research Society.

AWARDS

2012   Presidential award for commitment to excellence
2010   John J. Dreier faculty excellence award.
2008   Presidential Award for Excellence in Teaching
2003   Award for Excellence in Clinical, Teaching & Research Work - Ministry of Health of Kyrgyzstan

ORAL SESSION

MULTIDISCIPLINARY
BRAIN SCIENCE
2021

NEURAL PLASTICITY AND BRAIN DISORDERS

Mu-Ming Poo

*Institute of Neuroscience, Chinese Academy of Sciences, and
Shanghai Center for Brain Science and Brain-Inspired Technology, China*

During early brain development, synaptic plasticity allows experience-dependent formation and refinement of neural circuits. Impaired synaptic plasticity during development, resulting from either genetic or environmental factors has been linked to several mental disorders. As the brain matures, large-scale plasticity in the connectivity found in developing circuits is replaced by activity-dependent alterations of synaptic efficacy, with a limited extent of modifications of existing synaptic structure and connectivity. This limited plasticity is critical for the learning/memory and many cognitive functions of the adult brain, for adaptive changes of neural circuits following injuries and drug abuse, as well as for functional recovery following therapeutic treatment and rehabilitation. In this lecture, I will review our past findings on molecular, cellular, and physiological mechanisms underlying activity-dependent synaptic plasticity, and suggest potential intervention approaches for treating brain disorders, particularly the use of task-specific physiological and physical methods that aim at modification of specific neural circuits associated with dysfunctions. I will also describe our efforts in using non-human primates for studying higher cognitive functions of primates and human brain disorders, including the generation of gene-edited macaque disease models for developing therapeutic approaches. I will also describe our current effort in developing a broad-spectrum brain function diagnostic tool-box that provides quantitative measurements of a large number of brain functions in large human populations over prolonged periods, in order to help identifying early signs of brain disorders and developing early intervention approaches.

HOW THE BRAIN WORKS FOR RECOVERY FROM SPINAL CORD INJURY

Tadashi Isa

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Institute for the Advanced Study of Human Biology, Kyoto University

Spinal cord injury causes a devastating loss of sensory, motor and autonomic functions to the patients and therapeutic strategies to improve these functions for enhancing their quality of life is an urgent demand. In many cases, the injuries are partial, therefore promoting the functions of the remaining part of the fiber tracts is considered to be the key for recovery. We have been working on the recovery of reaching and grasping movements of the forearm in the macaque model of the partial spinal cord injury. In case the injury is confined to the lateral funiculus which transected the lateral corticospinal tract, the monkeys can recovery the ability of precision grip in several weeks through training. In this case, the spinal cord interneurons bridge the injury and work for the recovery. In addition, very dynamic change in the circuit operation occurs at the cortical level. In addition to the contralesional motor cortex, ipsilateral primary motor cortex (M1) is activated during the early stage (~1 month after injury) by the contralesional M1 via the corpus callosum and contribute to the recovery. In the later stage (3-4 months after injury), the bilateral premotor cortices (PM) contribute to the recovery. Furthermore, the mesolimbic system including the nucleus accumbens facilitates the motor cortex and promotes recovery. In contrast, in case of the subhemisection (larger lesion), usually the recovery of hand movements is slow and very limited even at 6 months after injury. However, through intensive training and weekly extensive electrical stimulation of bilateral PM and M1, the precision grip never recovered but coarse grip considerably recovered in several weeks after injury. In this case, the bilateral PM and M1 are highly disinhibited and interacted with each other, and the corticospinal tract from the contralesional M1 exhibited a massive re-routing; 20-30% of the corticofugal fibers became uncrossed, descended in the contralesional side, crossed the midline caudal to the lesion and reached the gray matter including the motor nuclei of the affected hand/arm muscles, amazing plasticity in the adult brain. These basic animal experimental studies gave us several conceptual updates for development of the future therapeutic strategies.

SELECTIVE REGIONAL LOSS OF CORTICAL SYNAPSES LACKING PRESYNAPTIC MITOCHONDRIA IN THE 5XFAD MOUSE MODEL OF ALZHEIMER'S DISEASE

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Synaptic loss in Alzheimer's disease (AD) is strongly correlated with cognitive impairment. Accumulating evidence indicates that amyloid pathology leads to synaptic degeneration and mitochondrial damage in AD. However, it remains unclear whether synapses and presynaptic mitochondria are differentially affected in various cortical regions of the AD brain at the ultra-structural level. Using serial block-face scanning electron microscopy, we assessed synaptic structures in the medial prefrontal cortex (mPFC) and primary visual cortex (V1) of the 5xFAD mouse model of AD. At 6 months of age, 5xFAD mice exhibited significantly elevated levels of amyloid deposition in layer 2/3 of the mPFC but not V1. Accordingly, three-dimensional reconstruction of synaptic connectivity revealed a significant reduction in excitatory synaptic density in layer 2 of the mPFC, but not V1, of male transgenic mice. Notably, the density of synapses lacking presynaptic mitochondria was selectively decreased in the mPFC of 5xFAD mice, with no change in the density of mitochondria-containing synapses. Further classification of spines into shape categories confirmed a preferential loss of thin spines whose presynaptic boutons were largely devoid of mitochondria in the 5xFAD mPFC. Furthermore, the number of mitochondria per bouton in spared mitochondria-containing boutons was reduced in the mPFC, but not V1, of 5xFAD mice. Collectively, these results highlight region-specific vulnerability of cortical synapses to amyloid deposition and suggest that the presence of presynaptic mitochondria may affect synaptic degeneration in AD.

BIOLOGICAL AND CULTURAL ASPECTS OF AFFECTIVE TOUCH

A. Varlamov[1]

[1] *Pushkin Institute, Moscow, Russia*

It is hard to overestimate the importance of affiliative touch for our emotional comfort, but only recently specific neural mechanisms underlying emotional processing have been suggested. A system of low-threshold mechanosensitive C-fibers innervating the hairy skin of the body (C-tactile or CT afferents) has been identified and characterized; this system is hypothesized to represent the neurobiological substrate for the affective and rewarding properties of touch. This article provides the first scientific review of the history of this discovery and of the current state of CT-research.

Gentle touch is essential for human emotional and physical well-being throughout our entire life. We all know that touch can directly evoke different emotions, and the unconditional emotional responses to particular kinds of touch – painful pinch, slow gentle caress or an insect crawling across the skin – will be generally similar in different cultures and individuals. The affective response to touch is shaped by several independent somatosensory systems related to different submodalities (discriminative touch, pain, itch, temperature, affective gentle touch, and, possibly, tickle), but for some of these submodalities the underlying neural mechanisms were suggested only recently. About 30 years ago a system of low-threshold mechanosensitive C fibers innervating the hairy skin was discovered; later it was hypothesized that this system represents the neurobiological substrate for the affective and rewarding properties of touch. This discovery has opened new perspectives for research of the role of affiliative social touch in health and disease, and the evidence is mounting that several neurodevelopmental disorders, like autism, or mental health conditions, like eating disorders or post-traumatic stress disorder, are linked to abnormal processing of affective touch and to social touch avoidance. In order to better understand the individual differences in touch perception, possible cultural difference in affective touch should be studied and taken into account. It is important to remember that social touch is not just a solely sensory stimulus, it is also a non-verbal sign that is consensually used in human culture and may have different culture-specific forms and shades of meaning.

