MINISTRY OF EDUCATION AND SCIENCE

NATIONAL CENTER FOR MENTAL HEALTH

MONGOLIAN ACADEMY OF SCIENCES
BRAIN AND MIND RESEARCH INSTITUTE

MNUMS

INTERNATIONAL BRAIN IBRO RESEARCH ORGANIZATION

MONGOLIAN NEUROSCIENCE SOCIETY

THE 6th IBRO-APRC ULAANBAATAR ASSOCIATE SCHOOL ON BEHAVIORAL AND TRANSLATIONAL NEUROSCIENCE

August 7-12, 2023
Ulaanbaatar, Mongolia

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THE 6th IBRO-APRC ULAANBAATAR ASSOCIATE SCHOOL ON BEHAVIORAL AND TRANSLATIONAL NEUROSCIENCE

GUIDEBOOK

August 7-12, 2023

Ulaanbaatar, Mongolia

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ORGANIZING COMMITTEE

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Tsolmon Jadamba, Prof, ScD.

Coordinator:
Gantsetseg Tumur-Ochir, MD, PhD.

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National Center for Mental Health
Brain and Mind Research Institute, Mongolian Academy of Sciences
Mongolian National University of Medical Sciences
International Brain Research Organization
Mongolian Neuroscience Society

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Publication manuscript: Enkhnaran T. MD., MSc., Uyanga A. BSc.

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NATIONAL CENTER FOR MENTAL HEALTH

The National Center for Mental Health (NCMH) is a leading government organization with the history of more than 90 years for providing public and mental health care services, clinical training and methods as well as defining policies in the field of psychiatry in nationwide Mongolia. NCMH aims to guide its activities at the national level within the framework of the government's health policy, to manage primary and basic specialty mental health care by applying professional methods, to diversify mental health care in the referral hierarchy, to promote foreign relations, research, and healthy behavior among general population of Mongolia. In addition to that, conducting clinical trainings to improve skills of human resources, we regularly organize post-graduation and specialization trainings, and taking a leading role in the strengthening of human resources and providing workplace in mental health care.
Furthermore, we are aimed to develop mental health sector's current status to the world-class services, to expand and build community-based rehabilitation center, improve scientific and surveillance research, statistical data center and human resources specialized in mental health. The goal is to gradually develop the policy and coordinate the joint activities of government and non-government organizations in the field of mental health care.

VISION - OUR FUTURE

To develop mental health care services to accessible for all and quality of the service to the level of developed countries and to become a leading sector in the public health.

MISSION - OUR RESPONSIBILITY

To administer equal and high quality mental health service for all as well as provide material and methods of primary and general health care professions.

STRATEGIC PLAN AND OBJECTIVES

- To provide specialized methods in primary and secondary mental health care of nationwide
- To provide specialized mental health care services by equal with high quality standard such as prevention, screening and diagnosis, treatment and community-based psychosocial rehabilitation in general population of Mongolia
- To develop research, statistics and surveillance center, and foreign relations
- To expand sources need for health care services, increasing budget, financial management, and distribution of resources

MONGOLIAN ACADEMY OF SCIENCES
BRAIN AND MIND RESEARCH INSTITUTE

Brain and Mind Research Institute (BMRI), affiliated with the Mongolian Academy of Sciences has been established in September 2021 by the 299 resolution of the Mongolian government. BMRI includes research departments for systems neuroscience, clinical neuroscience, and psychology and a multidisciplinary center for translation and innovation. The current research project of BMRI focuses on intensifying the Mon-Timeline study to investigate brain-related disorders using fundamental technology in brain science. The institute has built a research platform for interdisciplinary studies that enables neuroscientists, clinicians, and psychologists to collaborate on research projects, particularly on circadian rhythms and sleep disorders.

Mission

The mission of the Brain and Mind Research Institute is to develop brain science by translating up-to-date knowledge and fundamental technologies of neuroscience to the country by establishing a research platform for multidisciplinary studies to strengthen the health, productivity, and creativity of the population.

Short-term goal

We will establish a key laboratory for molecular and cellular neuroscience and behavioral sciences center.

Long-term goal

BMRI will introduce an interdisciplinary brain research system to contribute to national and global development.

Objectives

- Providing a platform for interdisciplinary interaction to understand nervous systems, including behaviour
- Supporting the establishment of collaborative research programs
- Translating advances in neuroscience to enhance mental, physical, and social well-being of the population
- Promote education in the neurosciences to general public to develop teaching concepts that strengthen the personality collectivism, and creativity of the population
- Promote other activities that will contribute to the development of neuroscience

Activity

- Research
- Training
- Project
- Clinical laboratory

Laboratories

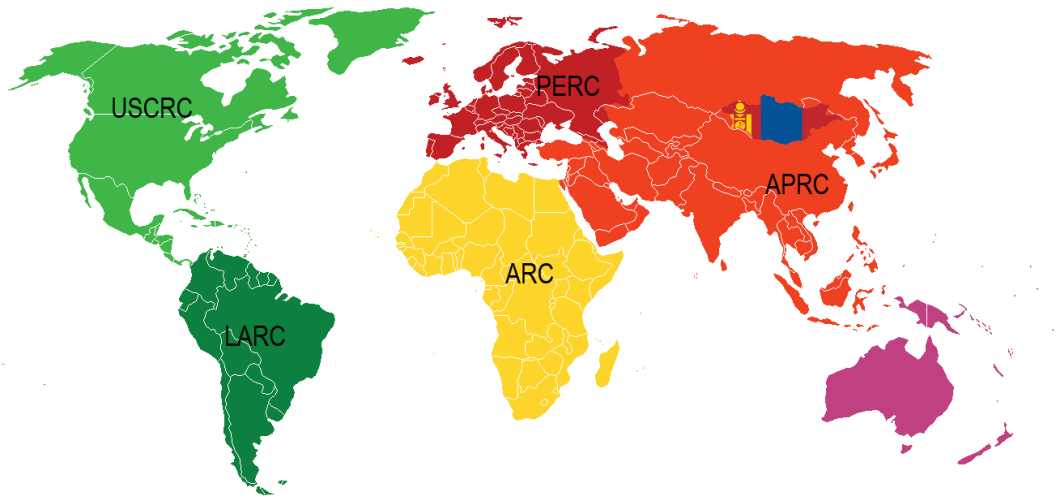
- Sleep research laboratory
- Endocrinology laboratory
- Dental laboratory

INTERNATIONAL BRAIN
IBRO
RESEARCH ORGANIZATION

The international Brain Research Organization (IBRO) was founded in 1961 in response to the growing demand from neuroscientists in many countries for the creation of a central organization that would out across world boundaries and improve communication and collaboration among brain researchers.

Mission

IBRO (the International Brain Research Organization) is a union of neuroscience organizations with the aim to promote and support neuroscience training and collaborative research around the world. More than 80 international, national and regional scientific organizations constitute IBRO's Governing Council, which together with the six IBRO Regional Committees launch the educational programs that reach young neuroscientists in need of support and assistance. IBRO mission and help to plan and implement IBRO activities in their local areas.
There are five IBRO Regional Committees



The mission of IBRO is to: Develop, support, coordinate and promote scientific research in all fields concerning the brain; Promote international collaboration and interchange of scientific information on brain research throughout the world Provide for and assist in education and dissemination of information relating to brain research by all available.

MONGOLIAN
NEUROSCIENCE
SOCIETY

Mongolian Neuroscience Society (MNS) is an academic non-profit organization, founded in 2014 in Ulaanbaatar, which is aimed to develop neuroscience in Mongolia and represent this field of science abroad. Society's mission is to leverage science in order to enhance mental, physical, and social well-being of Mongolian people through innovations in policy, education, and research by providing a platform for interdisciplinary interactions, supporting the establishment of collaborative research programs, translating advances in neuroscience, molecular biology, genomics, and the behavioral and social sciences, as well as developing teaching concepts that strengthen the personality, collectivity, and creativity of the population.

Long term objectives

We are aiming to investigate how the neural systems regulate behavior and vary between individuals and ethnicities; how they change across the life cycle; why they fail in neurological and psychiatric disorders, and their therapies; mentality and morality codes of nomadic people of Mongolia.

Short term objectives

Setting up the first Neuroscience Lab with state-of-the art technologies including Live Cell Imaging Technology and Electron Microscopy in Mongolia to study (i) Central circuits of feeding and energy regulation, thermoregulation, and cognition; (ii) the effects of stress; (iii) mechanisms underlying obesity, diabetes, neurological, and psychiatric disorders.

Completion of validation studies on internationally accepted psychometric tests (CES-D, STAI, SF36, SDQ, WAIS, FFM, TAS20, linguistic methos) and anthropometric testes that enable to ease local and collaborative scientific studies in developmental, genetic, clinical, social psychology, and enhance clinical early screening activities, nationwide.

ACCESS GUIDE

Monday

07.Aug.2023

NATIONAL CENTER FOR MENTAL HEALTH

Улаанбаатар хот Баянзүрх дүүрэг IX хороо Шархад

Tuesday

08.Aug.2023

BRAIN AND MIND RESEARCH INSTITUTE

Улаанбаатар хот, Баянгол дүүрэг, 14-р хороо, 3-р хороолол, Хасбаатарын гудамж - 16/2,16066

Wednesday

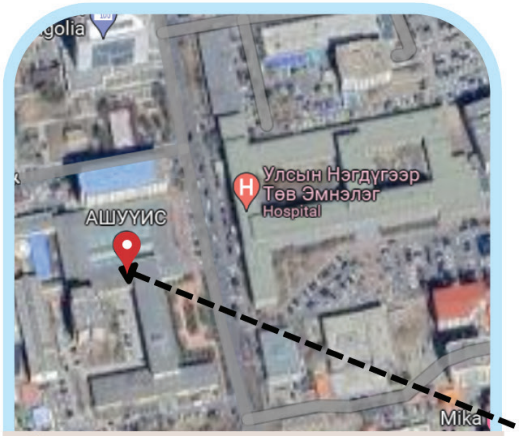
09.August.2023

MONGOLIA-JAPAN TEACHING HOSPITAL

13270, Улаанбаатар хот, Баянзүрх дүүрэг 12-р хороо, Ботаникийн цэцэрлэгт хүрээлэн

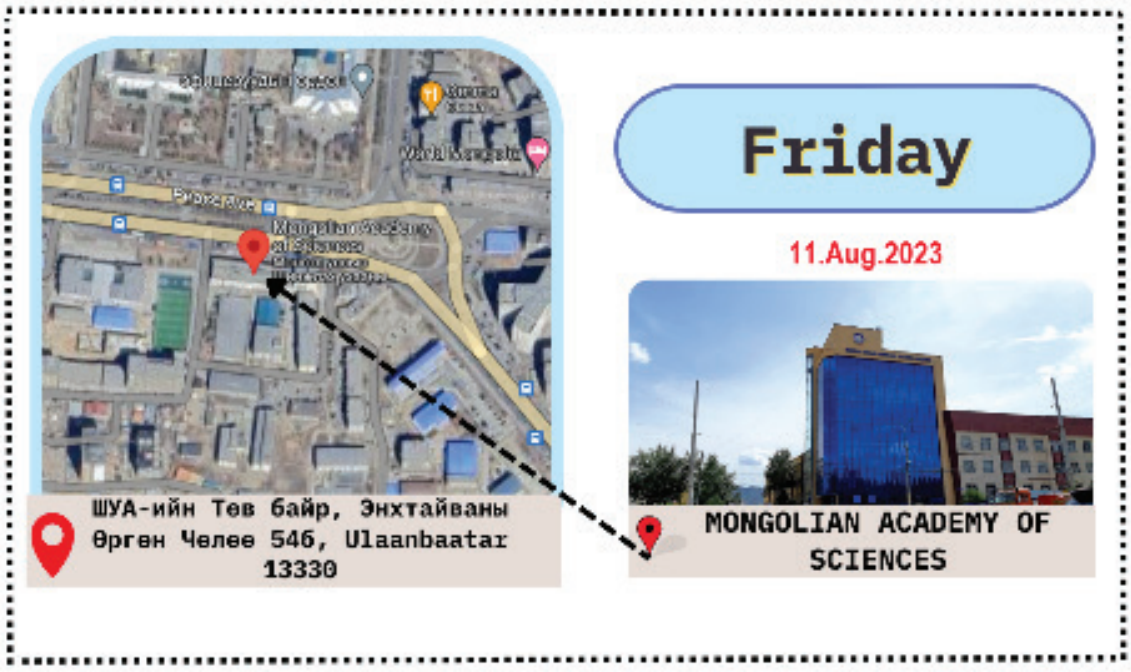
Thursday

10.August.2023



АШУҮИС, С.Зоригийн гудамж, Ш/Х-48/111 Улаанбаатар хот 14210, Монгол Улс.

INSTITUTE OF BIOMEDICAL SCIENCES


Friday
11.Aug.2023
ШУА-ийн Тев байр, Энхтайваны Өргөн Чөлөө 546, Ulaanbaatar 13330
MONGOLIAN ACADEMY OF SCIENCES


Saturday
12.Aug.2023
ШУА-ийн Тев байр, Энхтайваны Өргөн Чөлөө 546, Ulaanbaatar 13330
MONGOLIAN ACADEMY OF SCIENCES

WELCOME MESSAGE

Dear honored Professors and esteemed participants,

I am pleased to welcome you to the 6th IBRO/APRC Ulaanbaatar Associate School, organized by National Center for Mental Health, Brain and Mind Research Institute affiliated with Mongolian Academy of Sciences, and International Brain Research Organization in Ulaanbaatar, Mongolia. We are truly excited that you have been chosen to attend this annual meeting and hope you will embrace everything we offer through this event. Without any doubt there will be an enormous opportunities to exchange ideas, expand our knowledge and enrich the networking.

On the behalf of the National Center for Mental Health, we're delighted to embrace this year's theme on "Behavioral and Translational Neuroscience". As it's known to all that International Brain Research Organization has been dedicated to promote and support collaborative research and training on neuroscience across the world. Human brain is the most complex organ. It includes in many different fields such as neurophysiology, neurology, and psychiatry as well as psychology. We believe that many psychiatric diseases can be treated through the discovering in the brain.

National Center for Mental Health has been established on 1929 and we have a long history. We're indeed honored to co-organizing sixth IBRO/APRC Associate School. Our researchers and specialists have been successfully participated in IBRO/APRC Ulaanbaatar Associate School since the first meeting in Ulaanbaatar, Mongolia. By the knowledge we've gathered through this collaboration, our team dedicated to make effort and advances in psychiatric field with the help of neuroscience discovery.

Finally I'd like to send warm welcome to you all and hope that you will enjoy and embrace everything that enhance your skill and knowledge during these days.

Bayarmaa Vanchindorj, MD, PhD.
General Director of National Center for Mental Health, Ulaanbaatar, Mongolia.

WELCOME MESSAGE

Distinguished faculties and participants,

On behalf of the National Center for Mental Health of Mongolia and as the coordinator of the 6th IBRO/APRC Ulaanbaatar Associate School, it gives me immense pleasure and honor to extend a warm and heartfelt welcome to all the attendees and faculties.

At the core of neuroscience lies the study of the nervous system, exploring the intricate biological basis of consciousness, perception, memory, and learning. Through neuroscience, we bridge the gap between our observations of cognitive behavior and the underlying physical processes that support such behavior.

This year's school has attracted a significant number of psychiatrists, and we are thrilled to witness their enthusiastic participation as they embark on a journey to enhance their understanding of brain inflammation and its implications. We are confident that the program's carefully curated content and interactive sessions will equip each participant with a higher level of scientific knowledge and experimental expertise in this vital area of study.

Also, I would like to extend my heartfelt gratitude to our esteemed international guest professors, our local researchers, medical doctors, and the Mongolian scientists from developed countries. Your generous contribution of knowledge and experience, despite the challenges posed by the virtual format, underscores your unwavering commitment to nurturing the next generation of brain scientists. Your dedication to advancing brain science is truly commendable and serves as a beacon of inspiration for all participants.

I must also express my deepest appreciation to the collaborative efforts of the Mongolian Academy of Sciences, Mongolian National University of Medical Sciences, Mongolian Neuroscience Society, and the International Brain Research Organization (IBRO). Your support and partnership have been instrumental in making this event possible. Together, we have created a platform where ideas flourish, perspectives converge, and knowledge transcends borders.

As we embark on this enriching journey, I encourage all participants to seize every opportunity to engage, collaborate, and network with fellow researchers and faculties. The exchange of ideas and experiences during this school will undoubtedly have a lasting impact on the advancement of neuroscience, not only in Mongolia but on a global scale.

I wish each one of you a productive, insightful, and unforgettable experience at the 6th IBRO/APRC Ulaanbaatar Associate School. May this endeavor foster a spirit of curiosity, innovation, and camaraderie that will continue to shape the landscape of brain science for years to come.

Gantsetseg Tumur-Ochir, MD, PhD
Head, Department of Surveillance and Statistics, National Center for Mental Health, Mongolia

WELCOME MESSAGE

Distinguished international guests, professors and participants

It is my great honor and pleasure to extend a warm welcome to all participants at the 6th IBRO/APRC Ulaanbaatar Associate School. This collaborative event, organized jointly by the Brain and Mind Research Institute (affiliated with the Mongolian Academy of Sciences), Mongolian National Center for Mental Health (NIMH), Mongolia-Japan Hospital, Institute of Biomedical Sciences at the Mongolian National University of Medical Sciences (MNUMS), Mongolian Neuroscience Society (MNS), and International Brain Research Organization (IBRO), brings together psychiatrists, neurologists, psychologists, and neuroscience enthusiasts from diverse backgrounds.

Building on last year's theme of Brain-related Disorders, this year, we are delving deeper into the fascinating realm of Behavioral and Translational Neuroscience. As always, this school serves as a gateway for Mongolian young scholars, researchers, and specialists in brain science to expand their knowledge, forge connections with peers and professors, and stay updated on the latest advancements in neuroscience. Through academic deliberations, insightful lectures, meaningful interactions, and laboratory demonstrations, our aim is to significantly enhance neuroscience in Mongolia.

In line with this objective, we foster close collaboration with the International Brain Research Organization, nurturing young neuroscientists and researchers while contributing to the development of multidisciplinary research in Mongolian neuroscience. With so much to explore and learn, we are thrilled to have all of you here, and we hope your learning and networking experiences fill you with excitement and energy.

I am confident that the strong lectures, tech talks, and hands-on sessions delivered by highly talented and dedicated professors will inspire our young scientists and equip them with world-class research skills, enabling them to engage with the forefront of scientific knowledge. I wish all participants an enjoyable and successful learning journey.

I extend my deepest gratitude to the executives and members of IBRO/APRC, as well as the organizing teams of NCMH and MNUMS, and our international and local faculties.

Let us foster globalized collaboration in scientific research and together contribute to the advancement of neuroscience.

Tsolmon Jadamba DDS, Sc.D.
Scientific Advisor, Founding former Director of Brain and Mind Research Institute, affiliated with the Mongolian Academy of Sciences

WELCOME MESSAGE

I am thrilled to welcome all the participants to "Behavioral and Translational Neuroscience" Brain and Mind Research Institute of Mongolian Academy of Sciences, Mongolian National Center for Mental Health, Mongolian National University of Medical Sciences organized by the International Brain Research Organization (IBRO) in Ulaanbaatar, Mongolia.

Many young scientists who intend to pursue neuroscience and those who practice it and I are overjoyed that a historical moment and opportunity to develop brain research according to government policy has come to Mongolia. Without a doubt, unraveling the meaning behind every word and letter of what our professors are teaching, we will study hard to develop neuroscience, the world-leading science, in our country.

It is our sixth year in successfully organizing an international neuroscience school in cooperation with the Asia Pacific Regional Committee of the International Brain Research Organization. This school is an international-level academic course that includes lectures, tech talks, hands-on sessions, and discussions of various formats.

Our goal for this year under the theme "Behavioral and Translational" is to provide knowledge, training, and experience regarding the mechanisms, diagnosis, and treatment of pathogenesis along with the core techniques of brain-related disorders.

Our institute carries out many crucial activities such as training, research, projects, clinical examinations, and diagnosis to support and develop neuroscience in Mongolia. And one of these activities is this international school supporting the younger generations interested in pursuing and studying neuroscience by helping them acquire theoretical knowledge, teaching necessary laboratory skills, and aiding them in their academic and research work.

We deeply believe that the " Behavioral and Translational Neuroscience" international conference will make a valuable contribution to your research and academic work, to deepen your knowledge of the world's leading scientific field, brain science.

