



**The 19 Congress of the Asian College of
Psychosomatic Medicine**

**PSYCHOSOMATIC MEDICINE
AND MULTIMORBIDITY IN A PANDEMIC**

CONGRESS PROCEEDINGS

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The collection contains abstracts of research papers carried out by scientists from universities from the Russian Federation, the People's Republic of China, Japan, Indonesia, France, India and Mongolia, presented at the 19th Congress of the Asian College of Psychosomatic Medicine

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В сборнике опубликованы тезисы научно-исследовательских работ, выполненных учеными вузов из Российской Федерации, Китайской Народной Республики, Японии, Индонезии, Франции, Индии и Монголии, представленных на 19 Конгрессе Азиатского Колледжа Психосоматической Медицины

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WELCOME NOTE



Dear Colleagues. It has been a long road to Irkutsk, but we are finally here. I can't compliment Prof. Sobennikov and the organizing committee enough on their patience and perseverance through the two years the congress had to be postponed because of the Covid crisis. I think you will all agree looking through the congress schedule that they have put together a wonderful program in a wide variety of areas, with broad representation from throughout Asia. It is especially gratifying to see the large number of representatives from the host country. This bodes well for the future of psychosomatic medicine in Asia. It is my hope that the presentations here will stimulate our researchers and help build networks that will benefit our members as we move forward together to build a better Asia.

Chiharu Kubo

Chiharu Kubo, President of ACPM



Dear colleagues, On behalf of the Baikal Psychosomatic Association, we are honored to invite you to join us at the 19th Congress of the Asian College of Psychosomatic Medicine in Irkutsk, Russia, August 23–24, 2022. Since the 1st Congress, held in Japan in 1984, Australia, China, India, Indonesia, Korea, Malaysia, Mongolia, Taiwan hosted the Congress. Now, in 2022, Russia has the honor to organize the 19th Congress. The 19th Congress of the ACPM 2022 will bring together representatives of various profiles and interests, professionals in both health and medical areas. The Congress will include discussion sessions with invited lecturers on the most topical issues during the three days. We hope the Congress will become a great platform for new meetings, building the connections between professionals, dissemination of new ideas and knowledge in the area of psychosomatic medicine to promote the development in psychological care and leadership in the healthcare system. By attending this Congress you will have a unique opportunity to meet the deepest lake in the world – Lake Baikal, and enjoy the scenery around it.

Vasili Sobennikov

Vasili Sobennikov, Congress President

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Sobennikov V. PSYCHOSOMATIC MEDICINE IN RUSSIA AND EASTERN SIBERIA

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The formation and development of scientific medicine in the 18th-19th centuries in Russia took place under the sign of the Hippocratic imperative - "to treat not the disease, but the patient."

The founders of the Russian therapeutic school considered as the most important aspects of clinical analysis - the study of a person's lifestyle, his emotional state and thinking. We can find in the notes of one of the famous Russian therapist - M.Y. Mudrov, such a conclusions "... some people get sick from bodily causes, others from mental disturbances ...", "and mental medicine heals the body". The principles of holistic approach to the patient was followed well-known Russian Psychiatrists and Neurologists - I.M. Balinsky, S.S. Korsakov, V.M. Bekhterev.

It is known that in the "West", psychosomatic medicine developed within the framework of psychological, psychoanalytic concepts (Freud S., 1985; Alexander F., 1953; Dunbar F., 1934). Psychosomatic medicine has been defined as "applied psychoanalysis in medicine". In the USSR, during the period of dominance of communist ideology, the study of the psychological aspects of diseases was not widespread, moreover, the theoretical provisions of the Western psychosomatic medicine were even recognized anti-scientific. The theoretical basis for the study of psychosomatic relationships in our country is the reflex theory. On the basis of formulated by I.M. Sechenov (1845), ideas about the reflex bases of mental activity, the study of reflex connections between cortical centers and centers of the visceral brain, with their subsequent influence on the somatic sphere, was developed. Representatives of this neurophysiological direction were Soviet scientists Pavlov I.P. (1954); Bykov K.M., and Kurtsin I.G. (1952); and Orbeli L.A. (1949).

According to I.P. Pavlov, the basis of somatic disorders is a "collision" of reflex processes that mimic a situation of uncertainty and contradiction. Susceptibility to psychosomatic disorders is associated with the type of nervous activity. The development of the Pavlovian conditioned reflex theory in the field of psychosomatic relations is the theory of cortico-visceral interactions developed by K.M. Bykov and I.T. Kurtsin. The development of psychosomatic disorders, in framework of this theory, is associated with factors of the external or internal environment, as well as a violation of external or internal reception, leading to a conflict situation between excitation and inhibition in the cortex and subcortex. This concept was supported by the political elite of the Soviet Union and claimed to be "universal" in Soviet medicine.

Moreover, the ideological opposition of the psychodynamic theory of Z. Freud, the neurodynamic theory of I.P. Pavlov, led to the replacement of psychological concepts with physiological ones. Psychology was replaced by the physiology of higher nervous activity. This

had negative consequences, slowing down the development of psychology in the USSR. From the standpoint of modernity, many of the contradictions discussed at that time were unfounded, and heated discussions were a "storm in a teacup."

Neuropsychology has become another area of theoretical development of the psychosomatic paradigm in the USSR (Russia). A.R. Luria owns of opinion, that psychological factors can be included in the etiology and pathogenesis of any disease, and author of the concept of "internal picture of the disease." He considers it in 2 aspects - 1) sensitive (a complex of sensations associated with the disease) and 2) intellectual (ideas about the disease, reflecting the reaction to the disease).