This presentation our recent advances in understanding biologically and culturally determined facets of social touch perception in health and disease, focusing primarily on the C-tactile research, a newly emerging area of tickle research, and cross-cultural research of affective touch.

ROLE OF TRPV1/TRPV3 CHANNELS IN OLANZAPINE-INDUCED METABOLIC ALTERATION: INVOLVEMENT OF HYPOTHALAMIC ENERGY SENSING, APPETITE REGULATION, INFLAMMATION AND MESOLIMBIC PATHWAY

Anurag Kuhad

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Atypical antipsychotics (AAPs) have the tendency of inducing severe metabolic alterations like obesity, diabetes mellitus, insulin resistance, dyslipidemia and cardiovascular complications. These alterations have been attributed to altered hypothalamic appetite regulation, energy sensing, insulin/leptin signaling, inflammatory reactions and active reward anticipation. Line of evidence suggests that transient receptor potential vanilloid type 1 and 3 (TRPV1 and TRPV3) channels are emerging targets in treatment of obesity, diabetes mellitus and could modulate feed intake. The present study was aimed to investigate the putative role TRPV1/TRPV3 in olanzapine-induced metabolic alterations in mice. Female BALB/c mice were treated with olanzapine for six weeks to induce metabolic alterations. Non-selective TRPV1/TRPV3 antagonist (ruthenium red) and selective TRPV1 (capsazepine) and TRPV3 antagonists (2,2-diphenyltetrahydrofuran or DPTHF) were used to investigate the involvement of TRPV1/TRPV3 in chronic olanzapine-induced metabolic alterations. These metabolic alterations were differentially reversed by ruthenium red and capsazepine, while DPTHF didn't show any significant effect. Olanzapine treatment also altered the mRNA expression of hypothalamic appetite-regulating and nutrient-sensing factors, inflammatory genes and TRPV1/TRPV3, which were reversed with ruthenium red and capsazepine treatment. Furthermore, olanzapine treatment also increased expression of TRPV1/TRPV3 in nucleus accumbens (NAc), TRPV3 expression in ventral tegmental area (VTA), which were reversed by the respective antagonists. However, DPTHF treatment showed reduced feed intake in olanzapine treated mice, which might be due to TRPV3 specific antagonism and reduced hedonic feed intake. In conclusion, our results suggested the putative role TRPV1 in hypothalamic dysregulations and TRPV3 in the mesolimbic pathway; both regulate feeding in olanzapine treated mice.

STUDY ON MULTI-FACTORS ASSOCIATED WITH COGNITIVE IMPAIRMENT: "MON-TIMELINE" INTERDISCIPLINARY RESEARCH WORK

Byambasuren D[1], Darisuren N[1], Urangoo G[2], Munkh-Undral M[3], Tuvshinjargal D[4], Norovbanzad D[4], Puntsagdulam B[1], Ganjargal G[5], Oyuntugs B[3], Tsolmon J[6]

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[3]Department of Endocrinology, School of Medicine, MNUMS, [4]Department of Radiology, School of Medicine, MNUMS, [5]Department of Orthodontics, School of Dentistry, MNUMS
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Background: Aging in the population is one of the factors to increased prevalence of the cognitive impairment, however previous studies are showing other risk factors that may cause the cognitive impairment. These factors directly depend on country development, population health etc.

Objective: To study association between cognitive impairment risk factors and other diseases

1. To identify cognitive impairment from aging and tooth loss

2. To study the association of obesity, hypertension, diabetes, other vascular diseases and cognitive impairment

Materials and methods: A total of 412 people aged 55-65 were involved in the "Mon-Time-Line" Cohort Study. The current study involved people from 8 aimags, and 6 districts of Ulaanbaatar city. Mini-mental state examination (MMSE) was used to assess the cognitive function in each subject. Cognitive impairment was defined as less than 24 scores. The history of hypertension, diabetes were recorded from the personal medical report of each subject and tooth loss were revealed by the dentist who specialized in maxillofacial.

Results: The mean age of the study participants was 56.6□10.5. The prevalence of cognitive impairment was 23.8%. MMSE score was decreased as the age increases by one ($p<0.001$). 21.4% had tooth loss of more than 10, and the MMSE score was 26.3±4.4 which is lower than people with less than 10 tooth loss 27.8±3.2 байв ($p<0.0001$). In regression, people with tooth loss > 10 had a 3 fold higher risk of cognitive impairment (OR=3.03 and [95%CI] 1.49-6.17). Cognitive impairment risks in hypertensive patients and diabetic people were 1.89 and 2.34 times more risks to develop cognitive impairment than people without hypertension and diabetes respectively. Obesity findings were shown less in people without cognitive impairment which was statistically insignificant (T-test, $p>0.05$).

Conclusion: Solidarity and efforts of interdisciplinary medical professionals is an essential to study the cognitive impairment and its healthcare development.

Key words: Non-communicable disease, tooth loss, dementia

WHAT IS BRAIN MARATHON? HOW TO RELAX BRAIN?

T. Hiramoto

*Department of Psychosomatic Medicine, National Hospital Organization,
Fukuoka National Hospital, Fukuoka, Japan*

Why do we come to have mental symptoms such as depressive mood and anxiety?

What is the pathophysiology of mental symptoms such as depression and anxiety disorder?

When we can understand the pathophysiology the symptoms diseases, we can know how to treat them.

Too much use of brain causes the brain related functional symptoms, both mental and physical symptoms. They are the similar symptoms after doing marathon (Ex. exhaustion, fatigue, irritation, hypersensitivity, muscle pain, short of breathing, palpitation, appetite loss, etc).

After using physical body too much, we exhaust the energy and have hypersensitivity in the physical body.

After using brain too much, we exhaust the energy in the brain, and have hypersensitivity. In this situation we feel depressive mood and anxiety.

As the same as the methods for recovering the physical body after marathon, we need to "Take Rest" ("Stop using", "Do braking", "Cool down") after brain marathon.

Thus, we can see that the key points of the treatment of "Depression" and "Anxiety" is "Taking Rest" ("Stop using", "Do braking", "Cool down") in the brain.

In this lecture I would like to show the pathophysiology of depression and anxiety disorder and introduce the brain braking skill called "Coro Breathing Meditation".

Let's experience "Coro Breathing Meditation".

COGNITION IN A MINIATURE BRAIN

*F. Peng[1,2], L. Chittka[2], C. Solvi[2], B. Webb[3], V. Vasas[2], Y. Zhou[1,2],

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Insects, like bees and ants, are models for studying how animals with relatively small nervous systems might accomplish relatively complex cognitive feats. They have demonstrated the ability of learning a variety of advanced tasks, including non-elemental forms of learning and navigation through complex environments. Starting with a theoretical approach, we explored the role of the known circuitry of the insect brain in underpinning seemingly complex cognitive capacities. We show that a simple computational model of the bee olfactory circuitry that incorporates empirically-determined properties can account for a range of different learning feats. Our findings suggest that the impressive cognitive capacities of the insect might be an emergent property of the miniature brain of the insect. The theoretical exploration has also led us to formulate and test new hypotheses of cognitive capacity of the bee brain back in the behavioral experiments, such as multi-modal negative patterning in bees and the adoption of low-level continuous cues in solving seemingly complex tasks. Taken as a whole, our work takes a comparative and computational viewpoint and provide both theoretical and empirical evidence for how cognition could be underpinned in a more experimentally tractable model system.