Bulgantuya Bumandorj, Ph.D
Director of the Brain and Mind Research Institute
Mongolian Academy of Sciences

PROGRAM

IBRO-APRC Ulaanbaatar Associate School on Behavioral and Translational Neuroscience, August 7-12, 2023, Mongolia

PROGRAM IN DETAIL

Day 1: Monday, August 7, 2023 Venue: NCMH	
8:00-8:30	Registration
8:30-9:00	Opening ceremony Bayarmaa Vanchindorj, President, National Center for Mental Health (NCMH) Tsolmon Jadamba, Scientific Advisor, Founding former Director of Brain and Mind Research Institute, affiliated with the Mongolian Academy of Sciences (BMRI) Battuvshin Lkhagvasuren, President, Mongolian Neuroscience Society (MNS) 15 minutes promotion of International Brain Research Organization-Asia Pacific Region (IBRO-APRC) (Memorial Photography)
9:00-10:30	Neuroethics Choijamts Gotov, Vice president, Otoch Manramba University, Mongolia
10:30-10:45	Break
10:45-12:15	Psychology in Mongolia Batsukh Shairii, Mongolian Psychological Association
12:15-13:00	Lunch
13:00-14:00	Clinical research methods in neuropsychiatric diseases Gantsetseg Tumur-Ochir, Director NCMH
14:00-14:15	Break
14:15-15:45	Yoga therapy in Japan Keishin Kimura – Japan Yoga Therapy Society, Japan
Day 2: Tuesday, August 8, 2023 Venue: BMRI	
08:00-09:30	The impact of stress of neuroinflammation: mechanisms, behavioral consequences, and opportunities for therapeutic intervention Mandakh Bekhbat, Emory University, USA
09:30-09:40	Break
09:40-11:10	Immunohistochemistry Battuvshin Lkhagvasuren, Mongolian Neuroscience Society (MNS)
11:10-11:20	Break
11:20-12:50	Extracellular single-unit recording Chinzorig Choijiljav, Toyama University, Japan

12:50-13:30	Lunch
13:30-15:00	Behavioral Study in Rodents Naranbat Nasanbuyan, Jichi University, Japan
15:00-15:10	Break
15:10-16:40	How to select a subject for research (selected students) Norman Sartorius, University of Geneva, Switzerland
Day 3: Wednesday, August 09, 2023 Venue: MJH	
09:00-10:30	fMRI in Mongolia Tuvshinjargal Dashjamts, MNUMS, Mongolia
10:30-10:40	Break
10:40-12:10	Brain dissection Tungalag Ser-Od, MNUMS, Mongolia
12:10-13:00	Lunch
13:30-15:00	Optogenetics Zesemdorj Otgon-Uul, MNUMS, Mongolia
15:00-15:10	Break
15:10-16:40	Clinical research methods in neurological diseases Byambasuren Dagvajantsan, MNUMS, Mongolia
Day 4: Thursday, August 10, 2023 Venue: MNUMS	
08:00-09:00	Microglia: An Update Sharmili Vidyadaran, University Putra, Malaysia
09:00-10:00	Challenges of human stem cells for therapy Daisy K.Y. Shum, University of Hong Kong, China
10:00-10:15	Break
10:15-11:15	Structure-function relationship study of ion channels: Looking back and seeing ahead Yoshihiro Kubo, National Institute for Physiological Sciences, Japan
11:15-12:15	Timely Switch-on of Neonatal Vestibular Circuit is required for Effective Navigation Ying-Shing Chan, The University of Hong Kong, China
12:15-13:00	Lunch
13:00-14:00	Going into the brain: Visualization of glia-neuron interaction Junichi Nabekura, National Institute for Physiological Sciences, Japan
14:00-15:30	qPCR analysis Chimedlkhamsuren Ganbold, MNUMS, Mongolia
15:30-15:45	Break
15:45-17:15	Cryostat sectioning Galindev Batnasan, MNUMS, Mongolia

Day 5: Friday, August 11, 2023 – The 10th Annual Meeting of MNS Venue: MAS	
09:00-09:20	Opening ceremony of MDBS-Ulaanbaatar 2023 Regdel Duger, President, Mongolian Academy of Sciences (MAS) Tsolmon Jadamba, Director, Brain and Mind Research Institute (BMRI) Battuvshin Lkhagvasuren, President, Mongolian Neuroscience Society (MNS)
09:20-10:10	Keynote lecture
10:10-11:00	Keynote lecture
11:00-11:10	Break
11:10-11:50	Plenary lecture
11:50-12:30	Plenary lecture
12:30-14:00	Lunch
15:00-16:00	Transcranial magnetic stimulation (TMS): how it is studied and used in basic neuroscience Ken-Ichiro Tsuitsui, Tohoku University, Japan
16:00-17:00	Clinical research methods on anxiety disorders Tetsuya Hiramoto, National Hospital Organization, Japan
Day 6: Saturday, August 12, 2023 – The 10th Annual Meeting of MNS Venue: MAS	
08:30-09:00	Registration
09:00-09:50	Keynote lecture
09:50-10:40	Keynote lecture
10:40-10:50	Break
10:50-11:30	Plenary lecture
11:30-12:10	Plenary lecture
12:10-12:50	Plenary lecture
12:50-13:50	Lunch
14:00-15:15	Poster Session

FACULTY LIST

IBRO-APRC Ulaanbaatar Associate School on Behavioral and Translational Neuroscience, August 7-12, 2023, Mongolia

№	Name	Affiliation	Country
		INTERNATIONAL FACULTIES	
1	Junichi Nabekura	National Institute for Physiological Sciences	Japan
2	Norman Sartorius	Association for the Improvement of Mental Health Programs / Action for Mental Health,	Switzerland
3	Ying-Shing Chan	The University of Hong Kong	China
4	Ken-Ichiro Tsutsui	Tohoku University	Japan
5	Yoshihiro Kubo	National Institute for Physiological Sciences	Japan
6	Tetsuya Hiramoto	National Hospital Organization	Japan
7	Daisy K.Y. Shum	The University of Hong Kong	China
8	Keishin Kimura	Japan Yoga Therapy Society	Japan
9	Sharmili Vidyadaran	University Putra Malaysia	Malaysia
10	Chinzorig Choijiljav	Toyama University	Japan
11	Mandakh Bekhbat	Emory University	USA
12	Naranbat Nasanbuyan	Jichi Medical University	Japan

LOCAL FACULTIES			
1	Choijamts Gotov	Otoch Manramba University	Mongolia
2	Batsukh Shairii	Mongolian Psychological Association	Mongolia
3	Battuvshin Lkhagvasuren	Mongolian Neuroscience Society	Mongolia
4	Gantsetseg Tumur-Ochir	National Center for Mental Health	Mongolia
5	Byambasuren Dagvajantsan	Mongolian National University of Medical Sciences	Mongolia
6	Tuvshinjargal Dashjamts	Mongolian National University of Medical Sciences	Mongolia
7	Galindev Batnasan	Institute of Biomedicine, Mongolian National University of Medical Sciences	Mongolia
8	Zesemdorj Otgon-Uul	Mongolian National University of Medical Sciences	Mongolia
9	Tungalag Ser-Od	Mongolian Dental Association	Mongolia
10	Chimedlkhamsuren Ganbold	Mongolian National University of Medical Sciences	Mongolia

LECTURES, EXPERIMENTAL TALKS, AND INTERACTIVE DISCUSSIONS

Lectures:

L1: Going into the brain: Visualization of glia-neuron interaction (Junichi Nabekura – National Institute for Physiological Sciences, Japan) (m) (60 minutes)
L2: Timely Switch-on of Neonatal Vestibular Circuit is required for Effective Navigation (Ying-Shing Chan-The University of Hong Kong, China) (m) (60 minutes)
L3: Structure-function relationship study of ion channels: Looking back and seeing ahead (Yoshihiro Kubo – National Institute for Physiological Sciences, Japan) (m) (60 minutes)
L4: Use of bone marrow stromal cell-derived, fate-committed Schwann cells for remyelination therapy (Daisy K.Y. Shum – University of Hong Kong, China) (f) (60 minutes)
L5: Microglia: An Update (Sharmili Vidyadaran – University Putra, Malaysia) (f) (60 minutes)

Tech-talks:

T1: Transcranial magnetic stimulation (TMS): how it is studied and used in basic neuroscience (Ken-Ichiro Tsutsui - Tohoku University, Japan) (m) (90 minutes)
T2: Clinical research methods on anxiety disorders (Tetsuya Hiramoto – National Hospital Organization, Japan) (m) (90 minutes)
T3: Yoga Therapy in Japan (Keishin Kimura – Japan Yoga Therapy Society, Japan) (m) (90 minutes)
T4: Extracellular single-unit recording (Chinzorig Ch - MNUMS) (m) (90 minutes)
T5: The impact of stress of neuroinflammation: mechanisms, behavioral consequences, and opportunities for therapeutic intervention (Mandakh Bekhbat - Emory University, USA) (f) (90 minutes)
T6: Immunohistochemistry (Battuvshin L – MNS) (m) (90 minutes)
T7: fMRI in Mongolia (Tuvshinjargal D - MNUMS) (f) (90 minutes)
T8: Optogenetics (Zesemdorj O - MNUMS) (m) (90 minutes)
T9: Brain dissection (Tungalag S - MNUMS) (f) (90 minutes)
T10: qPCR analysis (Chimedlkhamsuren G - MNUMS) (m) (90 minutes)

Hands-on sessions:

H1: Behavioral study in rodents (Naranbat N – Jichi University, Japan) (m) (90 minutes)
H2: Clinical research methods in neuropsychiatric diseases (Gantsetseg T- NIMH) (f) (90 minutes)
H3: Clinical research methods in neurological diseases (Byambasuren D -MNUMS) (f) (90 minutes)
H4: Cryostat sectioning (Galindev B - MNUMS) (f) (90 minutes)

Group discussions:

G1: How to select a subject for research (Norman Sartorius – University of Geneva, Switzerland) (all students) (90 minutes)
G2: Neuroethics:(Choijamts G – Otoch Manramba University) (m) (90 minutes)
G3: Psychology in Mongolia (Batsukh S - MPA) (m) (90 minutes)

THE 6th IBRO-APRC ULAANBAATAR ASSOCIATE SCHOOL ON BEHAVIORAL AND TRANSLATIONAL NEUROSCIENCE

INVITED LECTURES AND ABSTRACTS

Junichi Nabekura

Current position/Occupation: Director-General National Institute for Physiological Sciences

Title of talk: Going into the brain: Visualization of elia-neuron interaction

Institutional address: National Institute for Physiological Sciences, Japan

E-mail address: nabekura@nips.ac.jp

Junichi Nabekura, MD PhD is Director General of the National Institute for Physiological Sciences. He has been engaged on the research field of reorganization of neural circuits. He is a pioneer in Japan who has optimized two-photon excitation laser microscopy (2PLM) to observe fine structures in the brains of living animals. He observes changes in the morphology and activity of neural circuits during development, learning, pathology, and recovery from injury in live mice. In recent years, we focus on the reorganization of neural circuits by glial cells using in vivo imaging with 2PLM and various genetic manipulations. Among glial cells, microglia, which are the sole immune cells in the brain, regularly contact on neurons and synapses and regulate synaptic and local circuits' activity. In addition We clarified the relationship between immune cell and neurons in the immature brain, in which microglia contribute to the development of local circuits in the brain. We also reported that astrocytes in the primary somatosensory cortex release synaptogenic factors and form circuits related to hyperalgesia in chronic pain model mice. Recently, we have discovered a method to eliminate abnormal pain sensation during the maintenance phase of allodynia by re-activating astrocyte. Now he proposed its application to to clinical medicine.

His research is based on his experience in researching developmental changes of human fetal behaviors using ultrasound tomography during his medical residency. In his postdoc period in the United States, he was engaged on synaptic competition at developing neuromuscular junctions, and also on the development of real-time confocal microscopy. After coming back to Japan, he worked on the function of ion channels and receptors using patch-clamp techniques. Particularly, he focused on neuronal K+ Cl- cotransporter (KCC2), a regulatory molecule of intracellular chloride ion concentration, which change in expression during development and after damage could be underlying mechanisms of the functional shift of GABA-A receptor. This project is also still on-going at present.

GOING INTO THE BRAIN: VISUALIZATION OF GLIA-NEURON INTERACTION.

Junichi Nabekura

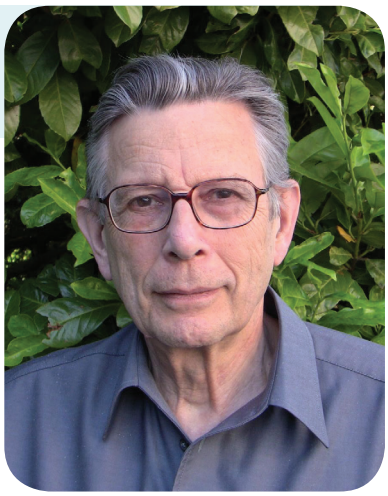
National Institute for Physiological Sciences, Okazaki, Japan

Long term change in the brain function, such as development, learning and neuropathic diseases, is associated with the change in the neural activity. Recent advance in imaging techniques, e.g. MRI and PET, allows us to understand the activation of various brain areas in physiological and pathological conditions. However, due to their spatial and temporal limitation, it is difficult to observe fine structures in the brain, such as neuronal networks, and their activities, which could be the underlying mechanisms of driving the brain function. To visualize neurons and their structures, such as axons, dendrites and synapses in the living animals, multiphoton-excitation fluorescent microscope has been widely employed in this decade. Here, two-photon microscope optimized to visualize the fine structures in living animals will be briefly introduced.

To understand the underlying mechanisms of changes of brain functions in development and recovery after brain damages, we recently focus on the contribution of immune cells in the brain, microglia, to remodel the neuronal circuits. We visualized the interaction between microglia and neurons and their morphological dynamics with two-photon microscope in vivo. Real-time imaging revealed that microglia in healthy brain (resting microglia), dynamically and directly monitors the local synaptic states. Resting microglial processes make brief (~5 min) and direct contacts with neuronal synapses. In the damaged brain, the duration of the microglia-synapse contact was much prolonged (~1 hour), frequently followed by the disappearance of damaged synapses. Microglia also wrapped the processes of the damaged neurons to prevent neuronal hyperactivity and rescue the neurons from excitotoxicity.

An advance in imaging of fine structures in the living brain contributes to better understand the brain function in terms of synapse dynamics.

Norman Sartorius



Current position/Occupation: President of the Association for the Improvement of Mental Health Programs

Title of talk: How to select a subject for research

Institutional address: Association for the Improvement of Mental Health Programs, a non-governmental organization located in Geneva

E-mail address: sartorius@normansartorius.com

Professor N. Sartorius, MD, PhD, FRCPsych was the Director of the Mental Health Division of the World Health Organization and served as the President of the World Psychiatric Association and of the European Psychiatric Association. He is now the President of the Association for the Improvement of Mental Health Programs, a non-governmental organization located in Geneva. Professor Sartorius holds several professorial positions in Europe, the USA and elsewhere. He published more than 500 papers in peer-reviewed journals and authored, co-authored, edited or co-edited more than 120 books.

Professor Sartorius' main areas of interest at present are the comorbidity of mental and physical disorders, the protection of human rights of people with mental illness and their carers, the reduction of the stigma of mental disorders and the education of psychiatrists and other stakeholders in the field of mental health. In his previous positions he was the principal investigator of a number of international collaborative studies and projects dealing with schizophrenia and other major mental diseases, comorbidity of mental and physical illnesses, health service development and education of different categories of staff.

HOW TO SELECT A SUBJECT FOR RESEARCH

Norman Sartorius

President of the Association for the Improvement of Mental Health Programs

This lecture will present practical issues which should be considered in the selection of a subject by psychiatrists and other neuroscientists early in their career. This will include comments on a selection of topics on the light of practical considerations that should be kept in mind when making the selection. The lecture will also present suggestions about studies that could be done with few resources outside of laboratories.

Ying-Shing Chan

Current position/Occupation: Senior Advisor to the Dean of Medicine, and Dexter H C Man Family Professor in Medical Science of The University of Hong Kong

Title of talk: Timely Switch-on of Neonatal Vestibular Circuit is required for Effective Navigation

Institutional address: School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Sassoon Road, Hong Kong, PR China

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Professor Ying-Shing Chan is Senior Advisor to the Dean of Medicine, and Dexter H C Man Family Professor in Medical Science of The University of Hong Kong. He also served as the Head of Department of Physiology, Associate Dean of the Faculty of Medicine, and Director of Neuroscience Research Center. He received his postdoctoral training at the Institute of Human Physiology at Pisa, Italy, and The Rockefeller University, USA. Professor Chan is an elected Fellow of the Royal Society of Biology and recipient of the First Medallion of the Australian Neuroscience Society. He served as Chair of the International Scientific Program Committee and Vice-President of the 39 th Congress of International Union of Physiological Sciences (IUPS), Chair of International Brain Research Organization (IBRO) Asian/Pacific Regional Committee, President of Federation of Asian-Oceania Neuroscience Societies (FAONS), and Vice-President of The Chinese Association for Physiological Sciences. He is currently President of the Asian-Pacific Society for Neurochemistry (APSN), and Chair of the IUPS Commission on Neurobiology. He is also the Founding Editor-in-Chief for IBRO Neuroscience Reports and Associate Editor for European Journal of Neuroscience.

TIMELY SWITCH-ON OF NEONATAL VESTIBULAR CIRCUIT IS REQUIRED FOR EFFECTIVE NAVIGATION

Ying-Shing Chan

School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Sassoon Road, Hong Kong, PR China

Vestibular input is indispensable for shaping spatial cognitive systems, but the requirements for maturation of circuits that process these inputs remains elusive. We ask how synaptic efficacy of vestibular neurons undergo postnatal tuning to sharpen spatial coding of sensorimotor circuits for relevant behaviors. Using the central vestibular circuit as a model, we show that neonatal regulation of glutamatergic and GABAergic transmission is crucial for functional maturation of such circuits.

Delayed unsilencing of NMDAR-only synapses in the neonatal vestibular nucleus (VN) impacted not only on the execution of righting reflexes in postnatal rats but also effective spatial navigation in adults. We further found that antagonizing early depolarization GABAergic transmission in the VN during the first postnatal week also led to deficits in navigation in adulthood. These rodents exhibited permanent miswiring of central vestibular circuits that in control animals provide feedforward tuning of the ascending pathway for navigation. Altogether, our results demonstrate that maturation of nascent vestibular circuitry within a precise timeframe is the key for successful integration of vestibular signals in higher brain centres for spatial navigation in the adult.

Ken-Ichiro Tsutsui

Current position/Occupation: Professor, Laboratory of Systems Neuroscience

Title of talk: Transcranial magnetic stimulation (TMS): how it is studied and used in basic neuroscience

Institutional address: Tohoku University, Graduate School of Life Sciences

E-mail address: Tsutsui@tohoku.ac.jp

Ken-Ichiro Tsutsui graduated, and received Ph.D. in Psychology, from the University of Tokyo. Since then he has been studying the neural mechanisms of higher cognitive functions, first as a JSPS Fellow in Nihon University School of Medicine, next as a Research Associate in University of Cambridge, and then as an Associate Professor in Tohoku University. There he was promoted to a full Professor in 2017. He uses theories and concepts in behavioral and cognitive psychology with neural tracings, recordings and interventions, in order to investigate the neural mechanisms of higher cognitive functions.

TRANSCRANIAL MAGNETIC STIMULATION (TMS): HOW IT IS STUDIED AND USED IN BASIC NEUROSCIENCE

Ken-Ichiro Tsutsui

Laboratory of Systems Neuroscience, Tohoku University, Graduate School of Life Sciences, Japan

Transcranial magnetic stimulation (TMS) is receiving increasing attention and expectations for its various applications. However, besides its expanding use in the clinical fields, its basic study has been relatively inactive. Indeed, the working mechanisms of TMS, how it activates neurons and how its repetitions induce long-term excitatory or inhibitory effects, remains largely unknown. In this talk I will first introduce our study examining the impact of repetitive TMS (rTMS) of different frequencies on the resting-state cortical activity (Honda et al., 2021). We conducted an electrophysiological study using awake and unanesthetized monkeys with subdural electrocorticogram (ECoG) electrodes implanted over the primary motor cortex (MI). We evaluated the effects of rTMS of different frequencies on the resting-state ECoG signals in the stimulated MI, as well as the motor evoked potentials (MEPs) in the contralateral hand as an index of cortical excitability. Following the 1-Hz rTMS application, the ECoG beta band power and the MEP amplitude were significantly decreased. Following the 10-Hz rTMS application, the ECoG high-gamma power and the MEP amplitude significantly increased. Then I will introduce our study using rTMS as a tool for neural interventions and inducing depression in monkeys by inhibiting the neural activity of the ventral medial frontal cortex (vMFC) (Nakamura et al., 2022). We found that 1-Hz rTMS targeting the vMFC induced a depression-like state in monkeys, which was characterized by a reduced movement activity level, impaired sociability, and decreased motivation level, as well as increased plasma cortisol level. On the other hand, no such significant changes in behavioral and physiological states were observed when targeting the other MFC regions, dorsal or posterior. We further found that the administration of an antidepressant agent, ketamine, ameliorated the abnormal behavioral and physiological states induced by the LF-rTMS intervention. These findings causally indicate the involvement of the vMFC in the regulation of mood and the validity of the LF-rTMS-induced dysfunction of the vMFC as a nonhuman primate model of depression. Honda Y, Nakamura S, Ogawa K, Yoshino R, Tobler PN, Nishimura Y, Tsutsui KI (2021) Changes in beta and high-gamma power in resting-state electrocorticogram induced by repetitive transcranial magnetic stimulation of primary motor cortex in unanesthetized macaque monkeys. Neuroscience Research 171:41-48. doi: 10.1016/j.neures.2021.02.002. Nakamura S, Kishimoto Y, Sekino M, Nakamura M, Tsutsui KI (2022) Depression induced by low-frequency repetitive transcranial magnetic stimulation to ventral medial frontal cortex in monkeys. Experimental Neurology 357:114168. doi: 10.1016/j.expneurol.2022.114168.

Yoshihiro Kubo

Current position/Occupation: Professor, Vice Director General National Institute for Physiological Sciences,

Title of talk: Structure-function relationship study of ion channels: Looking back and seeing ahead

Institutional address: National Institute for Physiological Sciences

Email: ykubo@nips.ac.jp

I am Professor in the Division of Biophysics & Neurobiology at the National Institute for Physiological Sciences (NIPS), Japan, and current Vice-Director General. In the Graduate School of Medicine in The University of Tokyo, I studied ion channel expression at the initial stage of differentiation of embryonal carcinoma cells and received my PhD in 1989. I then engaged in my post doc research on the expression cloning of the inward rectifier K+ channel (Kir) in Professor Lily Jan lab at UCSF. After return in 1993, I worked as a research scientist at Tokyo Metropolitan Institute for Neurosciences and started structure function studies of Kir and metabotropic glutamate receptor. In 2000, I moved to Tokyo Medical and Dental University School of Medicine as a full Professor and continued structure-function studies. Since I moved to NIPS as a full professor in 2003, we have been working on the functioning mechanisms of ion channels and receptors, including Kir, ATP receptor channel P2X, KCNQ channels and Two Pore Na+ channel. We utilize in vitro expression systems such as Xenopus oocytes and HEK293 cells. We perform electro- physiological and also opto- physiological approaches, such as FRET analysis, voltage clamp fluorometry, subunit counting by single molecule imaging. In addition to my research, I have been serving as Vice President of The Physiological Society of Japan (PSJ), and was recently elected as President- Elect. Also, I am currently serving as the 2nd Vice President of International Union of Physiological Sciences (IUPS) as well as the Secretary-General of Federation of Asian and Oceanian Physiological Societies (FAOPS) for the global promotion of physiology. I served for The Journal of Physiology (London) as a board member from 2004 to 2018, and again from 2023.

STRUCTURE-FUNCTION RELATIONSHIP STUDY OF ION CHANNELS: LOOKING BACK AND SEEING AHEAD

Yoshihiro Kubo

Division of Biophysics and Neurobiology, Department of Molecular and Cellular Physiology, National Institute for Physiological Sciences, Japan

Ion channels play critical roles in excitable cells such as neurons and muscles, as well as in non-excitable cells. Their genetic abnormalities are known to cause various hereditary diseases including epilepsy, periodic paralysis, cardiac arrhythmia.

In this lecture, I will start with the very basics of cell physiology and the Hodgkin-Huxley theory in 1952, and then introduce how the entity of ion channels had been proved in 1980's. The identification of cDNA enabled what we call structure-function relationship study by comparing the molecular features of wild type and mutants. I will explain two very successful examples on the K^+ selective permeation in K^+ channels and the voltage-sensing mechanisms in 1980's and 1990's. I will then introduce the advantages of electrophysiological experiments using Xenopus oocytes as an *in vitro* expression system, and also the effectiveness of the application of opto-physiological approach together with electrophysiological experiments. Finally, I would like to explain the perspectives of ion channel research which will better focus on the dynamic aspects, towards the elucidation of their functioning mechanisms.