"Psychocentric" direction of conceptualization of psychosomatic pathology in the USSR headed Myasishchev V.N. (1893 – 1973). Theoretical and methodological positions allowed him to create his own version of domestic psychodynamic ideas in the study of neurosis and psychotherapy, based on biopsychosocial understanding. He was the first to use the biopsychosocial approach in the study of neurotic disorders. This led to the creation of the "pathogenetic concept of neuroses" and the "pathogenetic psychotherapy».

In recent time one of the most fruitful Russian scientists working in the field of psychosomatics, is A.B. Smulevich. For the development of the psychosomatic direction, with co-authors - offers a model of "oncoming movement" of psychiatrists and internists.

In Siberia, psychosomatics as a scientific direction was developed in the cities of Irkutsk and Tomsk. In Tomsk, the psychosomatic direction was headed by V. Y. Semke (1936—2013). Attaching great importance to personal maladjustment in the initiation of psychosomatic disorders, V.Ya. Semke singled out phenomena characteristic of psychosomatic diseases.

In the scientific works of the Department of Psychiatry of the Medical Faculty of the Irkutsk State University the psychosomatic direction is reflected since the day it was organized in 1927. The department was headed by a prominent Soviet physiologist and psychiatrist, a student of I.P. Pavlov, Professor V. S. Deryabin. In 1935 V.S. Deryabin and his student and follower in this position, I.S. Sumbaev published the scientific work "Delirium of possession and somatic sensations". In it, many years before the allocation of the heading of somatoform disorders in the ICD-10, the authors substantiate the intimate relationship of the traditionally understood sensory hysterical and ideational hypochondriacal mechanisms in the formation of a holistic clinical picture of somatoform disorders. In the genesis of a pathological condition, the personality of the patient comes to the fore in interaction with situational, social and cultural factors.

In modernity, Psychosomatics in Irkutsk are developing in 3 centers.

Department of Psychiatry and Medical Psychology (ISMU) - studies the somatoform disorders and clinical aspects problem of somatization; Scientific Centre for Family Health and Human

Reproduction Problems – psychosomatic disorders in childhood; Russian Medical Academy of Continuous Professional Education – studies problems of psychocardiology.

In 2017 The Baikal Psychosomatic Association (BPA) is founded and joined ACPM. Members of the BPA are inspired by participation in such a representative international organization as the ACPM and committed to further scientific and humanitarian cooperation for the development of the psychosomatic direction in order to improve care for patients.

Chiharu Kubo. THE STATE OF PSYCHOSOMATIC MEDICINE IN JAPAN

*President, Nakamura Gakuen University
Past-President, International College of Psychosomatic Medicine
President, Asian College of Psychosomatic Medicine
President, Japanese Society of Internal Psychosomatic Medicine*

The Japanese Society of Psychosomatic Medicine was founded in 1959, and its first congress was held in 1960, with fewer than 100 members. We now have 3,000 members, including internal medicine specialists, psychiatrists, psychologists, and co-medical staff members. We have four associated sub-associations consisting of pediatric psychosomatic medicine specialists, doctors specializing in medical problems specific to women, internal medicine, and dentistry. We now have seven regional psychosomatic medicine societies and are supported by Psychosomatic Medicine Departments in nine major universities.

Our initial focus was research on the mind/body relationship in typical psychosomatic diseases, such as IBS, bronchial asthma, hypertension, headache, and atopic dermatitis. With the introduction of new technologies, such as f-MRI and PET scanning, and new knowledge gained by our research, we have been able to shift our focus to the genetic basis of disease and the involvement of environmental factors. This has led to a change from simple mind/body relationships to a focus on psycho-neuro-immuno-endocrinology.

It is very encouraging that we have been able to integrate our efforts to promote psychosomatic medicine with other members of the world community. Our members have been active in their participation in the World Congress of Psychosomatic Medicine and the Asian College of Psychosomatic Medicine, which has grown tremendously in recent years. Our interactions with the world community serve to broaden our perspectives and to promote the perspectives of the Japanese Society, build strong bonds with individual researchers and clinicians, and help us provide the best possible care to our patients.

Educational Lecture

***Hiroshi Ishizu* HISTORY, PRESENT AND FUTURE OF THE ASIAN COLLEGE
OF PSYCHOSOMATIC MEDICINE (ACPM)**

Vice President of the Asian College of Psychosomatic Medicine

*President of the 11th Congress of the Asian College of Psychosomatic Medicine in Okinawa,
Japan, Professor emeritus, University of the Ryukyus, Okinawa, Japan (Mental Health,
Psychosomatic Medicine)*

The 19th Congress of the Asian College of Psychosomatic Medicine [ACPM] is held by Professor Sobennikov Vasilii, Irkutsk State Medical University, President of the Bikal Psychosomatic Association in Irkutsk, Russia, 23-24 August, 2022. His staffs make their best for the successes of the Congress which held at the first time in Russia. This Educational Lecture is to introduce the outline of ACPM for Russian Psychosomatists for the development more in the future.

The ACPM was started as the former name, the Asian Chapter of the International College of psychosomatic Medicine [ICPM-AC], established in Tokyo, 12, April, 1982, and the officers of the association were elected.

The preparation for the establishment was started at the 4th World Congress of the ICPM held in Kyoto, Japan, 5-9, September, 1977, five years before establishment.

And the first Congress of ICPM-AC was opened by President, Professor Yujiro IKEMI in Tokyo, 19-20 May, 1984. Chief members in the beginning stage were Yujiro IKEMI, Hitoshi ISHIKAWA, Sueharu TSUTSUI, Taisaku KATSURA, Tetsuya NAKAGAWA, Hiroyuki SUEMATSU, Jinichi SUZUKI, etc., the famous psychosomatist in Japan, and Hsien RIN [Taiwan], Seock Young KANG [Korea], Amarendra N. SINGH [India], M. MAHADEVAN [Malaysia], Burton BURTON-BRADLEY [Papua-New Guinea] etc., famous psychosomatists in Asian Countries. The annual congress of ICPM-AC have been opened approximately every two years.