ALCOHOL RELATED DISORDERS IN MONGOLIA

Gantsetseg T[1,2,], Enkh-Uchral P[1,3], Bayarmaa V[3], Nasantsengel L[3], Battuvshin L[1]

[1]Brain Science Institute, Graduate School, Mongolian National University of Medical Sciences
[2]Department of Mental Health, School of Medicine, Mongolian National University of Medical Sciences
[3]National Center for Mental Health

Alcohol-related problems are a major health issue in Mongolia and remain underdiagnosed. The nationwide population-based, cross-sectional study reported here was carried out between September and November 2013. It aimed to determine the prevalence of alcohol dependence among the general population using two instruments: the Alcohol Use Disorder Identification Test (AUDIT) and an International Classification of Diseases (ICD)-10 based psychiatric interview. The AUDIT test, developed by the World Health Organization, was adopted to screen a full spectrum of alcohol-related disorders. Participants identified at high risk of alcohol dependence were referred to a psychiatric interview for diagnosis of alcohol dependence. The interview was designed using ICD-10 diagnostic criteria. The study consisted of participants from 79 clusters, age 18–64 years ($n = 11746$, males 49.1%, females 50.8%, mean age 39.6 ± 12.5 years). 45.4% of the participants ($n = 5336$) abstained from alcohol use, 39% were at low risk of alcohol dependence ($n = 4582$), 9.2% were at moderate risk ($n = 1075$), and 6.4% were at high risk ($n = 753$).

Among the participants at a high risk of alcohol dependence, 522 were diagnosed as alcohol dependent (4.4%) through the psychiatric interview. Increased risk of alcohol dependence was associated with those who were men, divorced or widowed, living in the Central and Mountain regions, young, unemployed, and less educated. These results suggest that the prevalence of alcohol dependence is 4.4% among the general population in Mongolia.

Keywords: Alcohol dependence; Alcohol consumption; AUDIT; Psychiatric interview; ICD-10; Mongolia

DEVELOPMENT OF THE CENTRAL NERVOUS SYSTEM

*K. H. Ling

Department of Biomedical Science, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia.

The lecture will provide an overview of the central nervous system (CNS) development starting from the process of neurulation to understand the origin of the major component of CNS followed by cell proliferation events to control the pool of neural stem cells, differentiation process that involved fate-determination and finally the neuronal cell migration process.

EFFECTS OF CATECHIN ON A RODENT MODEL OF AUTISM SPECTRUM DISORDER: IMPLICATIONS FOR NITRIC OXIDE PATHWAY IN NEUROINFLAMMATORY PATHWAY

Ranjana Bhandari

Punjab University, India

Aim: The present research work aims at deciphering the involvement of nitric oxide pathway and its modulation by (±) Catechin hydrate in experimental paradigm of Autism Spectrum Disorders (ASD).

Method: An intracerebroventricular infusion of 4µl of 1M Propanoic Acid was given in anterior region of lateral ventricle to induce autism like phenotype in male rats. Oral administration of (±) Catechin hydrate (25, 50 and 100mg/kg) was initiated from 3rd day lasting till 28th day. L-NAME (50mg/kg) and L-Arginine (800mg/kg) were also given individually as well as in combination to explore the ability of (±) Catechin hydrate to act via nitric oxide pathway. Behaviour test for sociability, stereotypy, anxiety, depression, and novelty, repetitive and perseverative behaviour was carried out between 14th and 28th day. On 29th day, animals were sacrificed and levels of mitochondrial complexes and oxidative stress parameters were evaluated. We also estimated the levels of neuroinflammatory and apoptotic markers such as TNF-α, IL-6, NF-κB, IFN-γ, HSP-70 and caspase-3. To evaluate the involvement of nitric oxide pathway, levels of iNOS and homocysteine were estimated.

Results: Treatment with (±) Catechin hydrate significantly ameliorated behavioural, biochemical, neurological and molecular deficits. Hence, (±) catechin hydrate has potential to be used as neurotherapeutic agent in ASD targeting nitric oxide pathway mediated oxidative & nitrosative stress responsible for behavioral, biochemical and molecular alterations via modulating nitric oxide pathway.

Conclusion: The evaluation of levels of iNOS and homocysteine conclusively establishes the role of nitric oxide pathway in causing behavioural, biochemical & molecular deficits and the beneficial effect of (±) Catechin hydrate in restoring these alterations.

Keywords: Autism spectrum disorders, Propanoic acid, Nitric oxide pathway, (±) Catechin hydrate, nitrosative & oxidative stress.

COGNITIVE ACTIVITY: BRAIN. LANGUAGE. ENVIRONMENT. MAN

Nansalmaa N

National University of Mongolia

Human life as a whole is a cognitive process, and we humans make up an information processing system. We are the representatives of the "Homo Sapiens" who communicate in phonetic language, acquires and accumulates knowledge about the world through language, creates knowledge, creates the brain, and ultimately creates himself. What biological phenomena constitutes the process of cognition, how this cognitive activity affects the human brain, but also, how the nervous system controls cognition, how language and psychology relate to the brain, how we create ourselves as humans, there are many questions that directly concern a person that can be answered via the "new" science based on the study of the brain dubbed "Neuroscience". Also the age old, "Who am I?", "Why am I like this?", "How do I want to be?", "How can I be how I want to be?" You can find the answer to these question. This issue is undeniably urgent for us modern day Mongolians, and the neuroscience explains how cognition works in a new scientific way, how the brain works when it does, how the brain changes to create ourselves, and how language and the environment affect cognition.

OXYTOCIN ADMINISTRATION EFFICIENTLY EFFECTED ON METABOLIC AND FEEDING FUNCTION IN NATURAL PRE-MENOPAUSAL AND MENOPAUSAL RATS

Erdenebayar O, Kato T, Kawakita T, Kasai K, Kadota Y,

Yoshida K, Iwasa T, Irahara M

Objective: Recent studies have shown that oxytocin administration was effective in the treatment of obesity. Interestingly, these effects of oxytocin are more marked in obese individuals. Obesity is a considerable finding in women after menopause; drives many components of metabolic syndrome. However, the mechanism between weight gain and menopausal transition remains not fully understood, In this study, we aimed to evaluate the effects of oxytocin on appetite, body weight, and fat mass in natural premenopausal and menopausal rats. Design: Experimental study. Natural premenopausal and menopausal 20 rats had been injected oxytocin (1600 g/kg) intraperitoneally in 12 days. The daily changes in body weight and food intake were measured at the same time as oxytocin and vehicle injection. Tissue samples, the brain, blood, visceral fat (the parametrial, perirenal, and mesenteric deposit), liver and uterus, were collected after 12 days for PCR and histological examination. Locomotor activity was evaluated after oxytocin and vehicle injection by surgically implanted pre-calibrated radiotelemetry transmitters. The serum level of TP, ALB, BUN, CRE, UA, AST, ALT, LDH, r-GT, T-CHO, F-CHO, TG, LDL-C, HDL-C, T-BIL were measured. The mRNA levels of neuropeptide Y (NPY), pro-opiomelanocortin (POMC), oxytocin and the oxytocin receptor were quantified. Statistical analyses were performed using the statistical program SPSS. Differences were considered significant at $P < 0.05$. Result: The chronic injection of oxytocin significantly affected the body weights of the rat ($P < 0.0015$) and significantly decreased cumulative food intake ($P < 0.001$). In the biochemical analysis, there were significant decreases in LDL-Cho and HDL-Cho in the oxytocin group compared with the control group, respectively ($P < 0.05$ in both cases). Furthermore, there was a significant decrease in triglyceride levels in the oxytocin group compared with the control group ($P < 0.01$). Blood examinations indicated that 12-day oxytocin treatment did not alter renal or hepatic functions. In addition, chronic oxytocin treatment did not affect body temperature or locomotor activity. Conclusions: This is the first study to examine the effects of oxytocin on metabolic and feeding functions in naturally peri- or postmenopausal rats. We indicate that oxytocin might be effective at preventing the metabolic disorders induced by menopause or aging.