Tetsuya Hiramoto

Current position/Occupation: Chief, Department of Psychosomatic Medicine, National Hospital Organization

Lecture title: Clinical research methods on anxiety disorders

Institutional Address: Fukuoka National Hospital, Japan

Email address: tetsuhcephalmed@yahoo.co.jp

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:

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.
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.
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.
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.
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
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.
Yoshihara K, Hiramoto T, Sudo N, Kubo C. (2011) Profile of mood states and stress-related biochemical indices in long-term yoga practitioners. Biopsychosocial medicine5:6.
Hiramoto T, Oka T, Yoshihara K, Kubo C. (2009) Pyrogenic cytokines did not mediate a stress interview-induced hyperthermic response in a patient with psychogenic fever: a case report.Psychosomatic Medicine 71:932-936.
Hiramoto T, Chida Y, Sonoda J, Yoshihara K, Sudo N, Kubo C. (2008) The hepatic vagus nerve attenuates Fas-induced apoptosis in the mouse liver via a7 nicotinic acetylcholine receptor. Gastroenterology134:2122-2131.
Chida Y, Sudo N, Sonoda J, Hiramoto T, Kubo C. (2007) Childhood psychological stress exacerbates adult mouse asthma by hypothalamus-pituitary-adrenal axis. American Journal of Respiratory Critical Care Medicine 175: 316-322.
Chida Y, Hiramoto T, Sudo N, Kubo C. (2007) The modulation of central nervous system on Fas-induced liver injury. Chapter 5 In Johansson LM (ed) Neuroimmunology Research Perspective. Hauppauge, NY: Nova Science Publishers, Inc., p131-147.

CLINICAL RESEARCH METHODS ON ANXIETY DISORDERS

Tetsuya Hiramoto

Department of Psychosomatic Medicine, National Hospital Organization, Japan

Have you ever felt stressed about conducting clinical research in mental health? If so, you are not alone. There are a number of challenges that can make this type of research difficult, but there are also a number of strategies that can help you overcome these challenges. I would like to explain why you have such feeling and give advice how to overcome such stressful situation in this lecture. Two of the main challenges of conducting clinical research in mental health are: The first reason is ruck of experiences of research itself. The second one is that you feel difficulty because you want to do research related to "mental problems". There is always a pattern when we feel something difficult. Did you feel difficulty in riding horse when you are little boy? Did you feel difficulty in cooking chicken soup when you are little girl? Do you think why? The reason is ruck of experiences. You have had enough experiences of riding horse, so now you can ride it well. (or if you haven't had enough chance, you cannot still ride it well now. You have had enough experiences in cooking chicken soup so now you can cook it well. (or if you haven't had enough chance, you cannot still cook it well now.) If you think difficulty in conduct research, you might have less experiences of it and don't know about its important points. In addition to these general strategies, there are a few specific things that you need to consider when conducting clinical research in mental health: 1) Find a topic (find strong point), 2) Read previous papers and summarize what is revealed / what is unrevealed, 3) Make draft / Draw plan (set criteria and instruments) Besides, when we want to conduct research in mental field, we need to do pay more attention to another point. We need to recognize and show what kind of stressor we will use (in basic / clinical research) or show worldwide use criteria of the term/disease we will use (in clinical research). The terms of "anxiety", "depression", and "stress" are all ambiguous ones, and they aren't still defined well. Thus, we need to understand their meaning of these term correctly and try to show them as possible as we can. Let's learn these important points and do next research together!

Daisy K.Y. Shum

Current position/Occupation: Principal Investigator, State Key Laboratory of Brain and Cognitive Sciences

Title of talk: Use of bone marrow stromal cell-derived, fate-committed Schwann cells for remyelination therapy

Institutional address: School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, The University of Hong Kong

Email: shumdkhk@hku.hk

Qualifications

BSc(Hons), MPhil, PhD, The University of Hong Kong (HKU), Hong Kong.

Academic Career

1983–84	Nuffield Research Associate, Medical Biochemistry, University of Manchester,
UK 1985–87	Visiting Instructor, Dept. Pharmacology, New York University, New York, USA
1990–2015	Lecturer / Associate Professor / Professor, Department of Biochemistry, HKU
Jan-Dec, 2001	Deputy Head, Department of Biochemistry, HKU
Feb & Aug, 2001	Visiting Professor, Eberhard-Karls U of Tübingen, Germany
2015–	Principal Investigator, State Key Laboratory of Brain and Cognitive Sciences,
HKU 2015–	Professor, School of Biomedical Sciences, HKU

Research Interest

- Perineuronal net regulates semaphorin 3A shaping of neural circuitry
- Differentiation of human induced pluripotent cells (iPCs) into sensorimotor neurons for (i) disease modeling and (ii) neuronal signals that commit glial progenitors to oligodendrocyte vs Schwann cell fate

Representative Publications (in recent 5 years):

Liu JA, Tam KW, Chen YL, Feng X, Chan WL, ……., **Shum DKY**, Chan YS, Cheung M (2023) Transplanting human neural stem cells with ~50% reduction of SOX9 gene dosage promotes tissue repair and functional recovery from severe spinal cord injury. Science Advances: 2205804.

Tam KW, Wong CY, Wu KL, Lam G, Liang X, Wong WT, Li MT, Liu WY, Cai S, Shea GK, Shum DKY*, Chan YS (2023) IPSC-derived sensory neurons directing fate commitment of human BMSC-derived Schwann cells: applications in traumatic neural injuries. Cells 12: 1479.

Tsui YP, Lam G, Wu KL, Li MT, Tam KW, **Shum DKY***, Chan YS (2021) Derivation of oligodendrocyte precursors from adult bone marrow stromal cells for remyelination therapy. Cells 10: 2166.

Shea GK, Tai EW,Leung KH, Mung AK, Li MT, Tsui AY, Tam AK, **Shum DKY***, Chan YS (2020) Juxtacrine signaling via Notch and ErbB receptors in the switch to fate commitment of bone marrow-derived Schwann cells. European J. Neuroscience 52: 3306-3321.

Tsui AY, Shea GK, Chan YS, **Shum DKY*** (2018) Derivation of fate-committed Schwann cells from bone marrow stromal cells of adult rats. Methods in Molecular Biology Series 1739: 137-148.

Lau YT, Kwok LF, Tam KW, Chan YS, Shum DKY, Shea GK (2018) Genipin-treated chitosan nanofibers as a novel scaffold for nerve guidance channel design. Colloids and Surface B: Biointerfaces 162: 126-134.

USE OF BONE MARROW STROMAL CELL-DERIVED, FATE-COMMITTED SCHWANN CELLS FOR REMYELINATION THERAPY

Daisy Kwok-Yan Shum

School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Sassoon Road, Hong Kong, China

Donor nerve-derived Schwann cells transplanted to the injured nerve/tract in the PNS/CNS improves prospects of post-traumatic recovery in rat models. Clinical translation however requires sufficient immuno-compatible and fate-committed human Schwann cells (hSCs). Following pilot studies with rat cells, we enriched the neuroprogenitor subpopulation among human bone marrow (hBM) stromal cells in culture and then, with glia-inducing supplements, yielded Schwann cell-like cells (SCLCs). Co-culture with embryonic rat/hiPSC-derived sensory neurons committed the SCLCs to the SC fate. The derived hSCs were cryopreserved and on demand, thawed for tests in rat models of (1) sciatic nerve injury or (2) thoracic cord injury. By 12-week post-treatment, significant improvement in hindlimb motor function, evoked signals on the treated side, and axons myelinated by hBM-derived SCs were evident in (1). Similar results were not observed in (2), unless the treatment with hBM-derived SCs was paired with chondroitinase ABC to address the glial scar. Results prime translational research towards use of hBM-derived SCs as therapeutic agents in both PNS and CNS trauma.

Keishin Kimura

Current position/Occupation: President, Japan Yoga Therapy Society

Title of talk: Yoga Therapy in Japan

Institutional Address: Japan Yoga Therapy Society, Japan

1947 Born in Maebashi, Gunma, Japan. 1969. Graduated from Tokyo University of Education, Faculty of Science. In 1982, he received the holy name (Jnana Yogi) from the founder of Yoga Niketan Monastery (Rishikesh, India), Swami Yogeshvarananda sawaswati. In 2003, he became President of the Japan Yoga Therapy Society. In addition to teaching traditional Raja Yoga throughout Japan, he is also teaching the Upanishadas, the Brahma Sutra, Yoga Sutra, and the Bhagavad-gita.

In 2019, he was invited by the World Health Organization (WHO) Department of Traditional and Integrative Medicine to participate in the "the meeting of Benchmark for training in Yoga " held in New Delhi, India, as a representative of the East Asia.

In August 2019 he awarded the "First Indian Prime Minister Award" as one of only two people outside of India who have made a significant contribution to the development and dissemination of yoga.

From September 2020, all courses (online) will be offered in Japan and overseas. He is the visiting professor of sVYASA University and Shri Shri University faculty of yoga. He has given numerous lectures at academic conferences related to psychosomatic medicine and integrative medicine in Japan and abroad.

Currently engaged in promoting traditional yoga and yoga therapy in Japan, Rishkesh India, Europe, North and South America. Lives and works in Yonago City, Tottori Prefecture, Japan.

On January 12, 2023 he will be awarded an honorary doctorate (Yoga Science) from SVYASA University. Madam President Droupadi Murmu, 15th President of the Republic of India, will also be present.

Author of "Yoga Therapy Management" and "5,000 Years of Psychotherapy in India"

In PubMed:

"Yoga Therapy in Japan." Kimura K. Int J Yoga Therap. 2017 Nov;27(1):127-129. doi: 10.17761/1531-2054-27.1.127. PMID: 29131734 Review.

"Health Perceptions and Adopted Lifestyle Behaviors During the COVID-19 Pandemic: Cross-National Survey." Manjunath NK, Majumdar V, Rozzi A, Huiru W, Mishra A, Kimura K, Nagarathna R, Nagendra HR. JMIR Form Res. 2021 Jun 1;5(6):e23630. doi: 10.2196/23630. PMID: 33900928 **Free PMC article.**

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disabilities." Hata M, Hayashi N, Ishii R, Canuet L, Pascual-Marqui RD, Aoki Y, Ikeda S, Sakamoto T, Iwata M, Kimura K, Iwase M, Ikeda M, Ito T. Clin Neurophysiol Pract. 2019 Feb 20;4:30-36. doi: 10.1016/j.cnp.2019.01.003. eCollection 2019. PMID: 30886941 Free PMC article.
"[Holistic health, medicine and care for elder generation -Development at holistic health plaza kagoshima-]." Yoshida N, Takeshima R, Gibo K, Nakano A, Kimura K, Honbou T. Nihon Ronen Igakkai Zasshi. 2014;51(2):135-7. doi: 10.3143/geriatrics.51.135. PMID: 24858115 Free article. Japanese. No abstract available.
"Development of a recumbent isometric yoga program for patients with severe chronic fatigue syndrome/myalgic encephalomyelitis: A pilot study to assess feasibility and efficacy." Oka T, Wakita H, Kimura K.

YOGA THERAPY IN JAPAN

Keishin Kimura

Japan Yoga Therapy Society, Japan

This perspective piece gives an overview of the current situation of yoga therapy in Japan today. Traditional yoga in Japan suffered a serious setback in 1995 with a nerve gas terrorist attack on the Tokyo subway, which was carried out by a cult that recruited members through yoga classes. But with the increase in popularity with modern forms of yoga such as Iyengar yoga, Ashtanga yoga and hot yoga in the West, the general public in Japan today is forgetting its aversion to yoga and considers it to be something that can contribute to good health. In 2012, the Japan Yoga Therapy Society (JYTS) conducted a study on adverse events in yoga classes throughout Japan with the University of Kyushu School of Medicine, with support from the Ministry of Health, Labour and Welfare.

This study indicated that more than half of people attending yoga classes have some form of chronic illness, with 42.3% receiving outpatient care. This survey was the beginning of growing interest from both the government and universities in yoga therapy. JYTS is beginning to make inroads into bringing yoga therapy into cancer and palliative care, senior citizen homes, alcohol and drug addiction rehabilitation, cardiovascular rehabilitation, and research on trauma and schizophrenia. While there are still limited opportunities for yoga therapists to work in mainstream healthcare services, there is growing interest among medical professionals in both physical and mental health. JYTS is beginning to make inroads into bringing yoga therapy into cancer and palliative care, senior citizen homes, alcohol and drug addiction rehabilitation, cardiovascular rehabilitation, and research on trauma and schizophrenia. While there are still limited opportunities for yoga therapists to work in mainstream healthcare services, there is growing interest among medical professionals in both physical and mental health. This perspective piece introduces some of the developments in yoga therapy research and practice in Japan.

Sharmili Vidyadaran

Current position/Occupation: Professor and Head of the Neuroinflammation Research Group at the Immunology Laboratory, Faculty of Medicine and Health Sciences Universiti Putra Malaysia

Title of talk: Microglia: An Update

Institutional address: Immunology Laboratory, Faculty of Medicine and Health Sciences Universiti Putra Malaysia

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Sharmili Vidyadaran is Professor and Head of the Neuroinflammation Research Group at the Immunology Laboratory, Faculty of Medicine and Health Sciences Universiti Putra Malaysia. She teaches immunology and neuroscience back home in Malaysia. She obtained her PhD in neuroscience from Imperial College London in 2005. Her research group focuses on modulating the inflammatory responses of microglia and works mainly on cell culture methods, including developing a 3D culture of microglia. She has published in Journal of Neuroinflammation and Cellular Immunology amongst others. She is Editorial Board member for the Malaysian Journal of Medicine and Health Sciences and Neuroscience Research Notes. Sharmili was recipient of the L'Oreal For Women in Science Fellowship in 2008.

MICROGLIA: AN UPDATE

Sharmili Vidyadaran

Universiti Putra Malaysia, Malaysia

The past 15 years have been very revealing about microglia cells and there is much more to discover. Although microglia propagate inflammation, it is becoming increasingly clear that they occupy a different functional niche from peripheral monocytes and macrophages. Their importance as a stromal cell in neurodevelopment and tissue homeostasis is apparent in individuals with TREM2 deficiency who develop leukoencephalopathy and those with CSF1R haploinsufficiency who develop dementia. Tools such as single-cell RNA sequencing and spatial transcriptomics have revealed the marked diversity in the different functional states of microglia and dispels the M1/M2 microglia paradigm. This talk will provide an update on microglial roles in inflammation and neurodevelopment. Past misconceptions will be discussed in an attempt to foster more precise microglia research.

Chinzorig Choijiljav

Current position/occupation: Visiting Research Scientist, System Emotional Science, Department of Physiology

Title of talk: Extracellular single-unit recording

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EDUCATION AND QUALIFICATION

2018 PhD in Medicine, System Emotional Science, University of Toyama, Japan
Thesis: Rat retrosplenial cortical involvement in wayfinding using visual and locomotor cues. (Supervisor: Prof. Nishijo H)
2010 M.Sc. Mongolian National University of Medical Sciences (MNUMS), Mongolia
(Supervisor: As Prof. Solongo B)
2008 MD, School of Medicine, MNUMS, Mongolia

EMPLOYMENT

2018 – present	Postdoctoral fellow. System Emotional Science, University of Toyama, Japan
2011-2012	Lecturer, Department of Physiology, MNUMS, Mongolia
2008-2011	Instructor, Center for Medical Education, MNUMS, Mongolia

AWARDS AND HONORS

2021	Full scholarship for Asian researchers. Tokyo Biomedical research foundation, Japan
2013	JAPANESE GOVERNMENT (Monbukagakusho: MEXT) SCHOLARSHIP for 2013.
2012	Japan Student Services Organization (JASSO).

PEER REVIEWED PUBLICATION

2014 … Peer reviewed academic articles in international journals: 7, domestic peer-reviewed journals: 3. ORCID: https://orcid.org/0000-0002-4147-1242.

PEER REVIEWED PUBLICATION

A. International peer-reviewed journals

1. Enkhjargal N, Matsumoto J, Chinzorig C, Berthoz A, Ono T, Nishijo H. Rat thalamic neurons encode complex combinations of heading and movement directions and the trajectory route during translocation with sensory conflict. Front. Behav. Neurosci. 8:242. 2014.
2. Munkhzul D, Matsumoto J, Chinzorig C, Nakamura T, Takamura Y, Patrono E, Kondoh T, Ono T, Nishijo H. The effects of intragastric infusion of umami solutions on amygdalar and lateral hypothalamic neurons in rats. Physiol Rep. 3(10). 2015.
3. Patrono E, Matsumoto J, Nishimaru H, Takamura Y, Chinzorig C, Ono T, Nishijo H. Rewarding Effects of Operant Dry-Licking Behavior on Neuronal Firing in the Nucleus Accumbens Core. Front. Pharmacol. 8: 536. 2017.
4. Chinzorig C, Nishimaru H, Matsumoto J, Takamura Y, Berthoz A, Ono T, Nishijo H. Rat retrosplenial cortical involvement in wayfinding using visual and locomotor cues. Cerebral Cortex, Volume 30, Issue 4, Pages 1985–2004, April 2020.
5. Munkhzaya U, Chinzorig C, Nishimaru H, Matsumoto J, Takamura Y, Ono T, Nishijo H. Rat Paraventricular Neurons Encode Predictive and Incentive Information of Reward Cues. Front. Behav. Neurosci., 09 September 2020.
6. Yoshida M, Chinzorig C, Matsumoto J, Nishimaru H, Yamazaki M, Ono T, Nishijo H. Configural cues associated with reward elicit theta oscillations of rat retrosplenial neurons phase-locked to LFP theta cycles. Cerebral Cortex 31(5): 2729-2741. March 2021.
7. Matsumoto J, Kanno K, Kato M, Nishimaru H, Setogawa T, Chinzorig C, Shibata T, Nishijo H. Acoustic camera system for measuring ultrasound communication in mice. iScience.25(8):104812. Jul 2022.

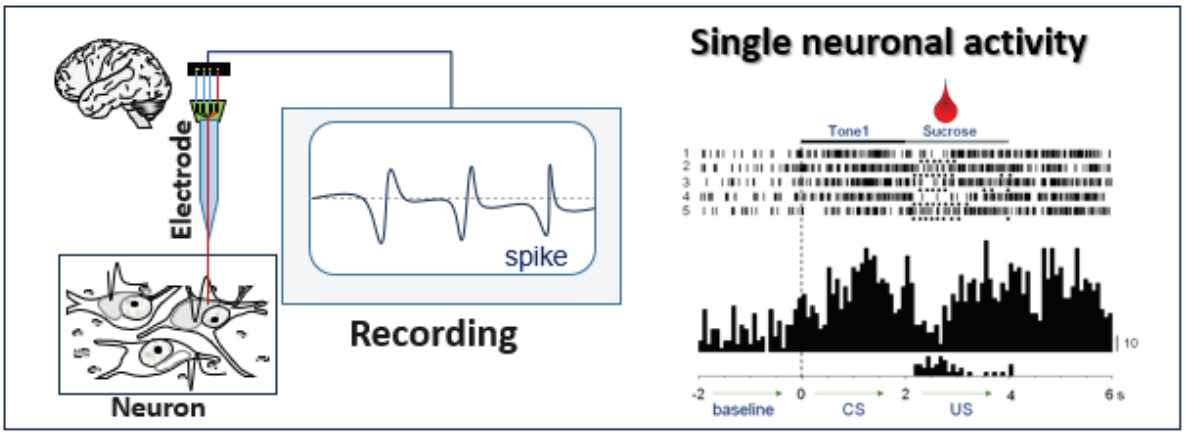
B. Domestic peer-reviewed journals (Mongolian)

1. Ч.Чинзориг*, О.Зэсэмдорж, Д.Цэрэндагва, Г.Отгон, Г.Сүхбат, Н.Энхжаргал. Төв мэдрэлийн тогтолцооны орон-зайн төсөөллийн механизм. Эрүүл мэндийн шинжлэх ухаан сэтгүүл. Vol17№1(57): 140-145, 2021.
2. О.Зэсэмдорж, Н.Наранбат, Ц.Лхагвасүрэн, Ч.Чинзориг*. Өөрийгөө болон бусдыг мэдрэх мэдрэмжийн үеийн допамины солилцооны динамик оролцоо. Эрүүл мэндийн шинжлэх ухаан сэтгүүл. Vol18№1(65): 283-290, 2022.
3. Ч.Чинзориг*, О.Зэсэмдорж, Н.Алтанзул, Э.Одхүү. Хий үзэгдлийг хянах сүүдэрлэх систем хэрхэн ажилладаг вэ. Эрүүл мэндийн шинжлэх ухаан сэтгүүл. Vol18№3(67): 257-263, 2022.

EXTRACELLULAR SINGLE-UNIT RECORDING

Chinzorig Choijiljav

System Emotional science, University of Toyama, Japan
Department of Physiology, School of Biomedicine, Mongolian National University of Medical Science, Mongolia



The brain is developed by different types of neurons, which are activated by the electric potential of the membrane from stimuli. These neuronal information integrations could lead to an action, then it will be expressed as behavior. In neuroscience, extracellular microelectrode recording is a powerful experimental method to understand neural mechanisms under various behavioral conditions. Brilliant research studies were confirmed by single-unit recordings such as the noble prize discoveries in Medicine 2014. However, among our neuroscientists, there are no specialists with expertise in single-unit neuronal recording. In the present seminar, we are going to briefly introduce the criteria for confirming a single-unit neuron activation and methods of analysis for responses to stimuli. Therefore, it provides to learn the skills to understand the results of single-unit neuron recording studies and to evaluate their own results.

Mandakh Bekhbat

Current position/Occupation: Research junior, Department of Psychiatry and Behavioral Sciences

Title of talk: The impact of stress of neuroinflammation: mechanisms, behavioral consequences, and opportunities for therapeutic intervention

Institutional Address: Emory University, USA

Email address: mandakh.bekhbat@emory.edu

Dr. Mandakh Bekhbat is research junior faculty at Emory University, Atlanta, USA. Her work in the Emory Behavioral Immunology Program focuses on how endocrine and immune systems interact to impact the brain and change behavior. Mandakh received her PhD in neuroscience from Emory University where she studied stress-immune interactions as a disease mechanism of depression and anxiety using rodent models of chronic stress. For her postdoctoral training at Emory, she translated her interests to working with patients with depression, specifically examining the role of inflammation and immunometabolism in neural circuit and behavioral changes. Dr. Bekhbat aims to establish a research program spanning basic, translational, and clinical settings that is focused on designing novel immunometabolic treatment strategies for depression and other psychiatric disorders. As a Mongolian American researcher, Dr. Bekhbat is also interested in global science efforts and promoting public interest in science and scientific literacy.