Renewal name as the Asian College of psychosomatic Medicine [ACPM] from ICPM-AC; the 10th to the 18th have been held in Taiwan, Okinawa Japan, Australia, Korea, China, Mongolia and Indonesia. Present President of the Official Board of ACPM is Professor Chiharu KUBO, Former President of Kyushu University, former President of the Japanese Society of Psychosomatic Medicine.

During about 30 years after establishment, participating countries widely expanded Asian-Oceanic countries from Russia to Australia, and from Canada to Turkey.

Main theme of each congress is very attractive, and presentations also are various reports concerning not only clinical researches, basic experimental researches, but also social stress, disasters-related various stress from the viewpoint of bio-psychosocial-ecological relations.

On expectations of this ACPM, we should much more consider to attention an importance of

health promotion with mental health by psychosomatic correlative view-points under psycho-neuroendocrinoimmunomodulation. Prevention of psychosomatic disorders is also very important.

Pursuit of happiness with well-being subjectively, objectively and ecologically is the most important purpose of ACPM in the Future.

And we hope to join us doctors from Central Asian countries such as Kazakhstan, Kyrgyz, Uzbekistan etc. in the future.

***Masato Murakami.* PSYCHOSOCIAL FACTORS RELATED TO CHRONIC,
PROLONGED AND COMPLEX FIBROMYALGIA**

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Fibromyalgia (FM) is one of the common diseases among the chronic pain disorders characterized by the long lasting widespread muscular skeletal pain of the whole body and various unidentified complaints. Since the onset and clinical course of FM involve genetic background and personal constitution such as mental and physical disorders and psychosocial factors, it is very important to consider the psychosomatic aspect of the patient with FM. It is also important to consider which psychosocial factors may affect the long prognosis of fibromyalgia for diagnosis and treatment of FM.

Comorbidity with functional somatic syndrome, psychiatric disorders should be always in consideration for diagnosis and treatment. Personality trait such as perfectionism, compulsiveness, obsessiveness and related distorted lifestyle may involve in the formation of variable symptoms of FM. Long term psychoeducation and training for self-management of personality trait are essential for fundamental treatment.

***Shin Fukudo.* BRAIN-GUT INTERACTIONS AS PSYCHOSOMATIC REALITIES IN
IRRITABLE BOWEL SYNDROME**

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Irritable bowel syndrome (IBS) is a representative disorder of brain-gut interactions. The genetic predisposition and influence of environment especially psychosocial stress and/or gut microbiota may underlie in the pathophysiology of IBS. Earlier studies showed that psychosocial stress changes colonic motility and visceral perception in IBS patients. In this process, immune response in the gut mucosa, mucosal permeability, and composition of the gut microbiota are suggested to be aggravated. Growing evidence indicates that altered microbiota are present in

IBS patients. Gut microbiota and products of gut microbiota especially short chain fatty acid relate to quantified symptoms of healthy controls and IBS patients. Brain imaging using positron emission tomography (PET), functional magnetic resonance imaging (fMRI), and viscerosensory evoked potential (VEP) with electroencephalography (EEG) with or without combination of barostat stimulation or electrical stimulation of the colorectum enables us to depict the detailed information. In IBS patients, thalamus, insula, anterior cingulate cortex, amygdala, and brainstem are more activated in response to visceral stimulation than in controls. IBS patients also have more desynchronized patterns of EEG. Dysfunction of the prefrontal cortex is also present in IBS patients. It is now possible to predict system physiological mechanism of IBS via gut microbiota and brain function. The signal from the gut to the brain and from the brain to the gut is the reciprocal communication which plays a major role in IBS pathophysiology. Further investigation how psychosocial stress and gut microbiota influence on brain-gut interactions in IBS patients is warranted.

***Belialov Farid.* MAIN POINTS OF PSYCHOSOMATIC MEDICINE**

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The relation of mental health and somatic diseases for a long time remains the subject of numerous studies. At the same time there is a shortage of works, summarizing a vast array of scientific information. This paper attempts to summarize the results of scientific research and formulate the main points of psychosomatic medicine:

1. Comorbid somatic and mental diseases are often detected.
2. Bidirectional connections are manifested by an increased risk of somatic diseases in patients with mental disorders and on the contrary.
3. Mental disorders do not cause organic diseases, at the same time, the latter can be the cause of mental disorders.
4. Mental disorders and symptoms are common in patients with functional symptoms and diseases.
5. Mental disorders worsen the prognosis of comorbid somatic diseases, increase disability, reduce quality of life, often to a greater extent than somatic diseases.
6. Mental disorders are associated with increased overall and cardiovascular mortality.
7. Mental disorders can manifest symptoms similar to the symptoms of somatic diseases, and enhance the severity of somatic symptoms.
8. Patients with mental disorders reported more medical visits to GP, hospitalization with

- somatic diseases, and used more medical resources.
9. Mental disorders reduce patients' satisfaction with treatment and adherence to treatment.
 10. Treatment of depression can reduce the frequency of somatic events and hospitalizations.
 11. Psychotropic drugs can influence on severity of somatic diseases.
 12. Physical diseases can reduce the effect of mental diseases treatment, and treatment of somatic diseases can affect mental state and change psychotropic therapy outcomes.

***Evert L., Kostyuchenko Y., Tereshchenko S., Semenova N.* COMORBIDITY OF THE
PSYCHOPATHOLOGICAL PROFILE OF ADOLESCENTS IN KHAKASSIA WITH
MALADAPTIVE ONLINE BEHAVIOR**

Introduction. The actual problem at the present time is the presence of comorbid associations of maladaptive Internet use that violates the psychoemotional state of adolescents.