MENTAL HEALTH REHABILITATION IN THE KYRGYZ REPUBLIC

Elena Molchanova

American University of Central Asia, Kyrgyz

The collapse of the Soviet Union has led to termination of the previous governmental mental health rehabilitation system. The article describes the status of the public rehabilitation system in the post-perestroika period, and an indigenous model of 'family rehabilitation' of patients with mental disorders. The family rehabilitation is predisposed by the traditional Kyrgyz family structure and cultural attitudes towards people with unusual behaviors. Nowadays there are several trends of psychosocial rehabilitation in the Kyrgyz Republic. One of the most perspective one integrates both communities and mental health specialists aimed at maintaining the quality of life of patients with mental disorders.

CLINICAL FEATURES OF RESTLESS LEGS SYNDROME IN THE GENERAL POPULATION IN MONGOLIA

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Background: Restless legs syndrome (RLS) is a disorder of sensorimotor integration characterized by an overwhelming irresistible urge to move the typically legs sometimes arms, walk and usually because of an uncomfortable sensation before sleeping and during resting periods. Most of patients with RLS are rarely inviolved in medical check-ups. Nevertheless it is revealed that RLS had a long-term effect to worsen the quality of sleep and gradually aggravate the life quality of patients.

Objective: To study clinical manifestations in people with RLS.

Material and methods: Our research was conducted among 18-65 aged people (n=1572) who participated in "Mon-timeline", the clinical cohort study of MNUMS. We utilized the international restless legs syndrome questionnaire and diagnostic criteria to evaluate the specific clinical features and severity degrees of RLS.

Results: Among study participants with RLS, 4.1% (n=16) was male and 7.3% (n=87) was female. Also the women had statistically significant more risk to have RLS than men (p<0.01). The median age of patients was 39 (n=37) in mild RLS cases, 45.04 (n=46) in moderate RLS cases and 49.15 (n=20) in severe RLS cases. Consequently, the severity of RLS increased with aging was statistically significant (p<0.01) in our study. To compare clinical symptoms such as drowsing and getting tired during daytime with severity of RLS, these symptoms did not reveal in mild and moderate cases (00.0%) but these symptoms revealed seriously in severe cases (30.0%). To assess the sleep pattern changes among patients with severe RLS, 65.0% had moderate sleep changes and 25.0% had severe sleep changes.

Conclusion: RLS occurred more common in men than in women. Due to the fact that RLS effects the quality of sleep of patients and severe RLS is more likely to develop in older ages, the early recognition and establishing diagnosis of this disorder in younger ages are crucial step of management.

Keywords: Motor disease, Sleep quality, Quality of life

YOUNG PATIENT WITH GANGLIONOPATHY

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Sensory neuronopathy or ganglionopathy is dorsal root ganglion disorder that represents a subgroup of peripheral nervous disorders, frequently related to immune mediated, paraneoplastic syndromes, infections and intoxications. This case report is about an 18-year-old female patient who experienced severe sensory ataxia, positive sensory symptoms in distal part of limbs and pseudoathetosis. The cerebrospinal fluid examination revealed an elevated protein. Her nerve conduction study showed absent of sensory nerve action potentials with normal motor responses in both upper and lower limbs. There were no abnormal spontaneous activities and denervating potentials in the needle electromyography. The present manisfestation shows the typical clinical and electrophysiological patterns of sensory neuronopathy. To our best knowledge, the findings of nerve conduction studies and electromyography are potential value for distinguishing the sensory neuronopathy from other subtypes of sensory Gullian-Barre syndrome.

Keywords: Sensory neuronopathy; dorsal root ganglia; sensory ataxia

DETERMINATION OF BONE DENSITY IN CHILDREN WITH CEREBRAL PALSY

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Background: Fractures are common in children with cerebral palsy, and low bone density, joint stiffness, and lack of mobility are risk factors for fractures in these populations. The researchers find that the risk of fractures and decreased bone mineralization in these children were associated with difficulty of eating, malnutrition, loss of mobility, low vitamin D requirements, use of anticonvulsants, and prolonged stay in one place. Bone density is highly correlated on the muscle load on the bone.

Objective: To assess the bone density of children with cerebral palsy and identify some risk factors for it.

Materials and method: The research was conducted using an instantaneous model of analytical research. The study was conducted on a random sample of children aged 4-14 with cerebral palsy in Ulaanbaatar. Specially designed questionnaires identified risk factors for osteoporosis, measured body weight, height, head, chest, wrists, thighs, and thigh circumferences, and determined body mass index. The density of the hard tissue of the forearms and heels of the subjects was determined using the DEXA diagnostic apparatus (EXA-3000). Serum vitamin D levels were analyzed by Chem-Well 2900 semiautomatic analyzer according to the manufacturer's protocol.

Result: A total of 30 children aged 4-14 years with cerebral palsy living in Ulaanbaatar were covered, with an average age of $8.17 \pm 2,718$. Of these, 63.3% were male (n = 19) and 36.7% were female (n = 11). The mean serum vitamin D level is 22.68 ng/ml. Bone density is not statistically significant for the degree of calcenus and mobility impairment (p>0.05). Serum vitamin D was statistically significant in the group with and without vitamin D usage (p<0.05).

Conclusion: The 43.3% of children with cerebral palsy (n = 12) have a Z score below -2.0 or diagnosed with osteoporosis. Although serum vitamin D levels were low in 40% of children with cerebral palsy, there was no correlation between serum vitamin D and bone density (Z score) (p> 0.05).

SLEEP QUALITY OF MIDDLE AGE MONGOLIAN WOMEN

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Objectives: The aim of the study was to determine the quality of sleep and its risk factors in middle-aged Mongolian women.

Materials and methods: A cross-sectional study were conducted among females aged between 40-65 years in the pre-, peri-, and post-menopausal status. Data was collected using a pre-designed questionnaire which included general information, reproductive history, and body measurements along with standardized questionnaires such as the PSQI, Menopause Rating Scale and WHOQOL-BREF. The data analysis was conducted on 351 women.