THE IMPACT OF STRESS OF NEUROINFLAMMATION: MECHANISMS, BEHAVIORAL CONSEQUENCES, AND OPPORTUNITIES FOR THERAPEUTIC INTERVENTION

Mandakh Bekhbat

Emory University, USA

Abstract: Throughout the evolution of mammalian physiology, stress-inducing situations reliably required activation of the immune system to help cope with potential injury and to facilitate healing. Conversely, activation of the immune system also consistently called for launching of the stress response to induce alertness and vigilance to aid in survival. As such, our endocrine and immune systems have come to be mutually regulated, generating a physiological concordance that serves vital functions such as regulation of energy allocation, reproduction, cognition, and behavior. This talk will provide an overview of the adaptive and maladaptive effects of stress on neuroinflammation, mechanisms involved, as well as behavioral consequences and emerging targets for therapeutic intervention.

Naranbat Nasanbuyan

Current position/Occupation: Postdoctoral fellow, Division of Brain and Neurophysiology, Department of Physiology

Title of talk: BEHAVIORAL STUDY IN RODENTS

Institutional Address: Jichi Medical University, Japan

Email address: naranbat@jichi.ac.jp; naranbatn@gmail.com

Education and Qualification

2017 PhD in Medicine, Jichi Medical University, Japan
Theme: Roles of Oxytocin - Oxytocin Receptor systems in Physiological Responses to Social Defeat stress. Supervisor: Tatsushi Onaka MD., PhD.
2012 Residency for neurologist, Mongolian National University of Medical Sciences, Mongolia
2009 Medical doctor, Mongolian National University of Medical Sciences, Mongolia

Employment

2017 – present Postdoctoral fellow. Division of Brain and Neurophysiology, Department physiology, Jichi Medical University, Japan
2011-2013 Assistant lecturer. School of Medicine, Mongolian National University of Medical Sciences, Mongolia
2010-2011 Instructor. Graduate training center, Mongolian National University of Medical Sciences, Mongolia

Awards and honors

2019 Full scholarship for Asian researchers.
Tokyo Biomedical Research Foundation, Japan
2018 Honorary scholarship for international postdoctoral fellow.
Kanehara Foundation, Japan
2016 Honorary scholarship for foreign students.
Japanese Ministry of Education, Culture, Sports, Sciences and Technology
2016 Research encouragement award. Jichi Medical University,
2015 Start-up funding for Young researchers. Jichi Medical University

Peer reviewed publication

Naranbat Nasanbuyan, Masahide Yoshida, Yuki Takayanagi, Ayumu Inutsuka, Katsuhiko Nishimori, Akihiro Yamanaka, Tatsushi Onaka. Oxytocin-oxytocin receptor systems facilitate social defeat posture in male mice. Endocrinology. Vol. 159 No. 2, pp.763-775, (Feb, 2018)

Naoki Usui, Masahide Yoshida, Yuki Takayanagi, Naranbat Nasanbuyan, Ayumu Inutsuka, Hiroshi Kurosu, Hiroaki Mizukami, Yoshiyuki Mori, Makoto Kuro-o, Tatsushi Onaka. Roles of fibroblast growth factor 21 in the control of depression-1 like behaviors after social defeat stress in male rodents. Journal of Neuroendocrinology 2021 Aug 9;33(10):e13026.

BEHAVIORAL STUDY IN RODENTS

Naranbat Nasanbuyan

Division Brain and Neurophysiology, Jichi Medical University, Japan

The main aim of neuroscience study is to understand how behaviors arise from the molecular and cellular properties of neurons, the wiring connection characteristics of neural circuits established during a certain period of development, and how it is changed by experience. While human behavioral studies are performed by self-report or conversation methods, animal behaviors are conducted only by observation.

Small rodents, such as rats and mice are the most commonly used animal models in behavioral testing in neuroscience studies. Because they display a variety of behavioral responses that are relevant to the behavioral conditions of humans.

Although the behavioral studies in experimental animals provide much information which helps to understand the mechanisms of human behaviors, the researcher must bear in mind the following points.

The foremost important consideration is the validity of the behavioral test (construct, predictive, and face validity).

Another important consideration is the reproducibility of the test outcomes. Depending on external (food access, housing condition, room temperature, and humidity) and internal (sex, age, circadian and seasonal rhythms, hormonal level) factors, experimental animals may show different behavioral responses to the same stimulation. So researchers should implement standardized procedures during the behavioral experiments.

Standardization of experimental settings increases the reproducibility, which in turn makes researchers easily interpret the test outcome.

Choijamts Gotov

Current position/Occupation: Vice president, Otoch Manramba University

Title of talk: Neuroethics

Institutional Address: Otoch Manramba University

Email address: Choijamtsg@yahoo.com

EDUCATION PROFILE

2010 Herbal industry GMP standard, India, Bangalor
2006 Recombinant technology, Dania, Copenhagen,
2005 Reproductive health stable drug supply, Indonesia, Jakarta
2004 World population development forum, Republic of China, Uhan city
2003 Teenagers health education, Sweden, Stock Stockholm
2002 Reproductive health advocacy, Thailand, Bangkok
2000 Health management, Singapore
1999 Health insurance management, Japan, Tokyo
1999 Reproductive health hospital service, Republic of China, Beijing
1998 Reproductive health planning and management, South Korea, Seoul, Family Planning Health Center
1998 American Education, USA, Utah Walley college
1997 Russian educaitional revolution, Russia, Moscow, 3rd National Medical University
1987 Clinical Pharmacologist, Russia, Moscow, Sechnows 1st Medical University
1981 Medical doctor, Ulaanbaatar, National Medical School MULTIDISCIPLINARY BRAIN SCIENCE 2020

PUBLICATIONS

- Study of anti-viral effects of Saposhnikovia Divaricata (Turcz) Schischk., Abstracts Fourth International Conference on Current advances in Microbiology and Immunology June p.19-21 MNUMS, Mongolian Society of Immunology and Microbiology p. 33
- Protective effects of Saposhnikovia Divaricata (Turcz) Schischk extract on Kanamycin induced nephrotoxicity in rats., Mongolian Journal of Health Sciences p. 78-79
- Influence of plant Saposhnikovia Divaricata on the collagen-induced by inflammation of the joints in the experiment., Siberian Medical Journal Irkutsk., 2015 №1
- Genome study of Saposhnikovia divaricata., Khurel Togoot., 2014
- Antiviral actions of Saposhnikovia divaricata., Onosh Journal., Ulaanbaatar Mongolia
- Some results of sequential study of Saposhnikovia divaricata (Turcz) Schischk in Mongolia., Health Sciences journal 1(29); 57-58
- Pharmacology study of Saposhnikovia divaricata., MNUMS, School of Medicine, Abstract book p. 28-30
- Study of Shingun medicinal plant used in traditional medicine., Mongolian traditional medicine journal, 2014
- Study of membrane strengthening action of Shingun-5 in an experimental model that inhibits proton flow on a 3 shaped line of first compartment membrane-redox potential with oligomycin., Jorunal of Pharmacy №4., 2014

- X-ray evaluation of the effects of some drugs on artificial arthritis models., Journal of Health, 2nd edition, Ulaanbaatar Mongolia p. 24-29., 2013
- Experimental study of anti-inflammatory actions of Saposhnikovia divaricata, a Mongolian medicinal plant, in the collagen-induced arthritis model by comparing it with standard drugs., Journal of Health, March 3, vol.9 №2 24, p. 33-38., 2013
- Study of effects of Saposhnikovia divaricata on the experimental model of arthritis., Journal of drug technology, innovation, usage., Mongolpharm LLC. p. 77-86., 2013
- Comparative study between anti-inflammatory and standart drug effects of Saposhnikovia divaricata on the experimental model of collagen-induced arthritis., Scientific Conference p.46., 2013
- Outcomes of corticosteroids in the treatment of chronic obstructive pulmonary disease., Scientific Conference 56 Journal April 4 p. 57-59., 2013
- Comparative results of systemic and local corticosteroids in the treatment of chronic obstructive pulmonary disease., INNOVATION Journal 9 months vol.7 no.3 p. 38-43., 2013
- Outcomes of treatment for chronic obstructive pulmonary disease., Mongolian Journal of Allergy, Asthma and Clinical Immunology, 6 months p. 25-28., 2013
- Study of quality of life during agitation in people with chronic obstructive pulmonary disease., Spiritual Shastins p. 116-120., 2013
- Some results of the study of nucleotide sequence of DNA particles in Saussurea involucrata grows in Mongolia., Khurel Togoot 2013, pp. 59-62

NEUROETHICS

Choijamts Gotov

Otoch Manramba University, Mongolia

The development of medicine is based on the results and achievements of research and testing on the human body, and studies involving humans. The goal of biomedical research involving humans is to improve diagnosis, treatment, and prevention, and to determine the causes and pathogenesis of diseases. Medical research is governed by the common ethical principles of respect for human health and rights.

It is necessary for the researcher to carefully study the legal and ethical documents that are being developed at the international and national level for biomedical research and experiments and strictly follow them. No national legal document of any country can diminish the value of any of the provisions of the Ethical Guidelines that protect research participants. The main reason lies in the fact that the precious principle, the humane and sacred duty of a researcher conducting medical research can only be implemented in conditions where human life, health, rights, privacy, and dignity are protected with the utmost respect. In the history of medicine, the inhumane and tragic history of testing people as "experimental animals" without supervision and regulation under the banner of the need to protect human health, new methods of treatment and diagnosis, and the development of vaccines continued until the middle of the 20th century. The Declaration of Helsinki, issued by the World Medical Association in 1964, is the fundamental document in the field of ethics in biomedical research involving human subjects and has influenced the formulation of international, regional, and national legislation and codes of conduct. The Research involving humans includes human biomaterials and data. This Declaration is primarily a document for medical doctors. The principles outlined in the Declaration should also be followed by other researchers involving human studies.

Before starting the research, an ethical consent form will be prepared for review, guidance, and approval by the ethics committee. The research ethics committee should be independent of the researcher, sponsor, and local authorities. The laws, regulations, relevant documents, and norms of the country where the research is conducted and international laws and regulations shall be followed, and shall not diminish or deny the idea of protecting the research participant as outlined in this declaration. The research ethics committee has the authority to monitor the research process. The researcher is obliged to inform the ethical committee about the possible unpleasant consequences and complications. The researcher cannot make any changes to the protocol without the approval of the ethics committee, and after the study is completed, the results and conclusions of the study will be reported to the committee.

In this academic workshop, we will discuss the international documents and the ethical norms that must be established in human involving studies.

BATSUKH Shairii

Current position/occupation: Doctor of Administrative Sciences (Sc.D), Professor, Honored teacher of Mongolia

Title of talk: Psychology in Mongolia

Institutional address: Mongolian psychologists association, Mongolia

Email address: sh.batsukh@naog.gov.mn, batsukhshairii@gmail.com

Education:

1995-2000: Doctor of Science /administrative sciences/, University of Administration in Speyer, Germany.
1992-1994: Master of specializing in Public Administration, University of Administration in Speyer, Germany.
1979-1984: Bachelor of the Arts in Psychology, Karl Marx University of Leipzig, GDR (former East Germany).
1978-1979: German language training, Herder Institute in Leipzig, GDR
1977-1978: German language training, National University of Mongolia (NUM).

Work experience:

1984-1985: Speech therapist, Special Secondary School No. 63 of Ulaanbaatar city;
1985-1988: Deputy director, Mongolian National University of Education in Arkhangai Province;
1988-1991: Researcher and head of sector at the Institute of Education;
1991-1992: Teacher, Institute for Professional Development of Managers under the Government;
1994-1995: Teacher, State Administration and Management Development Institute under the Government;
2000-2001: Director, Graduate School of the National Academy of Governance, Implementing Agency of the Government of Mongolia;
2001-2002: Director, School of Public Administration, National Academy of Governance, Implementing Agency of the Government of Mongolia;
2002-2010: Head of the Department of Land Relations, Geodesy and Cartography of the Implementing agency of the government of Mongolia;
From 2010 to June 2022: Deputy Director, National Academy of Governance, Implementing Agency of the Government of Mongolia;
From June 2022: retired
From 2021: Part-time adviser, Minister of Education and Science;
Currently: President, Mongolian Psychological Association;

Research area:

The fundamental concerns of administrative science, including administrative reform, issues of governance, citizen involvement, and public service, as well as some concerns of applied psychology, especially educational psychology, have recently been put into reality.

PSYCHOLOGY IN MONGOLIA

Batsukh Shairii

Mongolian Psychological Association

The establishment of the first psychology department in 1951 marked the beginning of psychological science in Mongolia, which was heavily influenced by Soviet psychology until the 1990s when Mongolia transitioned to a market economy. The current state of psychology in Mongolia is marked by a shortage of qualified professionals, limited availability of psychological services, and a need for improved training and education programs. Several key research projects have been conducted in recent years, focusing on the psychological development of Mongolian children and youth, the impact of social support and pregnancy on subjective well-being, the relationship between psychological factors and credit risk, and the translation and validation of psychological assessment tools. However, the challenges facing the field of psychology in Mongolia are significant, including the lack of a legal framework, regulation of the licensing system, and the need for a professional code of ethics. Additionally, there is a need to develop a non-governmental organization in psychology and expand research resources and infrastructure. The paper outlines potential solutions and future prospects for the field of psychology in Mongolia, including the establishment of ethical rules and regulations, the development of a psychological research laboratory, and the creation of a research methodology to determine the psychological characteristics of Mongolians. These priorities would help establish a strong foundation for the field and ensure its continued growth and impact on the country's development. In conclusion, this review paper provides a comprehensive overview of psychological science in Mongolia.

Battuvshin Lkhagvasuren

Current position/Occupation: President, Mongolian Neuroscience Society

Title of talk: Immunohistochemistry

Institutional Address: Mongolian Neuroscience Society, Mongolia

Email address: battuvshin@mas.ac.mn

Education and Qualification

2013	PhD. in Medicine, Graduate School of Medical Sciences, Kyushu University, Japan Thesis: Social defeat stress induces hyperthermia through activation of thermoregulatory sympathetic premotor neurons in the medullary raphe region (Supervisor: Prof. OkaT.)
2009	Internshipin Psychosomatic Medicine, Kyushu University hospital, Kyushu University, Japan (Supervisor: Prof. Kubo C.)
2006	Residency in Psychiatry, National Center of Mental Health, Mongolia Clinical psychiatry (Supervisor: Prof. Sandag B.)
2005	Medical Doctor, Mongolian National University of Medical Sciences (MNUMS), Mongolia, & University of Mainz, Germany (1998 – 2004)

Award

2014	Cousins Center Global Outreach Awards – by American Psychosomatic Society
2014	IBRO Return Home Program Grant - by International Brain Research Organization
2012	Ikemi Memorial Award – by the Japanese Society of Psychosomatic Medicine
2008-2013	Japanese Government Academic Scholarship – by Japanese Government
2007	WHO Research Grant – This grant was supported by World Health Organization
1997	Hasebe Award – by MNUMS

Professional Services

2018 - ...	Ad-Interim Board Member of IBRO-APRC
2018 - ...	President, Mongolian Neuroscience Society
2015 - ...	President, Mongolian Society of Psychiatry
2014 - ...	Expert Panel Member, Asian Federation of Psychiatric Associations
2013 - ...	Board Member, Mongolian-Japanese Association for Medical Education

Journal Review

2015 - ...	AdHoc Reviewer, Temperature
2013 - ...	AdHoc Reviewer, Psychotherapy & Psychosomatics
2015	AdHoc Reviewer, PloS One

Publications

2007 - ...Peer-reviewed academic articles in international journals: 16, contributions to academic meetings: 31, textbooks and edited books: 2

IMMUNOHISTOCHEMISTRY

Battuvshin Lkhagvasuren

Mongolian Neuroscience Society, Mongolia

Immunohistochemistry (IHC) is a powerful technique that exploits the specific binding between an antibody and antigen to detect and localize specific antigens in cells and tissue, most commonly detected and examined with the light microscope. Immunohistochemistry isn't just a useful clinical tool, it also has great applications as a basic research tool. It can provide you with a wealth of information on the expression of specific proteins within the context of tissue structure. Owing to the versatility, simplicity and affordability of this technique, IC is now indispensable to the fields of histology, pathology, cancer biology, neuroscience and drug discovery.

The basic steps of the IHC-P protocol are as follows:

1. Tissue preparation: The tissue plays a central role in the experiment and it is important that it is processed so that epitopes and proper morphology is preserved. The most common processing for IC is to prepare formalin-fixed paraffin-embedded (FFPE) tissue blocks. The purpose of formalin fixation is to produce chemical cross-linking of proteins within the tissue.

2. Antigen (epitope) retrieval

A concern associated with cross-linking fixatives like formalin, or too long time spent in fixative medium is the masking of epitopes, which can obstruct the primary antibody from binding to its target. Especially with FFPE samples, there is often a need to revert some of the chemical crosslinking and "retrieve" the epitopes before proceeding to the actual IHC. There are several antigen retrieval protocols available and the main strategies include treating the tissue slide with heat, digestive enzymes, detergents, or combinations thereof.

ANTIBODY BINDING

The quality and specificity of the binding molecule is crucial for any IC based technique, and the choice of binder can directly affect the outcome, reliability, and possibly also the interpretation of the assay. Antibodies are by far the most common type of binding-molecule used for IHC. and although most antibodies are able to adequately detect the correct molecule of interest, they may also vary greatly in their specificity for their intended target. There are two main types of antibodies; polyclonal antibodies which is a heterogeneous mix of antibodies that bind different epitopes on the target and monoclonal antibodies that all bind the same epitope.

DETECTION SYSTEMS

The whole purpose of preforming IHC is to obtain a visual representation of where the target can be found within the experimental tissue, and preferably also gain information about the target's expression pattern among heterogeneous cell populations and/or subcellular localizations. The most common method for introducing a detection system to the experiment is to use a secondary antibody that carries a pre-bound reporter molecule, i.e. enzyme or fluorophore. Secondary antibodies are usually targeted specifically towards antibody molecules from a different animal species.

COUNTERSTAINING

Immunohistochemical staining using chromogens often benefits from having a counterstain applied that enhances the contrast and facilitates the observation of histological features.

Gantsetseg Tumur-Ochir

Current position/Occupation: Head, Department of Surveillance and Statistics, National Center for Mental Health

Title of talk: Clinical research methods in neuropsychiatric diseases

Institutional Address: National Center for Mental Health, Mongolia

Email address: Gantsetseg09@gmail.com

Education:
1998 – Medical Doctor
2002 – Master of Medical Science
2016 – PhD in Medical Science
Specialization: Psychiatry

'Professional Degree:
2010 - "Senior" psychiatrist
2015 – "Leading" psychiatrist
2019 – "Mentor" psychiatrist

Membership:
Member of Mental Health Community, Ministry of Health, Mongolia
Psychiatrist, Central Medical Labor Verification Commission, General Organization of Social Insurance
Mentor and researcher at Brain Science
Member of Mongolian Neuroscience Society
Member of Mongolian Psychopathology Society

Work history:
1998-2003 – Teacher of Neuropsychiatry at SoM, HSUM, Dornogobi
2003-2006 – Psychopathological Examining Doctor, Psychiatry and Narcology Center
2006-2017 –Teacher at Mental Health Department, SoM, MNUMS
2018-2019 – Psychological Consultant, International SOS Clinic –Oyu Tolgoi Mine Site
2019 - Senior Teacher at Mental Health Department, SoM, MNUMS

Work Experience:
23 years of experience as a psychiatrist,
23 years of experience as a psychiatrist at the National center of mental health
15 years of teaching at Mental Health Department, SoM, MNUMS

Research and cooperations:

Neuroscience, brain science, emotional and schizophrenic spectrum disorder, epilepsy, mental health of child and adolescents, addictology and smoking, stress-stress management (work stress), sleep and fatigue.

Publications:

Dissertation- 2; Book, hand out, leadlets - 15, Total Research Articles 61:
International articles - 8, National articles - 53, Total Presented Oral Presentations 95, International presentations - 42, National Presentations - 53

EnkhnaranTumurbaatar, OyunsurenJargalsaikhan, GantsetsegTumur-Ochir, Elena Belovol. "Reliability and Validity of the Mongolian version of affective touch questionnaire" Neuroscience Research Notes, Vol. 5 No. 2 (2022):, pp. 1–11 DOI: https://doi.org/10.31117/neuroscirn.v5i2.100 https://neuroscirn.org/ojs/index.php/nrnotes/article/view/100

Batkhuyag, E., Tumurbaatar, E., Lkhagvasuren, B., Perenleisambuu, E.-U., Bat-Erdene, E., Dashtseren, M., Duurenjargal, O., Zeng, X. and Tumur-Ochir, Gantsetseg. (2021) "Test-retest reliability of the questionnaire on the screening of sleep disorders", Neuroscience Research Notes, 4(3Suppl), pp. 21–29. doi:10.31117/neuroscirn.v4i3Suppl.90. https://neuroscirn.org/ojs/index.php/nrnotes/article/view/90

Enkhnaran Tumurbaatar , Tetsuya Hiramoto , Gantsetseg Tumur-Ochir , Oyunsuren Jargalsaikhan , Ryenchindorj Erkhembayar, Tsolmon Jadamba, Battuvshin Lkhagvasuren. "Translation, reliability, and structural validity of the Hospital Anxiety and Depression Scale (HADS) in the general population of Mongolia". Neuroscience Research Notes, 4, pp. 30–39.mdoi: https://doi.org/10.31117/neuroscirn.v4i3Suppl.101 https://neuroscirn.org/ojs/index.php/nrnotes/article/view/101

Enkhnaran Tumurbaatar, Enkhjin Bat-Erdene , Otgontuya Duurenjargal, Myagmartseren Erbat, Tsolmontuya Amartuvshin, Myagmartseren Dashtseren, Gantsetseg Tumur-Ochir, Damdindorj Boldbaatar , Oka Takakazu, Battuvshin Lkhagvasuren, Tsolmon Jadamba. "Knowledge, attitudes, and practices toward Covid-19 among the Mongolian general population during the period of the Covid-19 pandemic: a nationwide, population-based, randomized, cross-sectional study". Neuroscience Research Notes, 4(3Suppl), pp. 55–64. https://neuroscirn.org/ojs/index.php/nrnotes/article/view/102: https://doi.org/10.31117/neuroscirn.v4i3Suppl.102

Gantuya Gantumur1, Munkhbayar Rentsenbat2,Sarangerel Jambal2and Byambasuren Dagvajantsan. "Electrophysiological features of Guillain-Barré syndrome in Mongolian adult patients." Neuroscience Research Notes. 2021-08-26 | journal-article.DOI: 10.31117/neuroscirn.v4i3suppl.98. Part of ISSN: 2576-828X

Abishek Umashankar * and Prashanth Prabhu. The application of vagus nerve stimulation in individuals with misophonia. Neuroscience Research Notes. Vol. 3 No. 5 (2021): Special Issue on "Integrated Neural Technologies: Solutions Beyond Tomorrow" /Mini-Review/ ISSN: 2576-828X. p.36–43. DOI: https://doi.org/10.31117/neuroscirn.v3i5.105

Gantsetseg Tumur-Ochir. "Current intervention of schizophrenia and bipolar in Mongolia".The 7th Asian Congress of Schizophrenia Research. Virtual Conference, from 10th -11th September; HONG KONG. 2021.