Objectives. To study comorbid associations of characteristics of a psychopathological profile with maladaptive online behavior in adolescents of Khakassia.

Methods. A group of Khakassia adolescents aged 12-18 (boys and girls) was surveyed using the Chen Internet Addiction Scale (CIAS) and the following types of online behavior were discovered: adaptive (API) and maladaptive (DPI), including the sum of NPI + PPI. The structure of the psychopathological profile was assessed using the corresponding scales of the Symptom Check List-90-R questionnaire. The indicators of 2 groups – with the API and the DPI – were compared. The program "Statistica12" was used, the percentages, confidence intervals, significance of differences (p) and values of Pearson's χ^2 criterion were indicated.

Results: Adolescents with DPI, in contrast to the group with API, are more often characterized by pronounced interpersonal sensitivity – 7.0%, CI 12.6-22.5 vs. 9.6%, 6.4-14.3 ($p = 0,0241$, $\chi^2 = 5.09$), hostility – 12.8%, 8.6-18.6 vs. 6.4%, 3.6-11.1 ($p = 0.0440$, $\chi^2 = 4.06$), moderately severe psychoticism – 17.9%, 12.9-24.3 vs. 8.1%, 4.9-13.1 ($p = 0.0066$, $\chi^2 = 7.38$), severe anxiety – 9.1%, 5.8-14.1 vs. 3.2%, 1.5-6.8 ($p = 0.0179$, $\chi^2 = 5.61$), severe depression – 8.6%, 5.5-13.4 vs. 2,0%, 0.8-5.1 ($p = 0.0036$, $\chi^2 = 8.50$), pronounced somatization – 17.2%, 12.7-22.9% vs. 10.5%, 7.1-15.4 ($p = 0.0476$, $\chi^2 = 3.92$), severe obsessive-compulsive disorders (OCD) – 12.3%, 8.6-17.2 vs. 3.5%, 1.8-6.8 ($p = 0.0005$, $\chi^2 = 12.06$). The incidence of moderate levels of anxiety, depression, somatization, and OCD was corresponding in the comparison groups.

Conclusions. Maladaptive online behavior in adolescents in Khakassia is characterized by the presence of significant comorbid associations with pronounced interpersonal sensitivity and hostility, moderate psychoticism, severe anxiety and depression, pronounced level of somatization and obsessive-compulsive disorders.

The results obtained indicate a greater risk of mental health disorders in adolescents with maladaptive Internet use.

Abdullah V¹, Andini F², Sucipto KW³. ASSOCIATION BETWEEN DEPRESSION, ANXIETY AND STRESS SYMPTOM AND GLYCEMIC CONTROL IN TYPE 2 DIABETES MELLITUS PATIENTS AT OUTPATIENT CLINIC ZAINOEL ABIDIN GENERAL HOSPITAL BANDA ACEH

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Background. Type 2 Diabetes Mellitus (T2DM) and psychological symptoms are health problems in the global community and the incidence will increase. T2DM has relationship with psychological symptoms such as depression, anxiety and stress, but somewhat underdiagnose, even though the evidence shows that psychological problems as comorbid in chronic illness.

Objective. To determine the relationship between symptoms of depression, anxiety, and stress with glycemic control of T2DM at Outpatient Clinic Zainoel Abidin General Hospital Banda Aceh.

Method. This is an analytical-cross sectional study design, that was held in October - December 2019 at Outpatient Clinic Zainoel Abidin General Hospital Banda Aceh. The collected data were about socio-demographic, lifestyle and clinical characteristics and DASS-21 questionnaire. Statistical analysis used Chi-square test and Fischer exact test.

Results. The 50 subjects were divided into 2 groups i.e. HbA1c values $< 8\%$ and $\geq 8\%$. The prevalence of psychological symptoms was more frequent found in HbA1c $\geq 8\%$ with independent risk factors such as education, type of treatment and family history, while the most significant psychological symptoms were depression and stress (p-value < 0.05).

Conclusion. There is a relationship between psychological symptoms and glycemic control in T2DM at Outpatient Clinic Zainoel Abidin General Hospital Banda Aceh.

Michiyo Nosaka. A SINGLE SESSION OF THE INTEGRATED YOGA PROGRAM AS A STRESS MANAGEMENT EDUCATION FOR NURSING STUDENTS USING AN ONLINE TOOL: EFFECTS OF SELF-PRACTICE ON THE DAILY VS NON-DAILY PRACTITIONERS

Hiroshima International University, Japan

Objective: The Ottawa charter for health promotion supports personal and social development through education for health. We developed a single session of a stress management education

program based on integrated yoga therapy. The effectiveness of the program was examined using a randomized controlled trial (Nosaka, Okamura et al., 2013). It is important to promote stress management to health professionals in high-stress situations such as covid-19. The purpose of this study was to conduct the single session program for nursing students using an online tool, and to evaluate the effectiveness of daily practitioners and non-daily practitioners in practicing on their own.

Materials and Methods: Subjects participated in a stress management education based on the integrated yoga program using an online tool. One month after the intervention, subjects were assigned to a daily practice group (n=6), a non-consecutive (less than 1 week) daily practice group (n=9) and no daily practice group (n=8). Assessments were conducted before the intervention, at the end of the program, and one month after the intervention using the Stress Response Scale (SRS-18).

Results and Discussions: Two-way analysis of variance and multiple comparison tests revealed that after the integrated yoga program, the total score on the SRS-18 decreased significantly in all groups ($p < 0.05$). In addition, pre-intervention depression & anxiety, displeasure & anger, inertia, and total scores significantly decreased at one-month follow-up in the daily practice group ($p < 0.01$). These results were similar to previous studies conducted face-to-face with school faculty members (Nosaka & Okamura, 2015).