Results: Participant's blood pressure ($p=0.003$) and body mass index (BMI) ($p=0.02$) was significantly high in perimenopausal women. Average PSQI score in pre-, peri- and post-menopausal women were 6.59, 7.03, and 7.17 respectively. The somato-vegetative ($p=0.003$) and psychological ($p=0.025$) symptoms were significantly severe in perimenopausal women. The menopausal symptom severity frequency was significantly higher in perimenopausal women ($p=0.017$). Most of the participants answered well in both general quality of life and health related quality of life. However, the average of domain scores of WHOQOL-BREF was less than 80% at all menopausal stages. No correlation found to sleep quality either menopausal symptoms or quality of life. The menopausal symptoms (MRS total) ($p=0.02$) and sexual activity per month ($p=0.005$) has a significant influence on the overall quality of life. Sexuality had a significantly negative effect on psychological health ($p=0.03$). The age, occupation, menopausal stage, MRS-somatovegetative symptoms had a significant effect on health-related quality of life ($p<0.05$).

Conclusion: In conclusion, middle age Mongolian women have poor quality of sleep. However the sleep quality was not the valuable factor for quality of life or menopausal symptoms severity. This however needs confirmation in other, better-designed clinical studies.

Keywords: Menopause; sleep; PSQI; middle age; quality of life; MRS; WHOQOL-BREF

POSSIBILITY TO USE SYSTEMATIC PSYCHOTHERAPY TECHNIQUES IN ONLINE PSYCHOLOGY CONSULTATION

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Introduction. Nowadays, during the global pandemics, psychologists are also using information and communication technologies to provide online psychological counseling. Research was conducted on the methods and experience of using systematic psychotherapy techniques in online psychological counseling. The aim is to find the cause of the problem, the impact that is distorting the relationship of the members, and to enable them to come up with effective resources to solve their problems and use them effectively rather than to find the culprit.

Methodology. The experiment is based on methods and experiences of the working with clients who (a family couple and a woman who has just given birth) included in psychological counseling from February to July, 2021. During this period, psychological counseling services were provided to the married couple 20 times (one-on-one and couple), and to the woman who has just given birth 5 times. The online psychological counseling lasted 45-60 minutes at a time and included at least two meetings a week. When arranging the psychological counseling online we used Voov meeting, Zoom and Google meeting applications which are appropriate to discuss seeing our face.

Results: Using systematic psychotherapy to organize online psychological counseling, we have developed one-on-one and couple counseling to balance the needs and expectations of family members. To illustrate them their issues and problem we used the map and asked questions to reach a solution.

Discussion: The use of online systematic psychiatric techniques in psychological counseling enabled clients to look at the problem from a different angle, visualize the problem, and solve it together. The use of online systematic psychiatric techniques in psychological counseling has been improved by psychologists asking more concise questions, summarizing the client's ideas, paying attention to the client's voice, and using assessments on active participation in counseling. However, there were difficulties in observing the client's body language, mapping, demonstrating the problem, limited participation in the client's actions, and difficulty in arranging meetings with all family members. This work has proved that systematic psychiatric techniques can be used in online psychological counseling.

RELIABILITY OF THE SLEEP DISORDER SCREENING QUESTIONNAIRE

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Background: Sleep is a vital component for maintaining good physical and mental health. When sleep is disordered, it can adversely affect an individual's mental and physical health. Although there are a variety of single condition measures available for the use of specialized clinicians across the globe, to date, there are no proper screening instruments available for general practitioners at the primary care level. The purpose of this study is to evaluate the test-retest reliability of the sleep disorder screening questionnaire (SDSQ) for the assessment of sleep disorders among the Mongolian population.

Methods: 366 university students were recruited for participation. SDSQ was administrated to all participants on two occasions two weeks apart. The test-retest reliability intra-class correlation (ICC) and Cronbach's alpha of the SDSQ was calculated.

Results: The sample consisted of 194 (53%) female, and 172 (47%) male, with a mean age of 21.6 ± 1.9. The correlations between the first and second test of SDSQ were within the satisfactory range (ICC ≥ 0.700). The SDSQ found to have excellent internal consistency with an alpha ≥ 0.900.

Conclusions: The internal validation of SDSQ revealed strong test-retest reliability in the current study population. This indicates that the questionnaire was reliable and had a high internal consistency.

Keywords: insomnia; night terror; student; scale

PREVALENCE OF THE NONORGANIC SLEEP DISORDERS AND RELATIONSHIP WITH THE PSQI QUESTIONNAIRE

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The aim of this study was to determine the prevalence of nonorganic sleep disorders and sleep quality among the general population using the Pittsburgh Sleep Quality Index (PSQI) followed by a structured psychiatric interview for low sleep quality individuals. This nationwide population-based cross-sectional study was carried out between August and October 2020 and consisted of 964 participants (74% women, mean age: 40.72±14.34) who were randomly selected from 64 clusters in 10 sites of Mongolia. 27.9% of the study participants were evaluated as having nonorganic sleep disorders based on the diagnostic guidelines of the International Classification of Diseases, Tenth Edition, Clinical Modification (ICD-10). The prevalence of nonorganic sleep disorders differed in age ($p < 0.001$). Nonorganic sleep disorders were related to age, employment, diastolic blood pressure, sleep quality, and quality of life. The mean PSQI total score was 5.61±3.36 and 42.2% of the participants were classified as poor sleepers by a cut-off point of 5. An overall Cronbach's α was 0.73. Both exploratory and confirmatory factor analyses of PSQI indicated a two-factor solution. The results suggest that the prevalence of nonorganic sleep disorders in the general population of Mongolia was 27.9%, while the prevalence rate of the poor sleep quality was 42.2% in the general population. The Mongolian version of the PSQI provides an important tool for screening of sleep quality and demonstrated good construct validity for use in the general population of Mongolia.

PSYCHOMETRIC PROPERTIES OF THE TOUCH EXPERIENCE ATTITUDE QUESTIONNAIRE (TEAQ – MNG 55)

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Communication via the sense of touch has long been perceived as an important aspect of human development, social comfort, and well-being. Our current understanding is that the human somatosensory system has in fact two tactile sub-modalities, one providing the well-recognized discriminative touch input to the brain, and the second–the affective or emotional input. C-tactile system is hypothesized to represent the neurobiological substrate for affective and rewarding properties of touch. Lower relationship quality is associated with lower resilience to stressors and can lead to increased vulnerability to mental health disorders. There is a range of scales and questionnaires assessing individual, social, and cultural differences in terms of experiences and attitudes to affiliative social touch in different situations and contexts. Our goal was to prove content validity for the Mongolian version with the factor structure of the original English version of the TEAQ. We translated, and adapted TEAQ for Mongolian language version. Original TEAQ-117 items were used in the pilot study. In the present study, enrolled 204 participants, age varied between 18 and 57 years (26.9±8.8), 57.8% were female. Validated TEAQ-57 items English version was used, and Exploratory factor analysis confirmed 55 items with 6 component structure. Confirmatory factor analysis demonstrated good consistency and homogeneity of the 6 factor structure of the TEAQ, and satisfactory model fit. Several subscales of the TEAQ revealed positive correlations on quality of life domains, in contrast negative correlations with anxiety and depression. In conclusion, analysed Mongolian version of the TEAQ-55 is a reliable and valid assessment tool of experiences and attitudes towards touch, and similar to component structure for different cultures (Validated British TEAQ-57, and TEAQ-37 RUS). We expected that Mongolian version of the TEAQ might be a helpful tool for screening mental health issues and researchers.