Gantsetseg T, Ankh-Uchiral P, BayarmaaV, Nasantsengel L, Battuvshin L. "Alcohol-related disorders in Mongolia", MULTIDISCIPLINARY BRAIN SCIENCE-2021. International academic conference (virtual). August 13-14, 2021. Ulaanbaatar, Mongolia. p.40

Lkhagvasuren, E. Tumurbaatar, O. Jargalsaikhan, R. Erkhembayar, G. Tumur-Ochir, T. Jadamba, T. Hiramoto. "P696.05 – Anxiety and depression in Mongolia: translation, reliability and structural validity of the hospital anxiety and depression scale in the Mongolian general population". Neuroscience -2021. G. 05. Mood Disorders. Virtual Experience. November 8-11. USA.

Tumurbaatar, E. Baterdene, O. Damdinbazar, T. Amartuvshin, M. Dashtseren, G. Tumur-Ochir, D. Boldbaatar, J. Jadamba, B. Lkhagvasuren. "P641.10 – Psychometric properties of the PSQI in the Mongolian general population, prevalence of sleep quality and nonorganic sleep disorders". Neuroscience -2021. F.08. Biological Rhythms and sleep. Virtual Experience. November 8-11. USA.

Lkhagvasuren, E. Tumurbaatar, E. Baterdene, M. Och, G. Tumur-Ochir, B. Dagvajantsan, M. Dashtseren, O. Baymbasukh, B. Choijamts, G. Ganburged, O. Jamyandorj, O. Zambal, T. Oka, D. Boldbaatar, T. Jadamba, B. Majigsuren, R. Duger. "J010.01 - Public Awareness of Neuroscience in Mongolia". Neuroscience -2021. J.03. Public Awareness of Neuroscience. Virtual Experience. November 8-11. USA.

T. Jadamba, Z. Borkhuu, Z. Gereltekh-Od, G. Tumur-Ochir, E. Tumurbaatar, O. Bayarsaikhan, G. Ganburged, E. Angarag, P. Byambajav, M. Och, O. Baymbasukh, B. Dagvajantsan, U. Ganbaatar, O. Gantulga, S. Zorigt, T. Gandalai, U. Tuvshinjargal. "J002.07 – The first nationwide research projects in neuroscience in Mongolia: The relationship between dental and temporomandibular abnormalities and Qol, anxiety, depression, cognitive impairment and headaches". Neuroscience -2021. J.01. History of Neuroscience. Virtual Experience. November 8-11. USA.

CLINICAL RESEARCH METHODS IN NEUROPSYCHIATRIC DISEASES

Gantsetseg Tumur-Ochir

Department of Surveillance and Statistics, National Center for Mental Health, Mongolia

Neuropsychiatry is that studies the function of the brain, an essential organ that makes up about two percent of the human body weight, from two different sides simultaneously. Furthermore, researching neurological and psychiatric diseases has its disadvantages and advantages:

By utilizing widely used physical examination techniques such as palpation, percussion, manipulation, etc., and instrumental analysis methods to research and analyze physical damages and changes to the process of neurons and nerve fibers (the fundamental units of the brain and nervous system), neuroscience has the advantage of being able to provide evidence and documentation during clinical examinations of academic research.

One disadvantage is that the cost of neurological (disorder) diagnostic tests and medical imaging (CT, MRI, EEG, transcranial Doppler) are relatively high; hence, prices skyrocket when a study includes numerous people simultaneously.

On the contrary, psychiatric diseases are limited in their ability to be based on evidence because it collects data from observing intangible brain processes and activities that are invisible to the naked eye and use questionnaires and research methods through clinical discussion. But, its research questionnaire method is advantageous because it cuts costs and collects a large amount of data in a short time by questioning and asking many people simultaneously.

Therefore, we will discuss research instruments widely used to research neurological diseases.

Depending on the method of usage, commonly used research instruments worldwide are categorized into Scale, Questionnaires, Examination, etc., as well as detection-based, and diagnosis-based.

When using the formerly mentioned research instruments in our research, we must abide by the following rules: determining the purpose of using the research instrument; obtaining copyright licensing from the organization or individual that owns the copyright (copyright owner); drawing up a contract, and reaching an agreement; translating it; conducting a pilot study; evaluating research reliability and specificity, etc.

After conducting research in multiple stages and gaining international recognition, the research instrument gains the right to be adapted to your native language and utilized locally.

Byambasuren Dagvajantsan

Current position/Occupation: Head, Department of Neurology

Title of talk: Clinical research methods in neurological diseases

Institutional Address: Mongolian National University of Medical Sciences

Email address: byambasuren@mnums.edu.mn

Education

Jun 2018 Department of Neurology, Dokkyo Medical University, Japan.Clinical neurology, Clinical Fellowship program. Term Supervisors: Prof. Koichi Hirata.
Jan 2016 Department of Neurology, School of Medicine, Seoul National University. Seoul, Korea. Clinical neurology, Clinical Fellowship program. Term Supervisors: Prof. San Kung Lee.
Feb 2013 Department of Education, School of Medicine, Seoul National University. Seoul, Korea. Korea intensive course for medical educators, WHO training.Term Supervisors: Prof. Jwa Seop Shin.
Aug 2012 Department of Immunologenetics, Biogem laboratory, Graduate school of Sannio University, Italy, Postdoctoral Research Fellow. Term Supervisors: Prof. Pasquale Vito.
March 2008 Department of Neurology, Graduate school of Medicine, Tohoku University, Sendai, Japan. Doctor Philosophy (Medical science). Term Supervisor: Prof. Itoyama Yasuto, Prof. Aoki Masashi. Thesis: Expression of insulin-like growth factor II receptor in the spinal cord of ALS transgenic rats.
March 2004 Department of Neurology, Graduate school of Medicine, Tohoku University. Sendai, Japan. Graduate research fellow. Term Supervisor: Prof. Itoyama Yasuto.
March 2003 School of Social and Education, Academy of Management, Implementing Agency of Government of Mongolia, Ulaanbaatar, Mongolia. Bachelor of Social and Health management. Term Supervisor: Prof. Badralmaa.
March 1999 Postgraduate training institute, National Medical University, Ulaanbaatar, Mongolia. Transcranialdoplerographist. Term Supervisors: Dr. Sarangerel Jambal, M.D., Ph.D.
May 1998 Department of Neurology, Graduate training, National Medical University, Ulaanbaatar, Mongolia.Master of Medical Science.Thesis:
July 1996 School of Foreign Service, National University of Mongolia. Interpreter of English Language
May 1994 National Medical University, Medical faculty, Ulaanbaatar, Mongolia. Medical Doctor, Bachelor of Science, General Practitioner.
June 1985 Secondary school number 1, Dornogobi province, Mongolia. Compulsory Education.

Qualification

August 2018 "Peripheral nervous disorders" The 12th Annual Meeting and International Neurological Conference, as an organizer. Ulaanbaatar Mongolia.
August 2018 "Peripheral nervous disorders" The 12th Annual Meeting and International Neurological Conference, as a speaker. Ulaanbaatar Mongolia.
September 2018 Asian Pacific Stroke Conference, as a speaker. Jakarta, Indonesia.
November 2018 AOCN, as a participant. Seoul, Korea
October 2019 WCN, as a participant, Dubai,
August 2020, Multidisciplinary Brain Science Conference, as a speaker, UB, Mongolia
June 2020 AOCN, as a speaker, Taipei, Taiwan
August 2021, Multidisciplinary Brain Science Conference, as a speaker, UB, Mongolia
October 2021 WCN, as a participant, Rome, Italy
November 2021 Neuroscience-2021 conference, as a speaker, Chicago, USA

Operational Experience

2018-Present	Head of Department of Neurology, School Medicine, Mongolian University of Medical Sciences.
2010-2018	Senior lecturer in Department of Neurology, School Medicine, Mongolian University of Medical Sciences.
2012-2013	Deputy dean of education affaires, School of Medicine, University Hospital, Health
2008-2010	Director of outpatient clinic, University Hospital, Health Sciences University of Mongolia.

Scientific Papers, Publications

Anujin Davaadorj, Puntsagdulam Byambajav, Munkh-Undral Munkhsukh, Maralgua Och, Sevjid Zorigt, Damdindorj Boldbaatar, Tsolmon Jadamba, Oyuntugs Byambasukh*, **Byambasuren Dagvajantsan*** Prevalence of restless leg syndrome in Mongolian adults: Mon-TimeLine study. J Integr Neurosci. 2021 Jun 30;20(2):405-409. doi: 10.31083/j.jin2002041.

Munkh-Undral Munkhsukh, Darisuren Namjil, Puntsagdulam Byambajav, Enkh-Amgalan Angarag, Suvd Junai, **Byambasuren Dagvajantsan**, Oyuntugs Byambasukh. Dementia risk among Mongolian population with type 2 diabetes: a matched case-control study. Integr Neurosci. 2021 Sep 30;20(3): 659-666.doi: 10.31083/j.jin2003070. **/IF-2.117/**

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Oyuntugs Byambasukh[,*,†], Anar Bayarmunkh[,†], Agiimaa Byambaa, Anujin Tuvshinjargal, Delgermaa Bor, Urangoo Ganbaatar, **Byambasuren Dagvajantsan** and Tsolmon Jadamba* The Contributions of Food Groups to the Daily Caloric Intake in Mongolian Population: A Mon-Timeline Study. Nutrients 2021, 13(11), 4062; https://doi.org/10.3390/nu13114062 (registering DOI); Published: 13 November 2021. **/IF-5.717/**

CLINICAL RESEARCH METHODS IN NEUROLOGICAL DISEASES

Byambasuren Dagvajantsan

Department of Neurology, Mongolian National University of Medical Sciences, Mongolia

Most common neurodegenerative diseases are Alzheimer's disease, Parkinson's disease, and amyotrophic lateral sclerosis (ALS). Each of these diseases has its own clinical features, laboratory changes, radiological findings, and pathological changes. Its prevalence increases with aging. Moreover, the therapeutic strategy and management differ between those diseases. The key underlying pathophysiologic mechanism is associated with progressive neuronal dysfunction due to proteotoxic stress, oxidative stress, from impaired mitochondrial function, deposition of aggregated proteins, and neuroinflammation.

This group of disorders can be broadly classified by their clinical presentations, with extrapyramidal and pyramidal movement disorders and cognitive or behavioral disorders being the most common. However, clinical features are fluctuating between patients. Mild symptoms of neuron degeneration include loss of balance, moreover, it is not rare when memory impairment progress into critical and severe conditions affecting daily activities and cognitive functions.

The diagnostic gold standard is neuropathological evaluation at autopsy. Moreover, patients with neurodegenerative diseases deserve the best of palliative medicine like: knowledge, communication skills, and interdisciplinary teamwork that are grounded in a sound ethical base and include timely discussions and decisions.

TUVSHINJARGAL DASHJAMTS

Current position/Occupation: Associate Professor, Department of Radiology, School of Medicine, MNUMS

Title of talk: fMRI in Mongolia

Institutional Address: Mongolian National University of Medical Sciences.

E-mail: tuvshinjargal@mnums.edu.mn

Position	Associate Professor, Department of Radiology, School of Medicine, MNUMS Chair at the MNUMS's Mongolia-Japan Hospital		
Academic career	Ph.D	Graduate School of Medical Sciences, Kyushu University, Japan	2012
	Master of Medical Science	Heidelberg University, FRG Medical Informatics Management	2004
	M.D., Bachelor degree	Mongolian National Medical University	1999

Employment	2004-2006	Officer for foreign affairs and research, School of Medicine, MNUMS
	Since 2006	Lecturer, Department of Radiology, School of Medicine, Mongolian National University of Medical Sciences
	Since 2020	Department Head at the MNUMS's Mongolia-Japan Hospital
	2012-2016	Department Head, Dept Radiology, Ulaanbaatar Songdo Hospital
	2016-2018	Department Head, Dept Radiology, Mungun Guur Hospital

Research and development projects over the past five years

- Epilepsy
- Brain tumor
- Radiation protection
- Dementia imaging
- Oncoradiology

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- 0000-0002-6470-7916

Important publications over the last 5 years

1. Academic Future of Interventional Radiology Subspecialty: Are We Giving Enough Space to Radiology Trainees? Bold, B., Mishig, A., Dashjamts, T. et al.Med.Sci. Educ. (2023). https://doi.org/10.1007/s40670-023-01733-y
2. **Alzheimer's disease: diagnosis by different methods of voxel-based morphometry.** Dashjamts, T., Yoshiura, T., Hiwatashi, A., ...Kira, J., Honda, H. Fukuoka igaku zasshi = Hukuoka acta medica, 103(3), pp. 59-69, 2012
3. Simultaneous Arterial Spin Labeling Cerebral Blood Flow and Morphological Assessments for Detection of Alzheimer's Disease, Dashjamts, T., Yoshiura, T., Hiwatashi, A., ...Kira, J.-I., Honda, H. Academic Radiology 18(12), pp. 1492-1499, 2011
4. Detection of middle ear cholesteatoma by diffusion-weighted MR imaging: Multishot echo-planar imaging compared with single-shot echo-planar imaging, Yamashita, K., Yoshiura, T., Hiwatashi, A., ...Tamae, A., Honda, merican Journal of Neuroradiology, 32(10), pp. 1915-1918, 2011
5. Morphologic change in vertebral body after percutaneous vertebroplasty: Follow-Up with MDCT, Dashjamts, T., Hiwatashi, A., Yoshiura, T., ...Yamashita, K., Honda, H., American Journal of Roentgenology 195(3), 2010
6. Asymmetrical cerebral perfusion demonstrated by noninvasive arterial spin-labeling perfusion imaging in a patient with corticobasal degeneration, Dashjamts, T., Yoshiura, T., Hiwatashi, A., ...Kira, J., Honda, H., Japanese Journal of Radiology 28(1), pp. 75-78, 2010
7. Subsequent fracture after percutaneous vertebroplasty can be predicted on preoperative multidetector row CT, Dashjamts, T., Hiwatashi, A., Yoshiura, T., ...Yamashita, K., Honda, H., American Journal of Neuroradiology 30(10), pp. 1830-1834, 2009
8. Бага тархи гүүрийн өнцгийн менингиома болон шваннома хавдруудыг СРТ-ийн дэвшилтэт горимуудаар ялган оношлох боломжийг судалсан нь, Б.Оюунтогос, Б.Мөнхбаяр, А.Цэрэнсугир, Д.Гончигсүрэн, Х.Дэлгэрдалай, Эрүүл Мэндийн Шинжлэх Ухаан. 2021; Vol.17, 8 (64)
9. **Тархины буглаараг үхжилт**, **уйланхайт хавдраас перфузийн соронзон резонанст томографийн аргаар ялган оношлох асуудалд**, А.Цэрэнсугир, Б.Оюунтогос, Б.Мөнхбаяр, Г.Мөнгөнбагана, Д.Мөнхбаатар, Х.Дэлгэрдалай, Эрүүл Мэндийн Шинжлэх Ухаан. 2021;Vol.17, 8 (64), хх.133-136
10. Миелингүйжих эмгэгийн СРТ-ийн оношилгоо, Д.Түвшинжаргал, П.Төгсжаргал, Радиологи. 2021; Vol. 4 (15), хх. 3№-35
11. Тархины хавдрыг тодосгогч бодистой перфузийн СРТ-ийн аргаар үнэлэх нь, Х.Дэлгэрдалай, Радиологи. 2021; Vol. 4 (15), хх. 33-39
12. Аденомиоз болон эндлметриозын СРТ-ийн шинжилгээнд илрэх дүрслэлийн шинжүүд, Б.Ариунтунгалаг, У.Байгалмаа, Б.Алтанчимэг, Г.Мөнхтуяа, Х.Дэлгэрдалай, Радиологи сэтгүүл 2021; Vol. 4 (15), хх. 67-73
13. Умайн эндометрийн хавдрын СРТ-ийн оношилгоо, Д.Цэвэлмаа, Д.Мөнхбаатар, Ц.Мягмарнаран, Радиологи 2021; Vol. 4 (15), хх. 74-77
14. Архины шалтгаант элэгний хатуурлын үе шатыг соронзон резонанст томографийн b-утгат нэвчилтээр жинлэгдсэн дарааллаар судалсан нь, Г.Хөвчин, Э.Мандуул, Х.Дэлгэрдалай, Ц.Эрдэмбилэг, Д.Мөнхбаатар, Д.Гончигсүрэн, Радиологи 2021; Vol 2 (13), хх.58-61
15. Түгээмэл тохиолдох цагираг хэлбэрийн тодрол бүхий тархины эзлэхүүнт үүсгэвэрүүдийг перфузийн СРТ-ийн аргаар ялган оношилох асуудалд, А.Цэрэнсугир, Х.Дэлгэрдалай, Б.Оюунтогос, Б.Мөнхбаяр, Г.Мөнгөнбагана, Д.Мөнхбаатар, Радиологи Радиологи 2021; Vol 3 (13), хх.19-22

Activities in specialist bodies over the last 5 years

Organisation: Mongoian Society of Neuro, Head and Neck Imaging
Role: Founder and President, Board member
Period: since 2011

Organisation: Mongoian Radiological Society, Mongoian society of Thyroid gland Imaing,
Role: Board member
Period: since 2020

Organisation: Ministry of Health
Role: Member of Diagnostic Imaging Board
Period: Since 2014

FMRI IN MONGOLIA

Tuvshinjargal Dashjamts

School of Medicine, Department of Radiology, MNUMS's Mongolia-Japan Hospital

Radiologic structural abnormalities are one of the important indications for treatment in localized epilepsy. The 1.5T MR imaging was introduced in Mongolia in 2007, currently fifteen 1.5 Tesla and one 3T machines are installed in the capital city, Ulaanbaatar.

Non-invasive assessment of morphology by brain MRI proved itself as excellent for brain tissue differentiation.

However, clinical assessment requires functional assessment such as for lateralization. Due to the lack of integrated multidisciplinary teams whose expenses are fully covered by state health insurance, patients with neurological and psychiatric disorders hinders proper treatment planning and may contribute to poor patient management.

Information about the functional state of brain regions is increasingly viewed crucial in assessment of an individual patient. Physiologic MRI such as FA, fMRI, ASL, perfusion etc often involves a times series of multiple, often low-spatial-resolution, three-dimensional images to capture hemodynamic or neurovascular coupling features of the brain pathophysiology.

However, image processing techniques are required to convert the data into formats that help visualize the dynamic tissue changes.

If successfully implemented with sufficient postprocessing, functional MRI has been reported to be in some aspects as sensitive as PET for brain evaluation MRI-negative cortical malformations.

Galindev Batnasan

Current position/Occupation: Head, Experimental animal center, Institute of Biomedical Sciences, MNUMS

Lecture title: Cryostat sectioning

Institutional Address: Experimental animal center, Mongolian National University of Medical Sciences

Email address: Galindev@mnums.edu.mn

CAREER HISTORY

Position: Head of the laboratory animal center October 2017 - Present	Employer: Institute of Biomedical Sciences , Mongolian National University of Medical Science
Position: Head of Quality Monitoring Laboratory October 2007-September 2011	Employer: Biocombinat state-owned enterprise
Position: Technologist of vaccine production station October 2003-September 2007	Employer: Biocombinat state-owned enterprise
Position: Lecturer, An expert on agricultural products December 2000-April 2003	Employer: Mongolian State University of Agriculture (MSUA)

EDUCATION AND DEGREES

PhD (Technology) №1012922015010003 June, 2015	Department of Vaccinology and Immunology, Inner Mongolia Agriculture University, China Mentor: Prof. Han Runlin Title: The Purification and Quantification of Inactivated Foot-and-Mouth Disease Virus
M.Sc. (Vaccine) № 210018 June, 2002	Mongolian State University of Agriculture Mentor: Prof. Erdenetsogt.NTitle: Clostridium Perfringens Type A Toxoid Cattle Vaccine
B.Sc. (Veterinarian, microbiologist) D9900027 June, 1999	Mongolian State University of Agriculture

IMPLEMENTED PROJECT

Project: Setting up and breeding of laboratory C57BL/6J inbred mouse

Role: Working group leader Duration: 2017-2018	Funding source: Mongolian National University of Medical Science

SUPERVISOR

Masters by science:(Biomedicine) Title: Achilleaasiatica extract and its study active hair growth in C57BL/6j mouse

PROFESSIONAL AFFILIATION

Head 2018-Present	Mongolian Laboratory Medicine Association
Member 2018-Present	Member, Mongolian Laboratory Medicine Association

PUBLICATIONS

Books: 7, manual: 1, national standards: 4

TECHNICAL SKILLS:

Protein Biochemistry:

Affinity chromatography

Sucrose density gradient ultracentrifugation

Molecular Biology:

- PCR
- SDS-page
- Western blot
- Immunohistochemistry
- Immunofluorescence staining
- Pathology test
- Cell culture
- Laboratory animal
- Animal handling
- Animal experiments with rat and mouse
- Oral gavage
- Perfusion of mouse brain
- Cryostat sectioning of mice brain

Publications

1. Galindev B, Bayarsaikhan J, Tsetsegdari Ch. Clostridium Perfringens Type A Toxoid Cattle Vaccine. Journal of Mongolian Veterinary Medicine 2008;3 (80):20-23
2. Galindev B, Bai weng cheng, Han run lin. Determination in activated FMD virus 146S antigen content in Sucrose cushion + ultracentrifuge. Journal of Mongolian Veterinary Medicine 2016;2(121):11-14
3. Tserensuren Kh, Wang Chun Jie, Galindev B. Effect of mechanical blocking of mouse mucous membranes during gastrointestinal diseases of E.Coli. State central veterinary laboratory ministry of food Agriculture and light industry 2016; 20-23
4. Chinguinjav E, Jambal B, Bilegtsaikhan Ts, Galindev B, Baigalmaa B. Technology of extracting lactoferrin proteins from cow milk. Innovation Medical Journal 2017;11:03
5. Burmaajav B, Galindev B, Sodnomtsogt L, Bilegtsaikhan Ts, Baigalmaa B, Tserensuren Kh. Current Status of Mongolian laboratory animal science. Mongolian Medical Journal 2017;1 (179):6-11
6. Bilegtsaikhan Ts, Ulziisaikhan J, Baigalmaa B, Galindev B, Munkhbat B, Tanaka T. Use of Estananomolecular therapy for breast cancer. Researcher Journal 2017
7. Tserensuren Kh, Galindev B, Wang Chun Jie. Determine the activity of ARB-7 selected bacterial activity by orthogonal method. Journal of Mongolian Veterinary Medicine 2017;3:98-101
8. Altanshagai Ch, Galindev.B. A study of the effects of sheep's tail hair growth. Mongolian national university of medical sciences, Discovery journal, The 11th , June 6, 2018:48-49

CRYOSTAT SECTIONING

Galindev Batnasan

Experimental in Animal Center, Mongolian National University of Medical Sciences, Mongolia

Aim

Perfusion fixation is to use the vascular system of a deeply anesthetized animal to deliver fixatives to the tissues of interest. This is the optimal method of tissue preservation because the tissues are fixed before autolysis begins. Perfused tissues are less susceptible to artifacts caused by handling. Techniques for fixation vary depending on the organ and the desired processing.