Conclusions: One session of an integrative yoga program as stress management education was effective in reducing stress reactions even with online tools, suggesting that daily practice of integrative yoga for nursing students promotes mental health.

Keishin Kimura. WHAT IS YOGA THERAPY?

Japan Yoga Therapy Society

Background & Purpose. Traditional yoga has been practiced by yogis in the Himalayan mountains for thousands of years until today. There are several reasons why yoga has been practiced in these remote mountain areas, but we believe that yoga has given practitioners the ability to survive in the harsh natural environment. In yoga therapy, the essence of traditional yoga has been preserved and the practice of yoga has been modified to be simpler and more effective in order to bring out this ability to manage stress. Some of the effects of this practice have been confirmed in a research study to be presented at this symposium.

Traditional yoga has a structural and functional theory of the human body and mind. In modern medicine, diagnosis and treatment are performed based on the knowledge of anatomy and physiology, but in yoga therapy, the traditional theory and practice of manipulating the

correlation between the human mind and body can be prescribed to clients with various mental and physical problems because of the traditional human structure and human function theory of yoga. we would like to give an overview of these theories.

Conclusions. Further evidence for the effectiveness of yoga therapy practice needs to be accumulated by employing modern scientific methods.

Amarendra Singh. BASIC RESEARCH IN PSYCHOSOMATIC MEDICINE

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At present there is a lack of basic research activities in psychosomatic medicine; though there are many available areas open for basic researchers. The following are the guidelines for enhancing interest of basic science research for those who are interested in psychosomatic medicine: 1. Establishing the need for basic research activities in psychosomatic disorders to provide optimal evidence-based management to suffering patients 2. Type of research needed to improve the treatment regime of psychosomatic disorders [a) basic research in psychosomatic disorders to discover the etiological factors and b) basic research activities which can improve the management and treatment of psychosomatic patients] 3. Basic research areas available are a) biological b) psychological c) social d) ecological and e) combined areas of above reflecting the epigenetic factors in psychosomatic medicine. The criteria for basic research include evidence-based findings in basic research with a goal to enhance the management of psychosomatic disorders. Monitoring the cost-benefit evaluation should be an important part of basic research. Utilizing non-pharmacological therapy, culture, and country-based therapies are required to bring holistic success in human suffering. This paper will discuss the above factors to enhance interest in the many areas of basic research.

Yanuar Ardani^{1,2}, Rudi Putranto^{1,2}, Hamzah Shatri^{1,2}. EFFECT OF VIRTUAL MUSIC THERAPY ON BURNOUT SYNDROME AMONG HEALTHCARE WORKERS IN COVID-19 PANDEMIC ERA (EVIDENCE-BASED CASE REPORT)

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Background: Coronavirus Disease-19 (COVID-19) pandemic caused stress and pressure on healthcare workers, especially due to the increased workload and high risk of infection. The incidence of Burnout Syndrome was reported high on healthcare workers, and lead to psychological and physiological disorders. One strategy that can be used to prevent burnout syndrome was music therapy, which was often associated with stress reduction by decreasing physiological arousal and acted as a distraction from negative feelings.

Objective: This evidence-based case report is aimed to learn the effect of virtual music therapy on burnout syndrome among healthcare workers in COVID-19 Pandemic Era

Materials and Methods: The search was conducted on Pubmed, Cochrane Library, and EBSCO according to clinical question. The studies were selected based on inclusion and exclusion criteria. The selected study was critically appraised.

Results and Discussions: One study were found and showed that there was significant positive effects after using virtual music therapy on burnout syndrome and stress level on healthcare workers compared to before using virtual music therapy. This results are in accordance with studies by I. Kacem et al and Martina de Wittle et al. Both studies showed positive effect of music intervention to occupational stress and showed positive changes in both physiological and psychological. However there were two studies, by Deshmukh et al and Silverman et al, that showed no significant reduction in depression score of music therapy in reducing depression score. Although the results did not meet statistical significance for symptom improvement, both authors explicitly pointed out that positive changes in the severity of depression became obvious for the respective experimental groups.

Conclusions: The use of music therapy as an alternative treatment for Burnout Syndrome is quite effective, and there was a significant reduction in stress levels after using music therapy compared to before. However, further research is needed to provide more evidences to prove the effectiveness of music therapy on Burnout Syndrome and the best music characteristic that can be used, based on the genre, tempo, instrument, individual or group therapy, and how the music get chosen

Yonggui Yuan^{1,2,3}. A BRIEF INTRODUCTION TO CHINESE CLASSIFICATION OF PSYCHOSOMATIC MEDICINE (CCPM)

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Before 1958, there was no such classification of "psychosomatic disorders" in China. Chinese Classification of Mental Disorders (CCMD), published in 1982, included "psychosomatic disorders" as the last category of mental disorders for the first time. In 1989, CCMD-2 category 6 "psychophysiological disorders, neuroses and psychogenic mental disorders" and category 1 "mental disorders associated with visceral diseases" were defined as psychosomatic related disorders. In 2001, CCMD-3 category 6 "physiological disorders related to psychological factors" and category 1 "organic mental disorders" were also defined as psychosomatic related disorders.

In 2017, the Chinese Society of Psychosomatic Medicine proposed the first edition of Chinese Classification of Psychosomatic Medicine (CCPM-1), organizing the psychosomatic disorders into five categories, including psychosomatic reactions, psychosomatic symptoms, physiological disorders related to psychological factors, psychosomatic diseases, and psychosomatic symptoms associated with physical diseases. In 2019, the second edition of Chinese Classification of Psychosomatic Medicine (CCPM-2) was completed based on CCPM-1. CCPM-2 was split further into 9 categories, including psychosomatic reaction disorder, psychosomatic symptom disorder, psychosomatic disease, psychological factor related physiological disorder, stress-related psychosomatic disorder, somatic symptom and related disorder, mental disorder closely related to psychosomatic medicine, mental disorder caused by somatic disease, and psychosomatic syndrome. In 2021, Health anxiety disorder (HAD) and Test anxiety disorder (TAD) were added to anxiety disorders, forming the second revised edition of Chinese Classification of Psychosomatic Medicine (CCPM-2-R) .