TENSION TYPE HEADACHE AND QUALITY OF LIFE IN MONGOLIA

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Background: Tension-type headache (TTH) is characterized by recurrent episodes of bilateral pressing or tightening pain on the head that is not accompanied by nausea. Although TTH is a common neurological disorder among the general population, its impact on the quality of life and mental health remains poorly understood in Mongolia. Therefore, we aimed to investigate the prevalence and risk factors of TTH, and how these affect the quality of life in Mongolian adults.

Methods: This nationwide population-based, cross-sectional study among the adult Mongolian population (n=1108, mean age = 42.5 ± 12.9 years), was carried out between July and October 2020, in 64 sampling centers including the capital city and all rural regions of Mongolia. Trained researchers applied 1) a 17-item structured interview to diagnose TTH based on the International Classification of Headache Disorders (ICHD) III; 2) the World Health Organization Quality of Life 26-item questionnaire (WHOQOL-BREF) to evaluate the quality of life; 3) the Hospital Anxiety and Depression Scale (HADS) to detect anxiety and depression. Associations between TTH and the domains of quality of life were examined using logistic regression.

Results: In the general population of Mongolia, 273 (24.6%) participants met ICHD-III criteria for TTH. The age and gender-adjusted prevalence of TTH was 26.6%. Participants with TTH had lower quality of life as measured by the WHOQOL-BREF than those without TTH. Having TTH was associated with a decrease in physical, psychological, social, and environmental health domain scores of the WHOQOL-BREF. Those domain scores were inversely associated with both anxiety and depression. TTH was significantly more common among males than females, who were living in rural areas than in urban areas and living in gers than in apartments.

Conclusion: The results suggest that TTH is highly prevalent in Mongolia and has negative consequences for the quality of life. The finding that the negative effect of TTH on quality of life has implications for call for increased public awareness and coordinated management in the health care for TTH.

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PRIMARY HEADACHES IN PEOPLE WITH TEMPOROMANDIBULAR JOINT SYMPTOMS

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Introduction: One of the various causes of headaches is a temporomandibular disorders. Studies have shown that temporomandibular disorder is a secondary cause of headaches, as well as a primary trigger for migraines and tension type headaches. There is no study in Mongolia on the severity of headaches, the factors that affect them, and other conditions.

Purpose: To study the features of primary headaches in people with temporomandibular disorders.

Materials and Methods: This study is based on sub-samples of individuals residing in Ulaanbaatar from the Mon-TimeLine nationwide survey data. A total of 1087 participants, aged 13-65, wererandomly selected. The temporomandibular characteristics were evaluated by professional orthodontists via a medical examination and a questionnaire. The headache assessment was undertaken by a neurologist via face-to-face interviews with the participants. (Headache Classification Committee of International Headache Society-IHS)

Results: TMJ pain, TMJ sound, masticatory muscle pain (MMP), and difficulty during mouth opening (DDMO) were 13.7%, 28.4%, 11.8%, and 3.5%, respectively. The prevalence of headaches increased with the number of TMJ symptoms. The prevalence of headaches was 55.2% among people who have no TMJ symptoms, and 68.3% and 82.7% in people who have <2 and ≥2 TMJ symptoms, respectively. In the sample population, the prevalence of headaches was 61.8% (n=672). Furthermore, migraine and TTH occurred in 13.8% and 38% of the participants with MMP/TMJ pain. The intensity ($p < 0.0046$) and frequency ($p < 0.001$) of headache are increased when temporomandibular joint pain and masticatory muscle pain are combined.

Conclusion: Temporomandibular disorders might be causes of frequency, intensity and triggers migraines and tension type headaches..

Keywords: Temporomandibular joint, Migraine, Tension type headache.

BODY COMPOSITION AND STROKE RISK: MON-TIMELINE STUDY

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Objective: We aimed to explore the relationship between hand grip strength (HGS) and stroke risk in Mongolians.

Methods: In this cross-sectional study, we used data (n=1180, mean age of 39.2 ± 15.2 and 33.2% males) from the Mon-Timeline cohort study, which is a multidisciplinary, prospective, population-based cohort study in Mongolia. A digital grip strength dynamometer (TKK 5401 GRIP D; Takei, Japan) was used to measure HGS. We performed binary logistic regression analysis between HGS and stroke risk. Suspected sarcopenia was defined when HGS is less than the 25th percentile of HGS of Mongolian adults.

*Results***:** In this study, 3.3% of all participants had a stroke. The incidence of stroke was significantly higher (5.2% and 1.9%) in people with suspected sarcopeniacompared to those who did not. According to body composition, the incidence of stroke was more frequent in sarcopenic obese people: 1.3%, 2.4%, 2.8% and 6.2% in normal (non-obese and non-sarcopenic), sarcopenic (non-obese), obese (non-sarcopenic) and sarcopenic obese groups respectively. Furthermore, this is more likely to occur with age and the presence of hypertension. According to the relationship between sarcopenia and stroke in relation to age and hypertension. People over the age of 45 with sarcopenia, as well as those with combination of hypertension and sarcopenia have a high incidence of stroke. In regression analysis, the OR (95% CI) was 2.84 (1.44; 5.59) for sarcopenic, compared to non-sarcopenic. The adjustments for age, gender, education, body mass index, waist circumference and hypertensive status attenuated the associations, but lower HGS remained significantly associated with a higher risk of stroke.

Conclusion: Lower HGS was significantly associated with a higher risk of stroke independent of adiposity and hypertensive status in Mongolian adults.

THE RELATIONS OF ALEXISOMIA, QUALITY OF LIFE AND MENTAL HEALTH AMONG MONGOLIANS

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Background: The rapid development of the modern era harshly demands individuals to fulfill external life roles perfectly. This demand contributes to a large extent to the increase of psychosomatic disease incidence, especially in developing countries. Every year, approximately 20% of all costs to the healthcare system are used by patients with psychosomatic disorders. Thus this is important to be able to recognize psychosomatic disorders as earlier as we can. Alexisomia plays a fundamental pathophysiological role in the development of psychosomatic diseases. It refers to the diminished awareness of their own physical needs due to putting a higher priority on meeting social (external) demands than following their own biological needs. In the long run, it leads individuals to be exposed to high levels of stress. This study is aimed to identify and assess the association between an individual's reported alexithymia, quality of life, and mental health.

Methods: The study was conducted in descriptive design type between 20th September and 7th November 2020. Data were collected by self-administered questionnaire to assess alexisomia (STSS), quality of life (WHOQOL-BREF), and anxiety and depression (HADS) among the study population. The Spearman's rank-order correlation was performed to detect the associations between the variables.

Results: A total of 125 participants with a calculated mean age of 26.7±12.6 years consisting of 54.4% male and 45.6% female were recruited in this study. The mean scores of STSS three subscale DIB, OA, and LHM were 23.1±6.7, 16.3±4.7, and 23.2±5.0 respectively. A significant negative association was revealed between the STSS total and all domains of QOL, and also a strong positive association were detected between HADS and STSS total. Particularly, the STSS subscale "Difficulty identify body-feeling" was significantly and positively associated with reported anxiety and depression among the study population.

Conclusion: The increased level of alexisomia leads individuals to experience higher anxiety and depression but a lower quality of life. This finding brought a need for further study to investigate deeply the interactions between those variables, especially the impact of alexisomia on mental health and quality of life among the study population.