Materials

C57BL/6j Mouse
Peristaltic pump
Inhalation anesthesia machine
Ketamnine + xylazine (150/10 mg/kg=0.1 ml/20 g)
Collecting dish
Surgical stage/platform
0.9 % NaCl solution
5%-10% formaldehyde solution
Isofluorane
20 gauge needle
1 mL syringe
Surgical tools:
Veterinary surgical instrument set
Veterinary LED operating lamp

Procedure:

Place mouse in inhalation chamber.
Remove mouse from chamber.
Wait for 3 minutes or until the mouse no longer responds to painful stimuli, such as paw pinch before proceeding.
Locate the mouse on its back.
Using tweezers and operating/dissecting scissors open up the skin and expose the abdomen and chest cavity.
Cut open the diaphragm using scissors.
To expose the heart.
Insert the 20 g needle (from the tubing with saline/10% formalin solution) into the apex of the left ventricle.
Immediately after inserting the needle into the left ventricle, cut the right atrium using scissors.
Perfuse with saline solution for 10 minutes.
After 10 minutes, switch the stopcock to allow for flow of formalin solution.
Perfuse for 10-12 minutes with 5%-10% formaldehyde solution.
Remove the head using a pair of scissor.
Remove the skin over the skull.
Remove the brain and place it in a vial of fixative.
The skull removed and the brain exposed.
When collecting tissues, keep tissues in 10% formalin solution for ~24 hours at 4 degree C.
Transfer tissues to 3%-5% sucrose after for long-term storage at -80 degree C.

Zesemdorj Otgon-Uul

Current position/Occupation: Head at Department of Clinical Laboratory, MNUMS
Head at Central Clinical Laboratory, Mongolia-Japan Hospital

Title of talk: Optogenetics

Institutional Address: Mongolian National University of Medical Sciences

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Education

2008 - BS in Biomedical Engineering, Health Sciences University of Mongolia
2010 - Residency for Laboratory Medicine, Health Sciences University of Mongolia
2012 - M.S., Department of Pathophysiology, Health Sciences University of Mongolia
2017 - Ph.D., Division of Integrative Physiology, Department of Physiology, Jichi Medical University School of Medicine

Award

2018 One of the chosen for the Lindau Nobel Laureate Meeting
Research Encouragement Award 2016, this grant is given by Jichi Medical University for graduate student with excellent research projects.
2013-2017 Awarded with fully funded scholarship based on outstanding academic excellence, Japan

Society and

2017 - ...Member of The Mongolian Neuroscience Society
2017-... Member of Mongolian Young Scientist's Association
2019-... Leader of Mongolian Assocition of Medical Young Researchers

Publications

1. Otgon-Uul Z, Suyama S, Onodera H, Yada T, Optogenetic activation of leptin- and glucose- regulated GABAergic neurons in dorsomedial hypothalamus promotes food intake via inhibitory synaptic transmission to paraventricular nucleus of hypothalamus Molecular Metabolism 5(8):709- 715, 2016.
2. Kumari P, Nakata M, Zhang BY, Otgon-Uul Z, Yada T, GLP-1 receptor agonist liraglutide exerts central action to induce β-cell proliferation through medulla to vagal pathway in mice. Biochem Biophys Res Commun. 2018 May 15;499(3):618-625. 2018
3. Putra Santoso, Masanori Nakata, Kazuhiro Shiizakai, Zhang Boyang, Kumari Parmila, Zesemdorj Otgon Uul, Koshi Hashimoto, Tetsuro Satoh, Masatomo Mori, Makoto Kuro-o and Toshihiko Yada Fibroblast growth factor 21, assisted by elevated glucose, activates paraventricular nucleus NUCB/Nesfatin-1 neurons to produce satiety under fed satates Nature Scientific Reports 2017; 7: 45819
4. Suyama S, Kodaira-Hirano M, Otgon-Uul Z, Ueta Y, Nakata M, Yada T: Fasted/fed states regulate postsynaptic hub protein DYNLL2 and glutamatergic transmission in oxytocin neurons in the hypothalamic paraventricular nucleus. Neuropeptides 56: 115-123. 2016,

OPTOGENETICS

Zesemdorj Otgon-Uul

Head at Central Clinical Laboratory, Mongolia-Japan Hospital

Optogenetics is indeed a powerful and innovative technique that allows researchers to control and study specific cells within living tissue using light-sensitive proteins derived from single-celled organisms. By combining genetics and optics, researchers can gain precise control over the activity of targeted cells, leading to significant advancements in neuroscience and other fields.

The process of optogenetics involves several key steps:

Selection and adaptation of microbial opsins: Microbial opsins are genes derived from single-celled organisms, such as algae and bacteria, that produce light-sensitive proteins. These opsins function as ion channels or pumps, modulating the flow of charged ions across cell membranes in response to light.

Genetic targeting: Advanced genetic tools are used to insert the opsin genes into specific cells of interest. This targeting ensures that the opsin proteins are only produced in the desired cell types. For example, in neuroscience, researchers may target specific neurons in the brain to study their functions.

Optics for precise light delivery: Sophisticated optical technologies are employed to deliver precisely timed pulses of light to the targeted tissue regions or cells. Ideally, this is done while the subject is performing a behavior of interest. The light pulses activate the opsin proteins, resulting in the generation of electrical currents within the targeted cells.

Activation or inhibition of targeted cells: Depending on the type of opsin used, the electrical currents produced in the targeted cells can either activate or inhibit their activity. This allows researchers to study the effects of manipulating specific cells on behavior or neural circuitry.

Overall, optogenetics has revolutionized neuroscience research by enabling researchers to investigate the causal relationship between specific neural activity and behavioral outcomes. It has provided valuable insights into the functioning of the brain and holds great potential for therapeutic applications in the future.

Tungalag Ser-Od

Current position/Occupation: Head, Department of Foreign Relations and Cooperation, Mongolian Dental Association

Research area: Brain Dissection

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E-mail: tungaa.serod@gmail.com

Education

Apr/2013-Mar/2017	Tokyo Dental College, Tokyo, Japan Ph.D in Dental Sciences
Oct/2012-Mar/2013	Tokyo Dental College, Tokyo, Japan Research Intern
Sep/2004-Jun/2009	Health Sciences University of Mongolia, Ulaanbaatar, Mongolia Doctor of Dental Surgery

Work experience

Mongolian Dental Association, Head, Department of Foreign Relations and Cooperation,
Mongolian National University of Medical Sciences (MNUMS) Oct/2021-Jan/2023
Lecturer, Department of Periodontics and Endodontics
The State Dental Center of Mongolia Nov/2020-Jul/2021
Head, Department of Research, Training and Foreign Relations
Mongolian National University of Medical Sciences (MNUMS) Sep/2019-Nov/2020
Research Quality Assurance Officer
Tokyo Dental College, Tokyo, Japan Apr/2017-Mar/2019
Postdoctoral Fellow
Tokyo Dental College, Tokyo, Japan Oct/2015 – Mar/2017
Teaching assistant

Awards/ Honors/ Membership

- Best Young Scientist in Medicine 2019 /Mongolian Young Scientist Association/
- MEXT scholar April 2012-March 2017
- Elective study program in San Francisco, USA September 2013

Research experience

Publications

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BRAIN DISSECTION

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The brain is the largest organ of the body and it integrates most of the body activities. Each part of the brain is responsible for coordinating different body parts and its function. Brain weighs around 1300-1400g. Brain is consisted of 4 parts including cerebrum, cerebellum, brain stem and diencephalon. Cerebrum is the largest section of the brain and it locates in the upper portion of the brain. Cerebral cortex is the superficial part of the cerebrum and is called gray matter. Cerebral cortex has 3 layers of cells with different forms and sizes. These are outer molecular layer, central layer of large Purkinje cells and inner granule layer. Of these, molecular layer has few neurons and mostly unmyelinated fibers, Purkinje cells has highly developed dendrites, inner granule layer has very small neurons compactly disposed. It contains normal blood vessels as well. The subcortical white matter is mostly consisted of axons and oligodendroglia. Cerebellum is the second largest portion of the brain and is located beneath the posterior part of cerebrum. Brain stem is consisted of midbrain, pons and medulla oblongata. Diencephalon involve thalamus, epithalamus and hypothalamus. Thalamus contains mass of nerve cells and makes up 80% if diencephalon.

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3. In 2020-2021, Project name: Investigation of Thyroid Eye Disease-Associated Biomarkers. Funded by The Foundation of Science and Technology Development, Mongolian National University of Medical Sciences
4. In 2020-2021, Project name: Genetic Association Study of the Multifactorial Inheritance. Financed by Ministry of Education and Science (Mongolia)
5. In 2020-2021, Project name: Genetic Variations and Genetics of the Disease Susceptibility among Mongolian Population. Funded by The Foundation of Science and Technology Development, Mongolian National University of Medical Sciences
6. In 2020-2021, Project name: To Create and Develop a Novel PCR Test Kit for SARS-Cov-2 Detection from Saliva. Financed by Ministry of Education and Science (Mongolia)
7. In 2022-2024, Project name: The Investigation on Genetic Susceptibility and Clinical Features of the Post COVID-19 (SARS-Cov-2) Conditions. Financed by Ministry of Education and Science (Mongolia)

AWARDS

2021 Best oral presentation (1st place), "Erdmiin chuulgan 63" scientific conference of Mongolian National University of Medical Science, Mongolia

2018 Best oral presentation (1st place), "Erdmiin chuulgan 60" scientific conference of Mongolian National University of Medical Science, Mongolia /Oral presentation/

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2017 Best oral presentation (1st place), "Khureltogoot 2017" scientific conference. Science and Technology Foundation, Mongolian Young Scientist's Association /Oral presentation/

2016 Best oral presentation (1st place), The Fifth scientific forum of Mongolian Medical Students /Oral presentation/; Ministry of Health and Mongolian Academy of Medical Science

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qPCR ANALYSIS

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Real time PCR, also known as quantitative PCR (qPCR) – second generation PCR, is one of the powerful and sensitive nucleic acid analysis techniques and is used for a broad range of applications. Every living things in this planet has a DNA or RNA genome so if you want to detect or quantify it you go to qPCR. With this technique, the number of analysis can be perform, including DNA/cDNA quantification, melting curve analysis, multiple gene expression and allelic discrimination analysis.

As in standard PCR, DNA is amplified by 3 repeating steps: denaturation, annealing and elongation. However, in qPCR, fluorescent labeling enables the collection of data as PCR progresses, calling it "real time".

There are two common type of detection methods available for qPCR. In dye-based qPCR (typically green), fluorescent labeling allows the quantification of the amplified DNA molecules by employing the use of a dsDNA binding dye. During each cycle, the fluorescence is measured. The fluorescence signal increases proportionally to the amount of replicated DNA and hence the DNA is quantified in every cycle. The disadvantages to dye-based qPCR are that only one target can be examined at a time and that the dye will bind to any ds-DNA present in the sample.

In probe-based qPCR, it works by using fluorescently labeled oligonucleotide probes and monitoring the fluorescence after each cycle - the intensity of the signal reflects the amount of DNA amplified and the number of cycles at which the fluorescence is first detected is used to calculate the initial number of DNA molecules in the sample. Many targets can be detected simultaneously in each sample but this requires optimization and design of a target specific probe(s), used in addition to primers.

In neuroscience, the potential for qPCR applications is huge. Recently, it commonly used for detecting rare genetic mutations for the disease including Alzheimer's disease, Huntington's disease, Schizophrenia and neurodevelopmental disorder (NDD)s. Other uses for this technique, to detecting the agents that infects neural tissue, the comparative analysis for multiple gene expression in neural cells to measure levels of gene activity involved in the function of brain cell communication and associated with the diseases, examining how stress affects levels of genes important for brain function, investigating the importance of structural genes for development of brain regions important for vision, and examining genes involved in development of the auditory system in songbirds.

THE 6th IBRO-APRC ULAANBAATAR ASSOCIATE SCHOOL ON BEHAVIORAL AND TRANSLATIONAL NEUROSCIENCE

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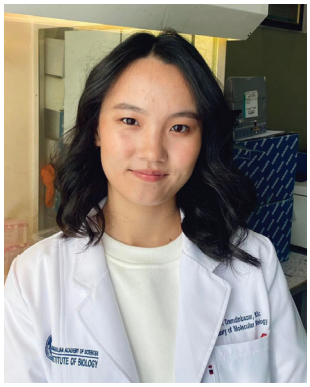

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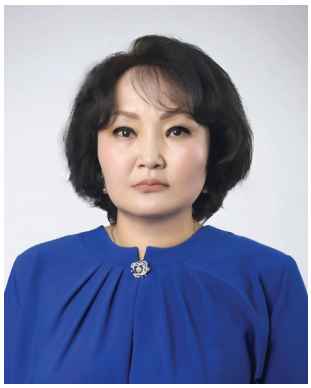

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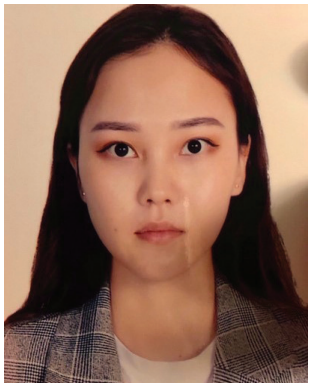

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ABSTRACTS OF THE PARTICIPANTS

EXAMINED MENTAL HEALTH PROBLEMS OF DRUG-RELATED CRIME OFFENDERS WHO WERE SCREENED FOR FORENSIC PSYCHIATRY EXAMINATION

Baigalimaa Sodnom, Bayarmaa Vanchindorj, Gantstetseg Tumur-Ochir, Nasantsengel Lkhagvasurent

Background & Aims: In 2014, there were 62 offenses that accused 144 people were investigated for drug and psychoactive substance related crimes while in December 2018, 402 people were involved in 197 crimes in Mongolia. In our neighboring countries, the number of drug-related crimes and offenders and the amount of confiscated drugs are increasing year by year which may adversely affect our national security. Therefore, there is an urgent need to study the level of drug use and some risk factors that affect it, which is the basis for this study. To examine mental health problems of drug-related crime offenders who were screened for forensic psychiatry examination.

Method & Results: The survey was conducted with cross sectional study design and we using quantitative and qualitative and documentary research methods. We surveyed 106 people who underwent forensic psychiatric examinations at the NMHC due to drug-related crimes. Our study included 94 men and 12 women aged 18-41, with an average age of 24.5 ± 6.1. By the age group 18-35 year olds accounted for 90.6%, of which the 18-29 year olds accounted for the largest percentage (77.3%), the over 36 year olds accounted for the lowest percentage (9.4%) and the 64.1% (n = 68) of total participants were graduated high school, and 41.5% (n = 44) were employees ($p < 0.001$) which are statistically significant. A study of 34 case files involving 106 participants found that 83% (n = 88) of them had a drug or psychotropic substance in their urine, 65% (n = 57) had tetrahydrocannabinoids (THC), and 22% (n = 19) used amphetamine type drugs (MET, AMP), while 14% (n = 12) used a combination of cannabinoids, cocaine, and amphetamine (MET, AMP, THC, COC). But, in the DAST test, 62.3% said they did not use drugs. Our study found that people who took amphetamine type drugs alone had symptoms such as ideation acceleration, insomnia or and euphoria. However, participants who used cannabinoids were more likely to experience symptoms of calmness, euphoria, and drowsiness. The anxiety showed during amphetamine withdrawal but there were despair and fatigue during cannabinoids withdrawal. The symptoms that described above and the type of drugs differed statistically significantly ($p = 0.004$).

Conclusion: In our study, young people between the ages of 18 and 35, especially students, picked and used cannabis themselves. These results show that students and young people are becoming addicted to cannabinoids. Therefore, it is very important to implement the relevant legislation and effectively eradicate drug-containing plants. In the DAST test, 62.3% said they did not use drugs, but 83% (n = 88) of them tested positive in their urine which means the DAST is not significant for screening of drug use in forensic psychiatry examination.

A STUDY ON THE IMPACT OF CHILDHOOD PSYCHOLOGICAL TRAUMA ON MENTAL HEALTH

Battsetseg.B, Natsagsuren.B, Batchimeg.O

Background & Aims: Childhood psychological trauma refers to a traumatic, dangerous, violent, life-threatening physical injury that occurred during childhood, and an emotional trauma that affects personal values. According to WHO's 2016 data, up to 1 billion children between the ages of 2 and 17 were subjected to physical, sexual, emotional, and neglectful abuse in the last 1 year. However, according to the global school-based health survey conducted in our country in 2010, 1 out of 4 students was beaten by others 1-12 times in the last year, and 38.2% were injured. When the survey was repeated in 2013, it was found that 36.1% of them were injured. Although, there is still no research that examines the mental problems that arise in adulthood due to childhood trauma. To determine the impact of childhood psychological trauma on mental health.

Method & Results:

An online survey was conducted from 15 March 2022 to 27 April 2022. A total of 394 people participated. Depression, anxiety, and sleep quality were assessed via the Childhood Trauma Questionnaires (CTQ-20), The Pittsburgh Sleep Quality Index Questionnaire (PSQI-19), Impact of Event Scale-Revised (IES-R-22), Depression, Anxiety, and Stress Scale (DASS-21).

A total of 394 were aged 18 to 62 years (mean age, 30.39±8.04). And 78.9% (n=311) of the respondents had mental health problems, 12.9% (n=40) had one, and 87.1% (n=271) had co-occurring mental health problems such as stress, depression, anxiety, and sleep changes. The prevalence of stress was 68.3% (n=269), anxiety 67.3% (n=265), sleep changes 6.8% (n=27), and depression 68% (n=268). Overall 53.3% (n=210) of the study participants had experienced emotional, 39.6% (n=156) physical, and 51.8% (n=204) sexual abuse, 88.3% (n=348) emotional neglect abuse, 96.4% (n=380) were exposed to physical neglect abuse as a child. n the study of events affecting the development of childhood psychological trauma, emotional ($r=0.639$, $p<0.000$), physical ($r=0.685$, $p<0.000$), sexual abuse ($r=0.588$, $p<0.000$) and physical neglect abuse ($r=0.593$, $p<0.000$) were moderately correlated. However, emotional neglect abuse ($r=0.235$, $p<0.000$) was weakly correlated.

Childhood psychological trauma is associated with mental problems in adulthood ($r=0.280$, $p<0.000$), stress level ($r=0.249$, $p<0.000$), depression ($r=249$, $p<0.000$), anxiety ($r=0.298$, $p<0.000$), weakly related to sleep changes ($r=0.254$, $p<0.000$). Some of the factors influencing the development of mental health problems include being female ($p<0.000$), being under 35 years old ($p<0.000$), never married ($p<0.000$), and having an income of up to 1 million ($p<0.019$) was statistically significant.

Childhood psychological trauma is associated with mental problems in adulthood ($r=0.280$, $p<0.000$), stress ($r=0.249$, $p<0.000$), depression ($r=249$, $p<0.000$), anxiety ($r=0.298$, $p<0.000$), and sleep changes ($r=0.254$, $p<0.000$) were weakly related.

Some of the factors influencing the development of mental health problems include being female ($p<0.000$), being

under 35 years old ($p<0.000$), never married ($p<0.000$), and having an income of up to 1 million tugrug ($p<0.019$) were statistically significant.

Conclusion: 7 out of 9 respondents had mental problems, 53.3% emotional abuse, 39.6% physical abuse, 51.8% sexual abuse, 88.3% emotional neglect abuse, and 96.4% physical neglect abuse. Being under the age of 35, female, never married, and having an income of up to 1 million tugrug were more likely to have mental health problems, while childhood trauma was less likely to have mental health problems.

POSTPARTUM DEPRESSION IN MONGOLIAN WOMEN STUDIED USING THE EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

Naidan Bat-Ulzii, Battuya Batchuluun

Introduction and aims: Postpartum depression (PPD) affects up to 15% of mothers. (Teri, Margaret, Amy, & Caron, 2009). Postpartum depression is a psychological problem that affects not only the mother's health, but also the child's development and family relationships. Risk factors for postpartum depression are biological or physical (hormonal changes, use of alcohol, drugs, and psychotropic substances), psychological (family relationships, self-esteem, personality type), birth status (unintended pregnancy and birth status), socio-demographic (economic status) and culture. Therefore, this study aims to elucidate some factors that may have differential effects on postpartum depression.

Methods: Between April 2021 and April 2022, 193 women between the ages of 18 and 42 who had given birth participated in the study.The study methodology used the The Edinburgh Postnatal Depression Scale (EPDS) and a demographic questionnaire. The results of the study were analyzed using SPSS software.

Results: According to the results of the study, 86 percent of those surveyed had symptoms of postpartum depression. Education level (p=.019), marital status (p=.032), prenatal status (p=.002), support from family (p=.000), support from friends (p=.006), and financial difficulties (p=.000) were all linked to postpartum depression.

Conclusions: Having a higher level of education, satisfaction with marital status, normal fetal condition at birth, and adequate support from family and friends may be factors that prevent postpartum depression.

Keywords: Postpartum depression (PPD), The Edinburgh Postnatal Depression Scale (EPDS), Mongolian women, SPSS software

THE RESULTS OF SYSTEMATIC PSYCHOTHERAPY TECHNIQUES IN PSYCHOLOGICAL COUNSELING

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Introduction: In the research work, we intend to raise the issue of professional psychologists helping people in need, but do psychologists themselves need help? Do they seek psychological services when they face personal challenges or difficulties? Is it difficult for professional psychologists to provide psychological services? Or can a psychologist engage in psychological services? When working with psychologists, systematic psychotherapy techniques are used more. Organizational psychotherapy is a psychotherapeutic approach that focuses on the attitudes, change, and development of groups of people and intergroup relations and is often used in counseling. Psychologists and social workers who are clients who come to receive psychological services can look at their problems from the "outside" and analyze their interactions with their clients and family members. In particular, I had the opportunity to look at my clients' issues from a different perspective to improve and update the techniques I use in my work.