Bing Liu, Weiyu Zhu, Yongliang Pan, Li Gao, Hang Feng. ADVANCES IN THE STUDY OF COMPULSIVE SEXUAL BEHAVIOUR DISORDER

For centuries, sex addiction was thought of as a mental illness or abnormal behavior. Since the advent of sex addiction, various terms have been used to name the disorder, such as: nymphomania, satyriasis, Don Juanism, sexual compulsivity, sexual impulsivity, uncontrolled sexual behaviour, sexual addiction and hypersexual behavior and compulsive sexual behaviour disorder, which were coined to express frequent uncontrollable sexual behaviour. Previously

there was a lack of specific diagnosis for this disorder. Recently, the World Health Organization has included Compulsive Sexual Behaviour Disorder (CSBD) as an impulse control disorder in the International Classification of Diseases 11th Revision (ICD-11).

And the research community has a different view. According to Meek and Hollander, sexual addiction can be conceptualized as an impulsive-compulsive disorder, where impulsivity and compulsiveness are coexisting. It has also been suggested that the neural mechanisms of addiction are similar to those of CSBD, while 70% of patients with CSBD experience withdrawal symptoms. CSBD is similar to altered brain regions in drug addicts. However, a review of the diagnoses of CSBD pairs in ICD-11 suggests that the disorder may be more similar to obsessive-compulsive disorder or impulse control disorder. Also traumatic brain injury can have an impact on sex-related behavior, with neuropathology such as amygdala injury, epilepsy, head trauma and Parkinson's disease being associated with hypersexual. More research is therefore needed to explore the causes of CSBD. As more research is conducted on CSBD, it may be possible to reclassify it in the future (e.g. ICD-11 reclassification of pathological gambling: from impulse control disorder to addiction disorder).

There is no uniform diagnosis or effective treatment for CSBD, which requires further research and exploration by our researchers to come up with treatment plan. There are many misconceptions about the disease, and the suffering faced by people with CSBD can lead to depression, anxiety, substance abuse and suicide, so the disease needs more attention. In addition, patients with CSBD may have multiple sexual partners or casual sexual behavior, which increases the probability of contracting STDs Thus making timely diagnosis and treatment essential for this population.

*Kaina Cao, Yidan Zhang, Sisi YU, Baorong Fan, Tiantian Zhou,
Fang Liu, Wei Zhu, Haiping Zhang.* **EXPLORING RISK FACTORS ASSOCIATED
WITH SUBACUTE HERPETIC NEURALGIA IN BEIJING**

Xuanwu Hospital, Capital Medical University, Beijing, China

Objective: To analyze the high-risk factors for the development of post-acute neuralgia in patients with herpes zoster.

Materials and Methods: This multicenter, prospective cohort study consecutively enrolled outpatients with herpes zoster who visited department of dermatology from several general hospitals in Beijing from November 2020 to December 2021, and patients followed up 1 month after the onset of the rash and assessed for pain level (visual analogue scale, VAS), anxiety and depression status within 2 weeks (Patient Health Questionnaire-2, PHQ-2, generalized anxiety disorder 2, GAD-2) and sleep status.

Results and Discussions: Univariate analysis and logistic regression analysis were performed on 646 patients enrolled, including 281 males and 365 females, incidence age is 53.36±16.48 years old, pain was present in 32.3% of patients 1 month after rash. Independent variables results showed that age ≥50 years (P=0.000, OR=3.925, 95% CI 2.242-6.870), VAS score at rash onset (P=0.000, OR=1.413, 95% CI 1.246-1.602), GAD-2 score 1 month after rash onset (P=0.000, OR=2.427, 95% CI 1.778-3.314), long sleep latency (P=0.013, OR=2.226, 95% CI 1.184-4.186), and poor sleep duration 1 month after rash onset (P=0.003, OR= 6.705, 95% CI 1.952-23.029) related to the development of subacute herpetic neuralgia.

The pathogenesis of postherpetic neuralgia is generally believed to be the result of the combined effect of peripheral nerve sensitization and central nerve sensitization. The pathogenesis of herpes-related pain in different stages is diverse, and the clinical treatment strategies should also be different. Therefore, timely identification of relevant high-risk factors and treatment of patients before peripheral and central sensitization has become an important task to prevent the occurrence of postherpetic neuralgia.

We again verified that age and initial pain level were associated with herpes zoster-associated pain, while including mood and sleep status in the study, and found that anxiety status and some specific sleep disturbances were associated with subacute herpetic neuralgia. This study will continue to look at the effects of mood and sleep on postherpetic neuralgia.

Conclusions: Clinicians should raise the concern of the mood and sleep status of patients with herpes zoster in the acute phase to reduce the incidence of subacute herpetic neuralgia.

Dika Iyona Sinulingga¹, Rudi Putranto², Hamzah Shatri^{2,3}. THE ROLE OF PSYCHOTHERAPY IN MANAGEMENT OF POST COVID-19 SYNDROME: AN EVIDENCE BASED CLINICAL REVIEW

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Background: Coronavirus disease 2019 (COVID-19) results in debilitating long-term symptoms, often referred to as Post Covid-19 Syndrome or Long-Covid. It has a significant prevalence, ranging from 10-35 percent in healthy people to 85 percent in hospitalized patients. Some evidence has shown that post covid-19 syndrome is closely related to psychosomatic disorders. The intensity of SARS CoV-2 infection does not explain fatigue in two-thirds of patients. Anxiety, depression, and Post Traumatic Stress Disorder (PTSD) are very common

complaints among sufferers. This study aims to identify psychotherapy as a psychological health intervention in the management of post covid-19 syndrome.