Keywords: alexisomia, mental health, quality of life, Mongolia, STSS

IMPACT OF AUTONOMIC ACTIVITY ON ANTHROPOMETRIC MEASUREMENTS AND HADS

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We assessed a possible link between anthropometric measurements and HADS with an autonomic function of the human body.

A cross-sectional study was conducted between August and September 2020 in Ulaanbaatar city, HRV measurements were performed in 123 participants. The HADS is used to investigate anxiety and depression. Participants were recognized according to age (years), mass (kg), height (m), and body mass index (BMI). The participants were told to avoid consumption of caffeine or ingestion of other autonomic stimulants for two hours prior to the data collection and to retain an empty bladder during the entire HRV measurement. When the participants were seated and not performing movement, they were told to remain silent, awake whilst breathing normally.

Participants' age ($r = -0.531$; $r = -0.473$), body mass ($r = -0.275$; $r = -0.329$), BMI ($r = -0.378$; $r = -0.391$), and waist circumference ($r = -0.413$; $r = -0.454$), showed a negative correlation with standard deviation of the normal-to-normal intervals (SDNNs), and root-mean square of differences between adjacent normal RR intervals (RMSSD) ($p < 0.001$). SDNN ($r = -0.225$, $p = 0.013$) and RMSSD ($r = -0.224$, $p = 0.013$) had a significant negative association with HADS anxiety subscale. SDNN and RMSSD values were differed in group with obese participants compared to overweight and non-obese participants by BMI.

In summary, subjects with higher BMI presented higher values of SDNN and RMSSD. Further studies are needed to confirm the results of this study and to assess the association between HRV-measured stress and other factors may affect autonomic activity.

 Keywords: HRV, Primary health care, Anxiety, BMI

ANXIETY AND DEPRESSION AMONG STUDENTS DURING ONLINE LEARNING AMID LOCKDOWN

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Background: The aim of the study is to examine the depression and anxiety as determinants of Quality-of-life profile of students during online learning amid the Covid-19 pandemic lockdown.

Methods: Data collection occurred in December 2020 during online learning amid the Covid-19 pandemic in Mongolia included the undergraduate students of University of the Humanities and Mongolian National University of Medical Sciences. All the participants (N = 179) freely agreed to answer a questionnaire and gave informed consent. Participants age varied between 16 and 29 years (M = 20.6, SD = 1.9), 91 participants were female (51%) and 88 (49%) were male. The questionnaire included the Hospital Anxiety and Depression 14 item Scale (HADS) and Physical health, Psychological state, Social relationship, and Environmental domains 26 item of the WHOQOL-BREF. Interpretation of the HADS scores was performed according to the methodological reference adopted. As such, a score between 0 and 7 was interpreted as *no case* of depression or anxiety, scores between 8 and 10, as a possible case and scores from 11 to 21, as a probable case. Domain scores of the WHOQOL-BREF are scaled in a positive direction (i.e. higher scores denote higher quality of life). Statistical analysis of the data was performed with the use of the statistical program SPSS 20. The adopted level of significance was <0,05.

Results: During measurement, it was observed that 64 (36%) relatives were possible cases and 47 (26%) were probable cases of anxiety, 69 (39%) relatives were possible cases and 19 (10%) were probable cases of depression. Oneway ANOVA revealed that the means of the Physical health, Psychological state, and Environmental domains and Social relationship domain scores of WHOQOL-BREF significantly differed between possible and probable case compared healthy groups measured by HADS.

Conclusion: During online learning, more than a quarter of students suffered from a mental distress in the form of anxiety and depression, while the quality of life domain scores were decreased.

Keywords: Anxiety, Depression, Quality of life

VALIDATION OF THE WHOQOL-BREF IN THE MONGOLIAN GENERAL POPULATION

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Background: The World Health Organization (WHO) defines the quality of life (QOL) as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns". This definition is meant to include the individual's perception of their overall wellbeing, including mental and social wellbeing, rather than a simple absence of disease. The definition of QOL has been designed to make it applicable across a wide variety of populations via QOL measurement instruments. In Mongolia, no study has yet validated the questionnaire for QOL assessment of the general population of Mongolia, meaning it has not been possible to compare QOL with other countries. The aim of the study was to validate the use of the abbreviated version of the World Health Organization Quality of Life (WHOQOL-BREF) questionnaire in the general population of Mongolia.

Methods: This nationwide population-based, cross-sectional study among the adult Mongolian population (n=1108, mean age = 42.5±12.9 years), was carried out between July and October 2020, in 64 sampling centers including the capital city and all rural regions of Mongolia. To validate, the four-domain factor structure of the WHOOQL-BREF questionnaire was tested using exploratory and confirmatory factor analyses. Internal and external reliabilities were measured using Cronbach's α and intraclass correlation coefficient, respectively.

Results: The overall Cronbach's α coefficient of the Mongolian version of the WHOQOL-BREF questionnaire was 0.762. Correlations between the component scores of the WHOQOL-BREF ranged from 0.439 to 0.761. Both exploratory and confirmatory factor analyses revealed a four-factorial structure consisting of 24 items that provided an acceptable fit to the data (RMSEA=0.076, CFI=0.855). In the general population Mongolia, the overall quality of life and general health mean scores were 3.9±0.6 and 3.7±0.7, respectively.

Conclusion: The WHOQOL-BREF questionnaire was a reliable and valid assessment for the quality of life for use in the general population of Mongolia.

ANXIETY IN INDIVIDUALS DETERMINED AS DENTOFACIAL DEFORMITY BY ANGLE'S CLASSIFICATION

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Background: World Health Organization describes malocclusion as the most significant oral health problem following dental caries and periodontal disease. Mental distress is a sort of symptoms and skills of a person's internal life that are commonly held to be disturbing, unclear or abnormality. It is possible that mental distress can lead to an alteration of behaviour, affect a person's emotions in a negative way, and affect his or her relationships with the people around them. Objective: The aim of this study was to evaluate the association between malocclusion by Angle's classification Class I, Class II, Class III malocclusion and anxiety and depression. Methods: A cross-sectional study was carried out with 436 randomly selected subjects aged 13-65 years between July and October 2020, in Mongolia. The subjects studied included individuals with no prior history of orthodontic treatment. Malocclusion was obtained using upper and lower first molar relation and recorded in accordance with Angle Class I, Class II, and Class III malocclusion classification. The anxiety and depression of the subject were measured through questionnaire. Chi-squared statistics was applied to know the significant difference among the groups. Logistic regression model was run by including the significant variables. Results: 297 female and 139 males were present in the study with a mean age of 39.6 ± 14.8. Age group, gender, marital status, employment and place where live showed statistically significant variables in anxiety group ($p < 0.05$). Mean score of subscales of anxiety, depression and HADS-Total score were significantly different($p < 0.05$). Logistic regression confirmed that anxiety was commonly observed among Class III malocclusion. Conclusions: The age of the subjects with Class III malocclusion has a negative correlation with anxiety subscale.