Methodology: Psychological counseling was organized face-to-face and individually. It is based on the methods and experience of working with psychologists and social workers who participated in psychological counseling from March 2021 to August 2022. Two school psychologists, two psychologists working at a psychological center, and one hospital social worker had 32 psychological counseling sessions lasting 60-120 minutes. When providing psychological services, the following rules were followed. It includes:

- Psychologists can have problems. Care was taken to create an attitude that psychological services could be used to resolve and make them freely discuss their issues.
- This work aims to focus on the issue that psychologists disagree with "incrassate" their problems. The psychologist would not have worked every hour but let off themselves from their work and cared for themselves.
- Identify the resources available to the client and allow seeing them
- Change the approach to the problem

Results: Working with psychologists was different from working with other clients. For example, the psychologist knows more about his problems' causes and future consequences. Because he knows the meaning and purpose of the influence techniques, he tried to deny, argue, and deliberately hide them in some cases to make himself understand that there is no problem. He could solve the problem on his own, as faced by ordinary customers, and preferred to seek professional support. This support includes discussing the techniques you've used, discussing complex client problems, clarifying the techniques you've used, etc. When organizing psychological counseling for psychologists and social workers using structured psychotherapy methods, diagrams were used to show the problems encountered in counseling and questions aimed at reaching solutions were

asked, and the following techniques were used. The table summarizes and represents the techniques used and the results achieved.

Problems
Techniques

Results

Psychologist #1. He suffered psychological trauma in his childhood. This situation has a negative effect on working with customers.
Illustrate,
The situation of the past is brought out using the life line method, Illustrate the problems comparing with other objects
The psychologist saw their problems from a different perspective, not having to do the psycho work every hour, and a drastic change happened in focus on self-love and self-care. There was no psychological damage. They realized they had confused some professional concepts too much, taking too close to their lives.
Psychologist #2. It happened to a very self-controlled person who was told during psychological training that he had personality problems. Trying to figure out what the problem is. He is afraid he won't be able to work with others because he has issues.
Lifeline, reframing the problem, detecting particular cases, questions, and answers. The method of looking at the problem from the outside, the process of raising and supporting the unconscious, was combined with systemic psychotherapy. He realized that he needed a way to support the unconscious. Raising the unconscious does not need to be applied to everyone. Everyone has problems, but where you look is essential. I was satisfied that I could define my problems in comparison with things, take care of myself, and make positive changes professionally. The fear subsided.

Social worker
He has a cold relationship with his mother and cannot understand. He thinks of his customers as himself.
Clarifying the flow of life and resistance, putting the problem in a different context, and seeing the problem shift. She began to reconsider her relationship with her mother and understand that she put her problems too much. She began to consider the client's issues separately from her problems.

Discussion: When working with psychologists, systematic psychotherapy techniques enable clients to see problems from a different perspective, learn to separate their problems, visualize their practices, and activate their ability to solve problems together. The psychologist was influential in asking precise and concise questions for the client, discussing ideas, using assessments to encourage active participation in counseling, and discussing homework assignments. Psychologists were learning techniques to analyze the client's work, map the problem, visualize the problem, and encourage the client's active participation. When working with psychotherapists, it was desirable to use systematic psychotherapy techniques in combination with psychodynamic and behavioral psychotherapy techniques. During the interview, after the psychologist received psychological services, there was a consensus that psychologists need help and that it is good to receive psychological services when they face difficulties. There is a need for a team of psychologists to cooperate in providing psychological services to professional psychologists. Psychologists can be involved in psychological services, and there seems to be a demand for such. In the future, it is vital to carry out research to identify the problems encountered by Mongolian psychologists and improve psychological care services.

SURVEY ON ADOLESCENTS' MENTAL HEALTH STATUS IN GOBI-ALTAI PROVINCE

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Aims & Objectives:

According to estimates provided by the World Health Organization, 20 percent of children worldwide suffer from mental and behavioral disorders and most of the mental disorders started in childhood. Within the many measurements for these problems, Strength, and Difficulties Questionnaires (SDQ) is widely used in recent years. The World Health Organization Report Instrument for Mental Health Systems /WHO-AIMS/ 2006 highlighted that "Mongolia does not offer child and adolescence mental health services". Furthermore, we aimed to study common emotional and behavioral problems to introduce school-based early detecting methods of mental problems that will prevent mental disorders and identify individuals with abnormal behaviors. To determine common emotional and behavioral disorders among adolescents, and their prevalence and to explore some attributing risk factors in Gobi-Altai province.

Method & Results:

We used a cross-sectional study design utilizing globally accepted Strengths and Difficulties Questionnaire (SDQ) among 2,192 adolescents aged between 11 and 18; 1,808 parents and 102 teachers from the central and rural areas of the Gobi-Altai province to determine the prevalence of emotional and behavioral disorders in between April to December 2018.

Results: A total of 249 (11.4%) and 1,943 (11.4 %) out of 2,192 survey participants were from the province and the soum centers accordingly. Among them, 50.5 percent (n=1,107) were boys, 49.5 percent (n=1085) were girls; and an average age of 1,808 caregivers who partake in the survey was 40.9 ± 10, from which 69 percent (n=1247) was female. We gathered information from 102 teachers and 30.4 percent (n=31) of them was male, 69.6 percent (n=71) of them was female and the average age of the teachers was 34.7±6.4. An average year of teachers' work experience was 11.4±6.4 years and in-class teaching was 3±1.7 years.The parents and caregivers response analysis showed that a peer relationship problems (4.16±1.8, $p<0.040$) and pro-social behavior were higher among boys than girls /statistically significant/; and the teachers response analysis also found that emotional problems (2.34±1.8, $p<0.0001$), conduct problems and hyperactivity-inattention (3.80±1.8, $p<0.003$), and peer relationship problems (4.22±1.6, $p<0.001$) were higher among boys than girls. By the students' self-evaluation emotional problems (4.82±2.2, $p<0.033$), pro-social behavior (6.81±1.9, $p<0.001$) were higher among girls and hyperactivity-inattention (5.22±1.5, $p<0.001$), peer relationship problems (4.71±1.5, $p<0.013$) were higher among boys with statistically significant. Regarding the survey results, 58.6 percent of the adolescents in Gobi-Altai province were healthy, 36.1 percent of them were with emotional and behavioral problems and 5.2 percent of them were with emotional and behavioral disorders. Regarding to attributing risk factors to mental health status of adolescents, students listed that trying to study well for better life (n=890, 40.6%),

parents also mentioned this risk (n=395, 21.8 percent) and by parents and caregivers' evaluation studying well for good life (n=395, 21.8%), changing of communication between parents and caregivers (n=294, 16.3%), teachers stated similar or changing of communication between parents and teachers (n=559, 25.9%). And teachers' highlighted peer pressure (n=551, 23.6 percent) as the main risk factors affect adolescents' mental health. In terms of defining suicidal risk factors, parents and caregivers named a peer pressure (n=554, 30.6 percent) and teachers named discrimination (n=683, 31.6 percent) as main risk factors accordingly. Parents and guardians assumed that common suicidal attempts triggered by "Peer pressure" (male n=259, 28.5%, female n=295, 32.9%, $p<0.043$) among girls and "Political and social instability" (male n=72, 7.9%, female n=50, 5.6%, $p<0.051$) among boys; and in teachers' opinion "Climate and seasonal factors" are main affecting factors for the girls (male n=276,25.3%, n=316, 29.5%, $p<0.027$) and it was statistically significant. Also, both teachers and parents/guardians noted that "Conflicts related to school" contributed to suicide. By the view of the parents and teachers, broken heart, chronic disorders/pain and alcohol, and drug problems were followed after these main factors.

Conclusion:

1. The survey results showed that 58.6 percent of adolescents perceived themselves as healthy, 36.1 percent of them were with emotional and behavioral problems and 5.2 percent of them were with emotional and behavioral disorders in Gobi-Altai province.
2. "Studying well for good life", "Change of communication between parents/caregivers and society", "Peer pressure" are main risk factors affecting adolescents' mental status.
3. Analysis of the parents' and teachers' responses found that abnormal peer relationships, peer pressure, discrimination, fail in love, alcohol, tobacco, and drug-related problems, chronic illness, and family environment cause mental health problems.
4. According to the teachers' and parents' reports, peer pressure, seasonal factors, conflicts related to school-related conflicts/ problems among girls, and political and social instability, conflicts related to school among boys are prevalent triggers leading to suicidal attempts.

INCREASING THE CONCENTRATION OF STUDENTS USING "MINDFULNESS" EXERCISES

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Background: The long-lasting deadly disease Covid-19 has a significant impact on individuals' mental health and well-being. The quarantine conditions have long restricted students' right to education and participation in social interactions, reducing social activity and adversely affecting their mental health. Therefore, it delivers the urgent need for studying students' mental health issues. The study is proposed to conduct a comparative study of mental health and concentration among students.

Aim: Evaluate the level of concentration among students who have consistently performed Mindful exercise

Materials and Methods: During a 3-month period from December 2022 to March 2023, this study was conducted at the 16th secondary school of Darkhan-Uul province.

The study involved 191 7th-grade students and was carried out by the institute of Brain Psychology, Department of Psychosomatic Medicine at the international University of Health, Japan, in collaboration with Narita Hospital. The research team, consisting of 11 members, including school principals, psychologists, and classroom teachers, utilized/a school-based experiment and qualitative research method. To prepare for the study, team members attended 4 training sessions on topics like the mind-body-soul connection and attention, as well as 3 sessions on EQ skills, totaling 7 training sessions. Additionally, they participated in one session of group counseling. The satisfaction survey was conducted through individual and group interviews. and statistical analysis was performed using SPSS 24 software.

Results The study involved 191 students from 7th grade who participated in mindfulness exercises for 3 months. After taking a satisfaction survey, the results showed that 92% of the students reported engaging in the exercises 1-3 times a week, and 86% expressed their liking for the exercises. Furthermore, 92% of the participants provided positive feedback, stating that they experienced relaxation during and after the exercises, feeling good, sleepy, and experiencing muse relaxation. On the other hand, 8% of the students mentioned feeling good initially but getting upset after the exercises.

In terms of changes observed, 77% of the students reported positive improvements, such as feeling calmer, experiencing reduced anger, improved concentration, and better organization of their thoughts, among others. However, 12% of the students indicated that they did not notice

any changes resulting tram the mindruiness exercises.

In conclusion Our study shows that engaging in regular mindfulness practice has a positive impact on students mental health. It increases the likelihood of fostering positive attitudes and developing valuable skills, such as enhanced concentration, a sense of calmness, improved self-control, and a patient and tolerant approach to problem-solving. The findings indicate that incorporating mindfulness exercises into the students' routine can be beneficial for their overall well-being and personal growth.

Key words: Attention, positive attitude, teacher, school, mental health

COGNITIVE BEHAVIORAL THERAPY (CBT) BASED ANGER MANAGEMENT PROGRAM AMONG ADOLESCENTS

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Background: With a population of 3.4 million as of 2021, 33.8% of the population of Mongolia is young people under the age of 24 years and 16.0% being adolescents (National Statistic Office of Mongolia, http://1212.mn/, 2022). According to a study conducted in 2018, parents, teachers, and adolescents' self-assessment reported that the prevalence of emotional and behavioral disorders was 8.7%, 8.8%, and 9.4%, respectively in Mongolia (Bayarmaa Vanchindorj, 2019). Lkhamaa and Ariunzaya conducted a study in 2021, titled "Result of the assessment of the needs, problems and psychological risks of psychological services of adolescents" with 1710 students from 5 schools in Ulaanbaatar city, capital of Mongolia. The results show that 39.9% of all respondents were interested in seeing a psychologist, 49.4% were interested in psychological assessment of their personality and career, whereas 29.5% were interested in taking psychological training on learning to control their emotions, developing their abilities, and communication skills. It was found that 15.4% were interested in receiving advice regarding their ongoing issues (Lkhamaa. Yo., 2021). In 2021, 170 adolescents aged between 11-18 years old, 154 parents/guardians, and 99 teachers from Ulaanbaatar city and other provinces in Mongolia a total of 423 people - participated in research to determine the need for intervention to teach anger management for adolescents (Dejid. E, 2021). Most participants believed that adolescents need support to learn more appropriate way to manage their anger, since it is common to engage in self-harm or unpleasant and dangerous behavior towards others. In addition, researchers found that anger management, self-awareness, and relaxation techniques should be utilized to increase communication and coping skills and needs to be included in the program and activities. Based on the studies above, it is necessary to implement life skills and preventative programs to support the development of social communication skills of adolescents to manage emotions including but not limited to anger, particularly through the use of problem-solving and conflict resolution skills. This study supports improving the learning anger management skills of Mongolian adolescents, protecting their psychological health, and preventing exposure to any anger risks.

Purpose: This study was conducted to test and determine the effectiveness of an Anger Management Program based on CBT among adolescents. Hypothesized that the adolescents participating in this program will show increase in ability to manage their anger, with decreased negative indicators, simultaneously.

Materials and Methods:

1. State-Trait Anger Expression Inventory-2

Child and Adolescent (STAXI-2 C/A) were used to identify anger level of 981 (males 444, females 537) between the ages of 11-18 years (M=14.4, SD=1.43) from various secondary schools in Ulaanbaatar and other provinces in Mongolia.

2. From the sample of Ulaanbaatar city, 40 students with above-average and high levels of anger indicators were selected and divided equally into experimental and control groups. Those 20 students from the experimental group were divided into two different age groups, 12 to 13 years group and 14 to 16 years group, and received 8 sessions of CBT based on an Anger Management Program each. Signed consent forms were obtained from all students and their parents/guardians upon they were informed of the study and made decision to volunteer.

3. ABA (single-case design) was used to evaluate the dependent variable: baseline condition in which no intervention is present (Phase A), intervention condition in which an independent variable is introduced (Phase B), and again returned to baseline condition (Phase A). STAXI-2 C/A was utilized to measure the dependent variables pre, post-intervention and 1 month later. This information is examined to see whether there are changes in how the participant deals with anger. Students and their parents/guardians completed the forms to assess the effectiveness of the Anger Management Program. In addition, the data of pre-, post-, and follow-up studies were done based on descriptive, Friedman's ANOVA test, and the Mann-Whitney U Test using SPSS 26.0 software to analyze the effect of the program. Measure: The State-Trait Anger Expression Inventory-2 Child and Adolescents (STAXI-2 C/A), developed by Thomas M. Brunner and Charles D. Spielberger (2009), was established to measure the state anger, trait anger, expression and control of anger in children and adolescents between the ages of 9-18 (Cronbach's alpha value of 0.784).

Results: Based on the post-test and the follow-up test, the experimental group has demonstrated shown an increase in anger control (The Friedman ANOVA p=0.26), overall decrease in mean score in anger difficulties, and significantly difference between experimental and control groups (Mann-Whitney U Test z=-2.075, p=0.038) after 8 sessions with anger management program. Moreover, parents, guardians, and teachers of the participants filled a questionnaire to evaluate the changes simultaneously with pre-test, post-test and follow-up test.

Conclusion: This study implemented a cognitive-behavioral therapy based support program to improve adolescent anger management skills in a short time. Namely, there was an increase in how often a youth tried to control the inward or outward expression of angry feelings. In addition, the pre-test, post-test, and follow-up evaluations of parents, guardians, and teachers corroborated the decreased indicators in which their child and student had difficulty managing their anger, got angry about things they should not be mad about, acted up when angry. In the future, researchers should recruit study groups from countryside schools of different levels with a larger number of adolescents.

EPHX1 GENE EXPRESSION IN HUMAN HCC CASES IN MONGOLIAN PATIENTS

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Background: Liver cancer has a high prevalence among cancers in general and is one of the leading causes of death worldwide. Human microsomal epoxide hydrolase (EPHX1) is an evolutionarily highly conserved enzyme that metabolizes xenobiotic molecules and its dysregulation is associated with the pathogenesis of many diseases and cancers of various tissues. Nevertheless, the detailed functions of EPHX1 in the progression of HCC remain unclear, there is still a need for research in this field. In this study, we present data on the expression of the human EPHX1 in HCC and compare the expression intensities to normal tissue adjacent to a tumor in Mongolian patients.

Methods: HCC samples and para-tumoral (PTL) liver tissues were collected from 18 patients with HCC at the State Central Second Hospital of Mongolia. Western blotting analysis was performed using a mouse anti-human EPHX1 monoclonal antibody, and GAPDH was used as a protein loading control. The intensity of protein bands was quantified using Image J software. Statistical analysis involved Student's t-test, with $p < 0.05$ considered significant.

Results: The western blotting results showed that expression of EPHX1 in a total 36 tumor and PTL tissue samples of 18 patients with HCC. EPHX1 was up-regulated ($p < 0.05$) in 7 of 18 patients (38.9%) with HCC as compared with the PTL tissues. In contrast, 5 patients' EPHX1 was down-regulated ($p < 0.05$) (27.8%), and other cases (33.3%) had no difference between tumor and PTL tissues.

Conclusions: The EPHX1 gene was differentially expressed in the majority of cases in Mongolian patients, and this result suggests that EPHX1 could be one of the genes that contribute to HCC.

Keywords: hepatocellular carcinoma, microsomal epoxide hydrolase, western blotting, expression analysis

THE INTERNATIONAL ALCOHOL CONTROL (IAC) STUDY: METHODOLOGY AND IMPLEMENTATION

Elena Kazantseva

Background & Aims: The International Alcohol Control (IAC) Study is a multi-country collaborative project to assess patterns of alcohol consumption and the impact of alcohol control policy. The aim of this paper is to report the methods and implementation of the IAC.

Method and Results: The IAC has been implemented among drinkers 16–65 years in high- and middle-income countries: Australia, England, Scotland, New Zealand, St Kitts and Nevis, Thailand, South Africa, Peru, Mongolia and Vietnam (the latter four samples were sub-national). Two research instruments were used: the IAC survey of drinkers and the Alcohol Environmental Protocol (a protocol for policy analysis). The survey was administered via computer-assisted interview and the Alcohol Environmental Protocol data were collected via document review, administrative or commercial data and key informant interviews.

Conclusion: The IAC instruments were readily adapted for cross-country use. The IAC methodology has provided cross-country survey data on key measures of alcohol consumption (quantity, frequency and volume), aspects of policy relevant behaviour and policy implementation: availability, price, purchasing, marketing and drink driving. The median response rate for all countries was 60% (range 16% to 99%). Where data on alcohol available for consumption were available the validity of survey consumption measures were assessed by calculating survey coverage found to be 86% or above. Differential response bias was handled, to the extent it could be, using post-stratification weights.

STUDY OF PSYCHOSOCIAL BEHAVIOR CHANGES AMONG CHILDREN AFFECTED BY SEXUAL VIOLENCE

Enkhchimeg P, Khishigsuren Z

Background & Aims: To study clinical manifestations caused by sexual abuse of children and adolescents.

Material and methodology: Conducted retrospective study on total of 69 health records of patients admitted to Child unit of Mongolian National Mental Health Centre due to sexual abuse from 2015 to 2018.

Results: Sexual victims ages ranged from 4-19 (median age 13.7±3.3), 68 of abuse victims were female (98.6%), and 1 was male (1.4%). The perpetrators of sexual abuse were mostly acquainted with the victims (75.4% n=52). Length of sexual abuse differs depending on who perpetrator was ($p=0.032$). Common psychiatric symptoms manifested in abuse victims were sleep disturbance (75.4%), fear (71%), nightmare (53.6%) and mood instability (50.7%). Common symptoms occurred in teenagers were recurring flashbacks, mood instability, depression, suicidal thoughts and suicidal attempts ($p<0.05$).

Conclusion: Sexual assault prevalence is high among adolescent girls. Common clinical symptoms manifested in child and adolescent victims of sexual abuse are sleep disturbance, fear, anxiety, depression, suicidal thoughts and suicide attempts.

THE CORRELATION BETWEEN ALCOHOL CONSUMPTION AND DISTRESS

Erdenetuul Nuden, Gantsetseg Tumur-Ochir

Background & Aims: According to the studies conducted worldwide, psychological problems are considered as one of the main influencing factors to consume alcohol. However, there are no studies conducted to define how mental state affects alcohol consumption in our country. Therefore, we aimed to study how alcohol consumption relates to distress.

Method and Results:
Methods: The study was conducted from November to December 27, 2021, using a questionnaire survey method. Distress and alcohol consumption was determined by the Self-reporting questionnaire (SRQ 20) and the AUDIT questionnaire, respectively.
Results: A total of 2669 people aged 18-70 years, 1586 (59.4%) women and 1083 (40.6%) men, participated in our study. 30.5% (n=813) of the respondents did not consume alcohol during the last year, but 58.3% (n=1557) had moderate consumption, 8.3% (n=222) had harmful consumption, 1.3% (n=35) had severe consumption, and 1.6% (n=42) were addicted to alcohol. When assessing mental health status using the SRQ-20 questionnaire, 26.8% (n=716) had distress and 73.2% (n=1953) did not. When we tested the correlation between alcohol consumption and distress, we found that when the SRQ score increases by one, the AUDIT score increases by 0.249. In other words, when the level of stress increases, it directly increases with alcohol consumption ($p<0.001$, 95% CI is 0.214-0.285).

Conclusion: The proportion of Ulaanbaatar citizens who did not consume alcohol at all during the last year increased by 18.2% compared to the survey conducted in our country in 2006. It has been revealed that when the level of stress increases, the consumption of alcohol also increases.

PEST INSECTS, HOUSEHOLD INSECT, ZOONOSIS DISEASES

Khaliunaa Battuvshin

Background & Aims: The United Nations Children's Fund estimates that over one million children worldwide face investigation by law and judicial institutions annually due to their involvement in criminal activities, leading to some of them being deprived of their freedom.

In our country, there is a notable lack of initiatives focused on studying the root causes and conditions of child crimes, as well as implementing early detection and preventive measures.

As of 2021, the Ministry of Health and Welfare's Forensic Psychiatry Probe Analysis examined 1,053 criminal and civil cases, with 218 of them, accounting for 20.7%, involving minors. However, the available information concerning the causes and circumstances of these crimes and related offenses remains insufficient.

This research forms the basis for an ongoing investigation aiming to understand the factors contributing to minors' involvement in crime, as well as assessing the mental health status of incarcerated youth.

Results: Research employs descriptive and quantitative methods to explore both qualitative aspects and data-driven insights.

Conclusion: On going

ASSESSMENT OF ANXIETY AND DEPRESSION IN LOCAL COMMUNITIES

Mungunchimeg Dorjsuren

Background & Aims: During the curfew of the epidemic of coronavirus infection (COVID-19), we faced the need to evaluate the changes in learning activity, depression, and anxiety that may have been caused by the long-term restriction of the right of students to study and socialize. Investigating the impact of mental health on student engagement in learning.