Methods: evidence-based clinical studies related to psychotherapy as a psychological health intervention for post covid-19 syndrome reported in the literature. This study was conducted following an evidence-based clinical review protocol by searching digital literature using data sources from Pubmed, Cochrane, Proquest and Google Scholar.

Results: two systematic searches, two clinical trials, and one cohort study were included in this systematic review. These five studies used psychotherapy as part of multidisciplinary approach in the management of post covid-19 syndrome, with promising effects for fatigue, anxiety, depression, and overall quality of life.

Conclusion: Post covid-19 syndrome is a condition that often develops after an acute SARS CoV-2 infection and causes long-term symptoms that impair quality of life. Psychotherapy is one of the multidisciplinary approaches that is useful in the management of post covid-19 syndrome. Further research is needed on the optimal duration and session of psychotherapy.

***Edward Faisal*¹, *Rudi Putranto*,² *Hamzah Shatrm*^{2,3}. EFFECTIVENESS ZINC PREPARATION FOR ANXIETY AND DEPRESSION: AN EVIDENCE-BASED CLINICAL REPORT (EBCR)**

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Objective: Depression and anxiety can occur because of insufficient a micronutrient, that is zinc, one of the trace elements that have a role in the emergence and development of various life stages that affect mood disorders. Several studies have shown that the enhancement of zinc in major depression and anxiety can effective in reducing the symptoms. We want to know if zinc preparation is effective to reduce anxiety and depression symptoms.

Materials and Methods: A comprehensive literature search was conducted on April 22, 2022, to answer the question mentioned by exploring several online databases such as Pubmed, Cochrane Library, EBSCO, and Google Scholar. The keywords “zinc”, “anxiety”, and “depression” combined with the Boolean operator “AND” and “OR” were used in the searching. Articles obtained werescreened according to pre-determined selection criteria. The study was limited to five years. The articles were selected according to inclusion and exclusion criteria. Inclusion criteria included: (1) research articles including meta-analyses, systematic reviews, randomized controlled trials studies examining zinc preparation; (2) adult

populations with anxiety and/or depression; (3) determining the effectiveness of zinc preparation; (4) all outcomes. Case series, case reports, review articles, and other studies were reported in languages other than English and not relevant to PICO were also excluded. After meeting the inclusion and exclusion criteria, every article will be assessed for its validity, importance, and applicability by using the critical appraisal worksheet available from the Centre of Evidence-Based Medicine (CEEBM) at the University of Oxford in accordance with the type of article obtained. The level of evidence of each article would be classified according to the Oxford Central for Evidence-Based Medicine Classification.

There were 26.259 articles obtained after searching through online databases. The search queries were described in table 1.

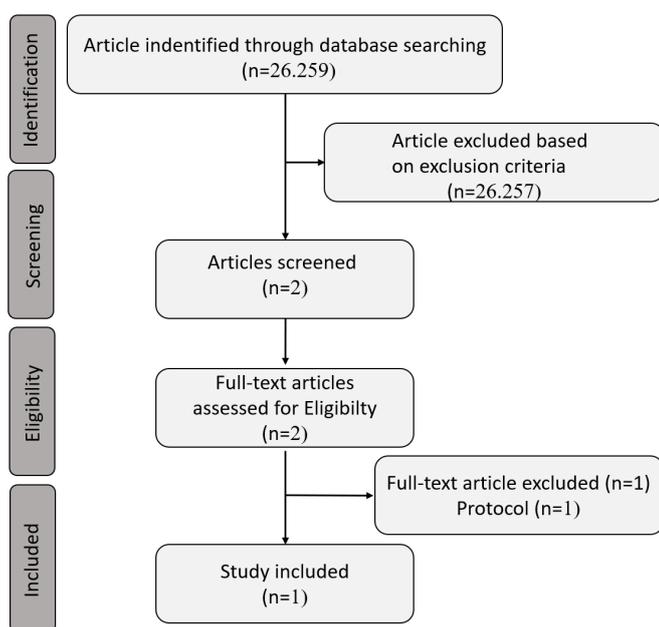


Figure 1. Flow diagram of literature searching.

Results and Discussions: The study that is included to be appraised is the qualitative study by Da Silva, et al¹². The critical appraisal of the study is presented in table 2.

Table 2. Critical appraisal of meta-analysis or systematic review based on criteria by Center of Evidence-Based Medicine, University of Oxford.

Da Silva, et al¹² (2020)

1. <i>Did the study address a clearly focused question?</i>	Yes
2. <i>Was a comprehensive literature search conducted using relevant research databases.</i>	Yes
3. <i>Is the search systematic and reproducible?</i>	Yes
4. <i>Has publication bias been prevented as far as possible?</i>	Yes

5. <i>Are the inclusion and exclusion criteria clearly defined</i>	Yes
6. <i>Was the methodological quality of each study assessed using predetermined quality criteria?</i>	Yes
7. <i>Are the key features (population, sample size, study design, outcome measures, effect sizes, limitations) of the included studies described?</i>	Yes
8. <i>Has the meta-analysis been conducted correctly?</i>	Yes
9. <i>Were the results similar from study to study?</i>	Yes
10. <i>Is the effect size practical relevant?</i>	Yes
11. <i>How precise is the estimate of the effect? Were confidence intervals given?</i>	Yes
12. <i>Can the results be applied to your organization?</i>	Yes

Many studies have investigated psychopharmacology as a treatment for anxiety and depression, but studies on other trace elements needed by the body are still under research.