ASSESSING MENTAL DISTRESS USING BRAIN OVER-ACTIVITY SCALE IN THE PRIMARY CARE UNITS

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Mental disorders cause the high burden of diseases associated with disability in developing countries. There has been no study on the prevalence of mental disorders in the general population of Mongolia since 2005. Therefore, this study aimed to determine the prevalence of mental distress and its risk factors in the Mongolian population. The study was conducted between July and October 2020, as a part of a nationwide multicenter, interdisciplinary, prospective, population-based cohort study that investigates brain-related disorders in the general population. 646 participants from 64 sampling sites spread through Ulaanbaatar and rural regions were approached. To assess potential mental distress in the general population, we used a combination of a 42-item self-report questionnaire and a 13-item structured psychiatric interview. Vital function tests and a survey on the quality of life were administered to each participant. Among the participants (mean age=38.0±15.4; 57.6% women), 35.9% were evaluated as having mental distress. There was a difference in residence location and the brain overactivity scale (BOS) total score between distressed and normal people (p=0.011 and p=0.024, respectively). Multiple linear regression showed that an increased in the BOS total score was associated with those who were young, living in urban areas, and have high quality of life. These results suggest that the prevalence of mental distress is 35.9% among the general population in Mongolia. The use of the BOS questionnaire along with a psychiatric interview can provide an effective screening tool in low-resource settings.

Keywords: Mental distress, quality of life, brain overactivity, Mongolia, WHOQOL-BREF

MENTAL HEALTH AND COVID-19

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Background:

Patients with mental disorders are often overweight, smoking, co-morbidities, and loss of self-care are factors that contribute to COVID-19 disease. Therefore, there is a global concern about the morbidity and mortality of patients with mental disorders and COVID-19, and the need to establish a protocol on care for patients with Covid-19. Therefore, we aim to study the manifestations of depression and anxiety in patients with psychiatric disorders with COVID-19.

Material and method:

From July 1st to 30th, 2021, data were collected using one-on-one clinical interviews with 44 inpatients with underlying psychiatric disorders who were admitted to the National Center for Mental Health due to COVID-19. We used standard questionnaires commonly used internationally, and the PHQ-9 questionnaire for depression and the GAD-7 questionnaire for common anxiety were evaluated. The outcomes were analyzed with SPSS 21.

Result: Ages ranged from 21-65 (median age 42± 12.5), 19 were male (43.2%), and 25 were female (56.8%) in total 44 patients with COVID-19

54.5% (n = 24) of the respondents were not depressed, 70.5% (n = 31) were not anxious, 31.8% (n = 14) were mildly depressed, 22.7% (n = 10) were mildly anxious, and 4.5% (n = 2) had severe depression and 6.8% (n = 3) had severe anxiety. There were no statistically significant correlations between these changes by age group and gender.

Conclusion: Of those surveyed, 31.8% (n = 14) had mild depression and 4.5% (n = 2) had severe depression, 22.7% (n = 10) were mild and 6.8% (n = 3) were severely anxious.

Key words: Depression, anxiety, COVID-19, Mental illness

MENTAL HEALTH STATUS IN COVID-19 PATIENTS

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Background: Coronavirus disease 2019 (COVID-19) was first identified in Wuhan City in December 2019, after which, the disease spread throughout Hubei Province and other parts of China. COVID-19 has spread to 211 countries, infecting 204 million people and causing 4.3 deaths across the world and is therefore considered a global pandemic.

The coronavirus disease 2019 (COVID-19) pandemic it will cause an extraordinary stressor to patients and health care systems across the globe and people with serious mental illnesses should be provided truthful information about strategies related with the medical treatment for COVID-19. Beyond the physical symptoms associated with COVID-19, the psychological outcomes are vast and, it seems prolonged.

Objective: This study was aimed to examine the psychological impact of the outbreak on patient with Covid-19 in Mongolia.

Methods: This cross-sectional survey was open to patient with covid-19 in Japan-Mongolian hospital in Ulaanbaatar. Ethical approval was obtained from the institutional review board of the Mongolian National University of Medical Science. Participates were invited to complete a psychological questionnaire through a survey tool. Participants were required to fulfill the questionnaire for their demographic data (age, gender, occupation, income, marital status and education background) and psychological status.

For psychological distress evaluation, the internationally recognized self-rating anxiety scale (SAS) and Generalized Anxiety Disorder test (GAD) were used.7,8 The SAS scale consists of 20 questions that assess how respondents feel during the previous week. Each question has a score of 1–4. Higher scores indicate higher levels of anxiety. A SAS score of 50-59 points, 60-69 points, and 70 or more indicates mild anxiety, moderate anxiety, and severe anxiety respectively. The GAD scale is a 9-item self-report questionnaire that covers affective, psychological and somatic symptoms associated with depression. Each item has a score from 0 to 3. The total score ranges from 0 to 27. Higher scores indicate higher levels of depression: 10-14 for mild depression, 14-19 for moderate depression, and 20 or more for severe depression. Post-traumatic stress disorder (PTSD) test is 20 questions, each item has a score from 0-4. The total score ranges from 0-80.

Results: A total of 101 responded this study. Among them, 41 (42.7%) were male and 55(57.3%) were aged 34 years or older. There were 54 (54%) participants who had married. Almost half of them 46 (47%) had a bachelor's degree or above. About 32.3% of the respondents reported middle and high levels of anxiety while 47.9-52.1% of the respondents reported middle and high levels of depression.

EXPLORING THE POSSIBILITY OF USING METHOD OF NEURAL CELL DRAWING FOR PSYCHOTHERAPY

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One of the fastest-growing methods in the psychology of the 21st century is the method of Russian psychologist Pavel M. P that is called neurography or method of neural cells image drawing. It is not only one of the creative projective methods of creating unique works based on the flexibility of the brain and the psychological basis of technology, showing the multifaceted processes of mental phenomena, but also allows us to present innovative ideas and solutions. Since there are currently no experiments using neurosurgery in psychotherapy practice in Mongolia, the research task was to test nerve-cell image drawing in psychotrerapy practice, suggesting that it may have a positive effect on the mental state of the individual.

Methods: 1 \. Methods of neural-cell image drawing (Pavel MP, 2014): Includes algorithms for removing constraints and algorithms for determining trend expressions. According to a specific step of the algorithms, psychological interpretation analysis was used in a free image similar to the retinal structure of the neurons of the brain, drawn using its own elements, the nerves and the neural connections. 2 \. Survival test, S. Maddie (Leontiev DA, Rasskazova EI, 2006). Before and after the study, this test was used to monitor the effectiveness of the neuron imaging method.

Result: Positive change in motivation of all researchers to solve their problems. It is expressed in the subconscious mind's ability to formulate, and rationalize problems to organize reality, and to explain it at the cognitive and emotional levels. The 7.56% increase in vitality is attributed to the fact that vitality and its components as a whole cope with stress on a regular basis and prevent the emergence of internal tensions in stressful situations According to Pearson's correlation, the correlation between viability and its components and the step-by-step algorithm for mapping neurons is $0 <| r | <0.883$ or a positive correlation. According to empirical agreement statistics, viability ($t = -3.279$), participation ($t = -1.711$), and risk acceptance ($t = -1.497$) increased, while control ($t = 3.376$) increased. These indicators indicate significant changes from the previous stage of the study to the next stage.

The reliability of the step-by-step algorithm was tested by coronary alpha analysis.832, and the reliability was confirmed.

As a result of psychiatric procedures in the process of drawing on nerve cells, the individual becomes better acquainted with themselves, understands the problem, and finds his own way to solve stabilizing mental balance has a positive effect on their ability to live.

AUTHOR INDEX

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