Method & Results: The survey was conducted using a questionnaire survey method from November 1, 2021 to March 10, 2022 in a snapshot design. Anxiety was assessed using the Patient Health Questionnaire (PHQ-9), depression was assessed using the GAD-7, and learning engagement was assessed using the Utrecht Work Engagement Scale (UWES-17). The research results were statistically processed using SPSS 28 software. In our study, 17.2% (n=46) were male, 82.8% (n=221) were female, and a total of 267 students aged 17-27 years old, the average age was 19.5+0.96. The average age of the participants in the study was 43.1% weak, 48.3% average, 8.6% good, while 26.2% weak, 61.0% average, 12, 7% were good. 12.7% of respondents (n= 34) have depression, 37.5% (n=98) have mild depression, 37.5% (n=100) have moderate depression, and 13.1% have (n=35) had more serious depression, and as the level of depression progressed, learning intensity decreased with statistical significance (ps 0.049).

More than half of the students studying from the city or 53.6% (n=67) said that their learning intensity is weak, and the learning intensity of students from rural areas is higher than that of urban students (11.3% n=23) or that their learning intensity is good. there was a significant (ps 0.004) correlation result. Also, 19.1% (n=51) of the respondents did not have anxiety, 40.8% (n=109) had mild anxiety, 26.2% (n=70) had moderate anxiety, and 19.6% had severe anxiety. (n=37) have profound anxiety.

Conclusion: As the severity of depression increases, it is possible that students' learning activity and energy will be weakened.

MILLER FISHER SYNDROME: A RARE CLINICAL CASE

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Brief introduction

Miller Fisher syndrome (MFS) is a rare form of acute inflammatory demyelinating polyradiculoneuropathy characterized by the classic triad of visual paralysis, loss of balance, and loss of tendon reflexes. We present a clinical case of a 49-year-old man with the above symptoms who was treated in the neurology department of the Mongolian-Japan Hospital. 2 days ago, he was admitted to the emergency department of the hospital with severe symptoms of double vision and loss of balance. 14 days ago, he had a cold and took antibiotics and expectorants. Many years ago, there is a story about high blood pressure. On neurological examination, he was conscious, the pupils of both eyes were dilated, there was no reaction to light, out movement of the left eye was limited, and the tendon reflex disappeared. A positive Romberg's test revealed signs of imbalance, such as staggering in a linear gait. Subsequently, after 2-3 days, the symptoms of the above symptoms deepened, and the out movement of the right eye was limited, and symptoms such as light ptosis of both eyes appeared.

Diagnosis

Contrast-enhanced magnetic resonance imaging of the brain showed no focal changes, and cerebrospinal fluid analysis showed normal cell count, protein and albumin levels were higher than normal, and protein-cell differences were present, and Guillain-Barré syndrome (GBS) was diagnosed. Neuromuscular electromyography revealed a decrease in the amplitude of the response potential of the sensory fibers of the peripheral nerve, and pathological waves in the response of the proximal part of the tibial nerve bilaterally.

Treatment

Immunoglobulin, the "gold standard" of treatment, was injected intravenously at a dose of 0.4 g/kg for 5 days.

Treatment results

From the 3rd to 4th day of immunoglobulin treatment, the light reaction of the pupils of both eyes was restored, the ptosis of the eye was removed, the symptoms of eye paralysis and imbalance were reduced, and the patient was discharged from the hospital.

Conclusion

According to the mechanism of antibody formation against GQ1b ganglioside, which is abundantly found in oculomotor nerves during MFS, this antibody is increased in blood plasma and is a unique diagnostic tool for 90% diagnosis of MFS and differentiating it from other clinical variants. However, it has not yet entered our country. Therefore, the clinical features of MFS can be accurately distinguished by neurological examination, the features of cranial nerve damage and imbalance, and the use of neuromuscular electromyography in diagnosis have the advantage of differentiating it from other forms of GBS is significant.

THE INTERRELATIONS BETWEEN ATHLETES' TRAINING RHYTHM OF SPEED AND COGNITIVE CHARACTERISTICS

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Cognitive functions are responsible for managing and organizing human behavior, and emotions, responding to stimuli from the environment. An athlete's performance is not only related to exercise and nutrition, but also to cognitive function. Rhythm is essential for all athletes - awareness of movement, tempo, and body. In most sports, athletes face situations where they need to react resiliently and quickly to various situations, make the right decisions in a short period of time, which depends on cognitive functions. In a combat sport like boxing, it is important to comprehend interrelations between cognitive functions and sport specific training rhythm. 16 boxing elite athletes were enrolled in the cognitive abilities test in terms of visspatial thinking, fluid reasoning, process speed, short-term memory, working memory and cognitive fluency; and pre-post training rhythm evaluation protocol was developed. Athletes' training rhythm was analyzed at three levels of speed. A paired sample t-test and the Spearman's nonparametric correlation test were performed. The results show a correlation between training rhythm of speed, cognitive fluency and working memory. No significant correlations emerged in other parameters.

Keywords: Sports science; skill factors; Performance; Training

SURVEY ON ADOLESCENTS' MENTAL HEALTH STATUS IN UMNUGOVI PROVINCE

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Background & Aims: The World Health Organization Report Instrument for Mental Health Systems 2006 highlighted that "Mongolia does not offer child and adolescence mental health services". Furthermore, we aimed to study common emotional and behavioral problems to introduce school-based early detecting methods of mental problems that will prevent mental disorders and identify individuals with abnormal behaviors.To determine common emotional and behavioral disorders among adolescents, and their prevalence and to explore some attributing risk factors in Umnugovi province.

Method:
We used a cross-sectional study design among 3788 adolescents aged between 11 and 18; 3670 parents /caregives and 172 teachers from the central and rural areas of the Umnugovi province to determine the prevalence of emotional and behavioral disorders in between April to June 2019. We used the Strengths and Difficulties Questionnaire (SDQ) with 25 questions to determine normal, borderline and abnormal ranges of emotional and behavioral problems.

Results: A total of 1652 (43.6%), and 2136 (56.4%) out of 3788 survey participants were from the province and the soum centers accordingly. Among them, 46.8% (n=1774) were boys, 53.2% (n=2014) were girls. In the SDQs, students' self-evaluation, peer relationship problems (male 4.65±1.6, female 4.42±1.5) were borderline range among boys and girls. Regarding the survey results, 41.8% of the adolescents in Umnugovi province were healthy, 51.3% were with emotional and behavioral problems and 6.9% were with emotional and behavioral disorders.

Conclusion:
41.8% of adolescents perceived themselves as healthy, 51.3% were mental problems and 6.9% were with emotional and behavioral disorders in Umnugovi province.

EFFECTS OF HERB ESSENTIAL OIL IN BRAIN FUNCTION

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Background: Essential oils have many uses depending on their composition, and recent research has shown that they are neuroprotective, or act on the central nervous system for mental health and have calming effects. Recent clinical studies have shown that the essential oil has a variety of pharmacological responses in the nervous system, including anxiolytic, antidepressant, sedative, and anti-seizure effects. Experiments in animal models have demonstrated that multiple neurotransmitter systems are involved in the mode of action of essential oils and that they have measurable physiological effects on the brain. Clinical trials have shown that essential oils can affect physiological parameters such as blood pressure, heart rate, respiratory rate, brain wave structure, and serum cortisol levels, as well as psychological effects. While there is growing evidence measuring the effects of essential oils on the brain of animals, more clinical studies are needed to confirm their effects on the central nervous system in humans. This will allow the creation of essential oil-based medicines to treat mental illnesses such as depression, anxiety and psychosis. Mongolia has a vast land with many types of medical herbs and many studies are concentrated on the chemical structure and conpound though, lacking basic research studies regarding to their medicinal effects in animal models as well as in humans. Therefore, purpose of our research work is to investigate the sedative effect of essential oils of some plants from Mongolia in vivo and in vitro.

Methods: We will extract essential oil from plants with using the Clevenger type apparatus. The antioxidant activity of the extracted essential oil will be determined by the DPPH free radical scavenging method. Experimental animal stress is measured by the Open field test, Forced swimming test and Sucrose preference test. In vitro anti-inflammatory activity in microglial cultures, regenerative activity in microglia, neuronal (Neuro2A) cells, and neural stem cells, effects on neurotransmitter release, cortizol, intracellular signaling proteins, and stimulation to study the influence of gene expression.

Results: We are in the preliminary stage, 1st part - animal experiments for stress design was successfully implemented.

Keywords
Stress, behavioral test, animal model, cortisol, cell culture, hypothalamus, hippocampus, limbic system

A STUDY OF SOME PSYCHOLOGICAL DISTURBANCE BEFORE ARTHROSCOPIC PARTIAL MENISCECTOMY AND MENISCAL REPAIR SURGERY

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Background & Aims: Preoperative psychological disturbance in patients undergoing surgery has been shown to be associated with increased postoperative complications, decreased functional improvement, and long-term dissatisfaction. The aim of this study was to determine preoperative anxiety level of arthroscopic partial meniscectomy and meniscal repair surgical patients.

Method: A cross sectional study was conducted with 103 patients who underwent arthroscopic knee surgery at The Grandmed Hospital and National Trauma Orthopedic Research Center in Mongolia from 2020 to 2021. Questionnaires and clinical examinations were performed. Anxiety was assessed a day before their surgery by the State-Trait Anxiety Inventory (STAI), which was classified as "no or low anxiety" (20-37), "moderate anxiety" (38-44) and "high anxiety" (45-80). Statistical analysis was done by SPSS 21.

Results: Out of 103 patients, 38.8% (n=40) were female and 61.2% (n=63) were male. The mean age of the participants was 34.4±8.6 (18-48 years). The patients' preoperative mean anxiety score of STAI was 46.02± 8.25. According to the total score, no or low anxiety, moderate anxiety and high anxiety were 14.6% (n=15), 22.3% (n=23) and 63.1% (n=65), respectively. The female has higher anxiety level than male. However, there was no statistically significant difference in the state and trait anxiety scores between the male and female, age group, and education level ($p > 0.05$).

Conclusion: The prevalence of psychological disturbance and preoperative anxiety is high in Mongolian arthroscopic partial meniscectomy and meniscal repair surgery surgical patients. Psychological preparation and provision of correct information that addresses identified factors may help in reducing preoperative anxiety and postoperative side effects.

MODERN APPROACHES AND DIAGNOSTIC TOOLS IN NEUROSURGICAL PRACTICE: A CASE OF PATIENT WITH INTRACRANIAL HYPOTENSION AND SECONDARY CERVICAL SPINE DEGENERATION

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We report a case of a 47-years old woman presented to our department with the diagnosis of Chiari I malformation and extensive hydrosyringomyelia. Her main complains were severe headache and chronic pain syndrome in the left side of her breast and left arm. Magnetic resonance imaging (MRI) showed alterations suggestive of the presence of intracranial hypotension (IH), that was confirmed by measurement of cerebrospinal fluid (CSF) opening pressure and then CSF venous fistula was detected by computed tomography myelography (CTM). She was successfully surgically treated which leaded to the regression of the clinical symptoms and radiological alterations. Nevertheless, during her recovery after surgery she had an episode of recurrent left arm pain, which was interpreted as secondary cervical spine degeneration consequence. MRI confirmed C5-C6 disc herniation and transforaminal epidural injection of local anesthetic and corticosteroid solutions was performed. A week later she already felt significant improvement as her pain syndrome regressed a lot. IH should be considered in the differential diagnosis of headache and sagging brainstem and tonsils with cord syrinx on MRI and should not be misinterpreted as Chiari malformation. At the same time, transforaminal epidural injection appears to be an effective tool in modern neurosurgical practice allowing to determine the reason and accurate radiculopathy level.

PEER SUPPORT AND RECOVERY-ORIENTED PRACTICE ADAPTATION IN MENTAL HEALTH SERVICE

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Many people with mental health conditions and psychosocial disabilities are subject to violations of their human rights – including care services where adequate care and support are lacking. Within this spectrum, WHO has called for a focus on scaling up community based mental health services that promote person-centered, recovery-oriented and rights based health services. In many countries, community mental health services are providing a range of services including peer support, community outreach, and community mental health centers. Within this research objective, we are aiming to introduce the "Peer support" and "Recovery-oriented practice" method in a target area of Darkhan-Uul province, moreover to the National Level. Recovery in mental health is about people living satisfying, hopeful lives and contributing to society even if they experience ongoing symptoms of a mental health problem or illness. It looks different for everyone: people should be empowered to decide what recovery means for them and what they need to achieve it. Peer support is a supportive relationship between people who have lived experience in common, and a structured form of peer support that fosters recovery. The peer support will have lived experience of a mental health challenge or illness, or is a family member or loved one of someone who does, is in a positive state of recovery and has developed an ability to provide peer support. Within the implementation of this intervention, peer supporters will be trained and will conduct group counseling among adolescents and provide emotional and social support to those who share a common experience.

Keywords
Peer support, recovery, recovery-oriented practice

RESEARCH ON THE IMPACT OF TELEVISION CONTENT ON CHILDREN'S THINKING

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Background: In contemporary society, television has become a dominant medium of communication, profoundly influencing individuals and society at large. Child psychologists and social researchers have revealed that preschoolers dedicate an average of 30 hours per week to television viewing. Notably, a significant proportion of children engage in television consumption prior to bedtime (Anderson, Lorch, Field, Collins & Nathan 1986; Aulette 1994; Kaplan 1991). Surveys conducted by Nielsen Media indicate that adolescents spend more time watching television than attending school by the age of 16 (cited in Basow, 1992). Consequently, children are exposed to approximately 20,000 diverse advertisements annually (Stoneman & Brody, 1981). As children develop, their cognitive requirements and abilities intensify, driven by the growth of myelin particles in their brains during childhood (Bjorklund & Green, 1992). Hence, cognitive transformations evolve with age, precipitating an elevated demand for cognition. This study endeavors to explore the direct and indirect impacts of television content on children's cognitive processes, along with the necessity for differentiated regulation based on age groups.

Methods: This research employs qualitative analysis to investigate the global influence of television content on various countries and the corresponding regulations governing such content.

Results: Prominent psychologist Albert Bandura contends that television serves as a more influential role model compared to parents and educators. Portrayals of women on television frequently emphasize youth and attractiveness, often centered around themes of family and romance. Remarkably, merely three out of ten married women are depicted as having any form of employment (Ш.Батболд, 2020). Moreover, the study delves into the following domains:

Alcohol and Drugs: Teenagers encounter approximately 1000-2000 beer advertisements annually, propagating the notion that "real men drink beer." Banning alcohol advertising has correlated with reduced alcohol consumption, exemplified by Sweden's experience.

Advertisements: Children are exposed to an average of over 20,000 advertisements per year, with 60% promoting candy, confections, fast food, and toys. Advertisements targeting teenagers wield substantial influence over cigarette usage.

Fast Food Advertising and Content: Research, such as the 2016 study titled "Influence of Television Advertising on Unhealthy Food Consumption in Adults and Children" published in the American Journal of the Academy of Nutrition and Dietetics, indicates that unhealthy food advertising escalates children's consumption of fast food and augments their appetite. A 2011 study in England found that children aged 6 to 13 exhibited more interest in consuming unhealthy fast food after exposure to corresponding advertisements.

Violence: A U.S. national survey reveals that

the average American child witnesses 12,000 instances of cruelty, murder, or violence on television annually. Moreover, research indicates that peak TV viewing times feature 3-5 violent scenes per hour, escalating to 20-25 during children's programming.

Conclusions: Television exerts a dual influence encompassing both positive and negative effects on individuals. Numerous studies have scrutinized the societal ramifications of television, particularly its impact on children and adolescents. While not all television content is detrimental, the research underscores the potential harm posed by content containing violence, inappropriate sexuality, or offensive language to the cognitive development of young minds. In 1996, the implementation of the Telecommunications Act in the United States prompted child welfare organizations and television content producers to adopt a rating system. This system facilitates channel-blocking through devices and applications. Televisions equipped with the V-chip technology have been available since 1998.

Notably, television content in North Korea adheres to time-based regulations. Programs labeled as +19 (intended for adults due to violent and obscene content) are prohibited between 07:00 and 09:00, 13:00 and 22:00, and throughout holidays from 07:00 to 22:00. A study encompassing 1,000 children in New Zealand unveiled a correlation between increased television consumption and heightened antisocial symptoms, loneliness, and susceptibility to depression and anxiety stemming from internalized issues. In Australia, advertisements for fast food are restricted if over 35 percent of the audience consists of children. However, Australian standards permit the promotion of foods and food products deemed healthy.

Keywords: Thinking, psychology, television content, direct and indirect effects

EFFECT OF MATERNAL OBESITY ON PREGNANCY OUTCOMES IN DELIVERING SINGLETON BABIES

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Introduction: During 2019, almost 3 in 10 (29.0%) women had obesity prior to becoming pregnant Increases occurred across all maternal ages, race and Hispanic-origin groups, and educational levels shown in the USA report. Women under age 20 and those with a bachelor's degree or higher were the least likely to have obesity; however, these groups had greater percentage increases in prepregnancy obesity from 2016 through 2019 than women aged 20 and over and women with less education. We conducted this study to analyze the effects of maternal obesity on maternal and perinatal outcomes.

Methods: Analytic study was performed on 1252 women who delivered singleton babies between 1st of January to 1st of April in the 2020. Data were obtained from Amgalan Maternity hospital and only women whose prepregnancy body mass index (BMI) was known were included. Women were categorized according to the World Health Organization (WHO) classification: normal weight (BMI 20 – 24.9 kg/m2), overweight (25 – 29.9 kg/m2) and obesity (BMI ≥ 30 kg/m2); blood pressure: normal (≤ 120/80 mm Hg) and high blood pressure (≥ 140/90 mm Hg). Obstetric, perinatal and neonatal outcomes were compared, and adjusted odds ratios (aORs) and 95% confidence intervals (95% CIs) were calculated using the normal-overweight-weight group as the reference.

Results: We compared with women of normal weight (n = 272) and obese and overweight women (n = 980). Obese and overweight pregnant women had a higher risk of high blood pressure that measured when last hospitalized (aOR=2.09, 95% CI:1.06-4.12) but preeclampsia was no statistical difference (aOR=0.960, 95% CI:0.27-3.4), and birth weight increased 248 gr. Women with higher degree who work (n = 512) were the least likely to have obesity than women with less education who work (n = 177) (aOR=1.35 95% CI=0.9-2.03).

Conclusion: Maternal obesity is associated with a higher risk of adverse pregnancy and perinatal outcomes such as a macrosomia. Pregnancy in this population of women should be considered and managed as high risk.

Keywords: birth weight, complication, maternal age, pregnancy obesity, vaginal birth

THE CARE-SEEKING PATHWAY STUDY ON MENTAL HEALTH

Uyangaa Myagmardorj, Bayarmaa Vanchindorj, Tuya Naidansuren, Khishigsuren Zuunnast

Aims & Objectives: Due to the cultural traits and misconceptions about the physical and mental disorders among the Mongolian population, people are likely to seek help first from shamans by becoming their disciples or by performing rituals and, it is considered a mental health issue since it creates health, emotional and financial damages as losing time and building diagnostic and treatment delays. Therefore, we aimed to conduct a study to track the care-seeking pathways of customers who approached mental health care for the first time to define their causes and some factors that affect their help-seeking behavior.

Method: This study was conducted based on the people who approached National Center for Mental Health for the first time and used a cross-sectional study method with purposive sampling.

Results: Total of 145 people, 76 (52.4%) males and 69 (47.6%) females, aged between 16 to 58 years with an average age of 33.7±0.9 years, participated in our study. As we demonstrated the initial care-seeking pathway of participants 40% sought help from religious services, 26.2% from psychiatrists, 17.2% from general practitioners, and 16.6% sought help from other professional doctors. According to their education level, primary or secondary educated people were likely to seek help from religious services ($p \leq 0.006$). As we demonstrated the causes for their nonprofessional initial help-seeking, misconception about mental illness was the main reason ($p \leq 0.001$).

Conclusion: Their education level and inadequate knowledge about the causes of mental illness were the main reason for choosing the religious service for their initial help-seeking.

ASSESSMENT OF LOCAL CITIZENS ANXIETY AND DEPRESSION

Zolzaya.D, Odonchimeg.Sh, Haliunaa.B, Adiya.G, Unenbayar.J, Oyunaa.D, Enkhjin.B, Mungunchimeg.D, Zolzaya.O, Gantsetseg.T

Background and aims: To assess anxiety, depression and quality of life among rural residents of Khentii province

Method: The study was conducted on the basis of the population living in Suma, which is far from the center of the Khentii province, and a total of 89 people participated. The survey was conducted using the questionnaire survey method over a period of 28 days from February 2023 to March 2023. Depression and anxiety were assessed by the Hospital Anxiety and Depression Scale (HADS), and quality of life was assessed by the WHOQoL-26 (WHOQOL) questionnaire. Statistical processing of the research was done using SPSS 24 software.

Results: A total of 89 people aged 21-58 participated in our study, and the average age was 32.5±7.8. Regarding gender, 42.7% (n=38) were women and 57.3% (n=51) were men. 65.2% (n=58) of the respondents were married, 34.8% (n=31) were single, 68.5% (n=61) were employed, and 31.5% (n=28) were unemployed. Anxiety and quality of life are weakly inversely related; if anxiety increases when the quality of life is poor in physiological (p=0.002, r= -.232**), social (p=0.022, r= -.313**), and environment (p=0.457, r= -.358**), then unmet psychological needs (p=0.006, r= -.288**) are inversely associated with the risk of depression is weakly correlated.

Conclusion: 14.6% of respondents have anxiety and 11.2% have depression. Poor quality of life was associated with poorer mental health.

TRAINING SATISFACTION SURVEYS

FOR PARTICIPANTS IN IBRO-APRC ULAANBAATAR ASSOCIATE SCHOOL ON BEHAVIORAL AND TRANSLATIONAL NEUROSCIENCE – THE 6TH ULAANBAATAR SCHOOL TRAININGS

Date: _____

Trainer: _____

	The training I have received so far:	Strongly Disagree	Disagree	Neither Agree	Agree	Strongly Agree
PART A: Overall Experience						
1	The objectives of the training were clearly defined.	❑	❑	❑	❑	❑
2	Participation and interaction were encouraged.	❑	❑	❑	❑	❑
3	The topics were relevant to me.	❑	❑	❑	❑	❑
4	The distributed materials were helpful.	❑	❑	❑	❑	❑
5	This training will be useful for my work.	❑	❑	❑	❑	❑
6	The trainer was well prepared.	❑	❑	❑	❑	❑
7	The trainer explained all aspects thoroughly	❑	❑	❑	❑	❑
8	The time allotted for the trainings was sufficient.	❑	❑	❑	❑	❑
9	The facilities were adequate and comfortable.	❑	❑	❑	❑	❑
PART B: Meeting Structure						
10	The venue (meeting rooms)	❑	❑	❑	❑	❑
11	Food/beverage	❑	❑	❑	❑	❑
12	Schedule (timing of sessions, etc.)	❑	❑	❑	❑	❑
13	Small group sessions/workshops	❑	❑	❑	❑	❑

Please share any additional comments about the training.

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Thank you for taking time to provide your feedback on the training