This EBCR encompasses one meta-analysis investigating the effectiveness micronutrient zinc as supplement for reducing anxiety and depression.

This study strengths are that the search strategy was carried out in 5 major scientific literature databases, the risk of bias in the selected publications was assessed, there were no restrictions on search date or publication language, and was conducted by at least 2 independent researchers. The studies analyzed were heterogeneously distributed, so it can be concluded that this research can be applied in real life.

Overall, this study only analyzed the role of zinc supplementation in depression, not anxiety. Zinc is one of the essential elements required for the proper functioning of the brain. Brain function requires one of the important signals from zinc. The concentration are high in the hippocampus and amygdala.¹² Zincergic system disorders can cause neuropsychological disorders, i.e. depression.¹³ Diets with insufficient zinc can reduce synaptic concentrations and increase glutamatergic neurotransmission.¹² Zinc modulates excitatory glutamatergic and inhibit GABAergic neurotransmission.¹²

Zinc deficiency can increase levels of pro-inflammatory cytokines, which can damage brain and serotonin function. Vice versa, depression can contribute to zinc deficiency.¹²

This study of dietary zinc intake is in accordance with the study of Li, et al¹⁴ showing that it is significantly associated with a reduced risk of depression. Zinc supplementation may reduce depressive symptoms in individuals treated with antidepressant drugs for clinical depression. Other study that support the role of zinc is study Sumekar, et al¹⁵ from Indonesia in 2022 shows

that there were a significant positive correlation between zinc intake and serum serotonin level ($p=.038$) but not with serum cortisol level ($p=.0845$).

Almost all of the studies analyzed by Da Silva et al¹² used a zinc preparation of 25 mg daily for about 2-3 months for the intervention and only one used a zinc preparation of 7 mg daily for 2 weeks. This study in line with study Afzali, et al¹⁶ shows positive result from intervention zinc 30 mg daily for 70 days significantly decrease in mean scores anxiety and depression. But study Anbari-Nogyni, et al² show that in elderly there were no significant relationship between anxiety-depression and dietary zinc intake. The study informed that no significant correlation between dietary and serum zinc ($r=.08$, $p=.15$).²

Conclusions: One of trace element that useful to treating anxiety and depression is zinc. It is easily obtaining from the food but the consumption still low, therefor supplementation is needed. The supplementation of zinc on psychopharmacology contributed to a significant reduction in anxiety and depressive symptoms. Research indicating a relationship between effectiveness supplementation zinc and anxiety-depression is still scarce.

Studies of zinc preparations need to be carried out in certain doses and durations in order to find a definite time for the administration of adjunctive therapy for anxiety-depression patients

Akhutina T.V., Korneev A.A., Priboichenko A.S. HIGHER MENTAL FUNCTIONS IN CHILDREN WITH CONGENITAL HEART DISEASE

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Chronic somatic diseases can affect the development of mental functions. Neuropsychological assessment of children with congenital heart disease (CHD) allows us to identify the specific contribution of this disease to cognition.

Our study involved children aged 6-11 years with a diagnosis of CHD who were treated at the A.N. Bakulev Cardiovascular Surgery Center. The children were divided into four age groups. They performed computerized neuropsychological tests aimed to assess executive functions; processing of visual-spatial and auditory-speech information; and functions of activation.

We hypothesized that children with CHD would demonstrate a relative weakness of functions of activation due to hypooxygenation and metabolic disorders in embryogenesis. The same reasons, combined with the conditions of the social environment (frequent hospitalizations, school absenteeism, and parental overprotection) can cause weakness of executive functions.

Results obtained with T-test and Mann-Whitney test supported our hypothesis. Increased fatigue and problems initiating a task were found (i.e., weakness of functions of activation), impulsivity in a "Dots" task, difficulties in constructing a story program based on a series of pictures (i.e., relative weakness of executive functions), difficulties in processing auditory verbal information.

The search and identification of factors affecting cognitive decline in CHD requires extensive neuropsychological and psychosomatic analysis.

***Yoshikazu Fukui¹ Shin-ichi Oura² Yuki Tsubota³ Ichiro Nakagawa⁴*. EFFECT OF AN ONLINE TAPPING TOUCH SELF-CARE PROGRAM ON FEAR OF COVID-19 PART 2: EXAMINATION OF THE EFFECT OF THE PROGRAM INCLUDING FOLLOW-UP**

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Objective: The effects of an online Tapping Touch self-care program conducted on three non-consecutive days with an interval of one week between days partly faded in the follow-up (FU) survey conducted a month after the program (Tsubota et al. 2021). Oura et al. (2022) confirmed the effect of the program on relieving the fear of COVID-19 and the replicability of a previous study (Nakagawa et al., 2021). Therefore, this study examined the program's long-term effects through a FU survey.

Materials and Methods: The data of 11 adults who participated until the FU survey were analyzed. The indices measuring psychological, physical, and interpersonal effects of Tapping Touch were assessed at three time-points in the first, third session, and FU. The data partly overlapped with Oura et al. (2022).

Results and Discussions: An analysis of variance was conducted with measurement time (the first, third session, and FU) as an independent variable and scale scores measuring the psychological, physical, and interpersonal effects of Tapping Touch as dependent variables. The results indicated that the main effects of measurement time on insomnia and stress responses were significant, whereas it was neither significant on the fear of COVID-19 nor cognitive empathy.

Conclusions: Unlike Tsubota et al. (2021), the present study suggests that the psychological and physical effects of the online Tapping Touch self-care program are longlasting. In contrast, the interpersonal effects and the effect on the fear of COVID-19 are limited.

Ibrahim Achmad¹, Yanuar Ardani¹, Edward Faisal², Rudi Putranto², Hamzah Shatri^{2,3}. THE EFFECT OF MUSIC THERAPY FOR IMPROVING QUALITY OF LIFE IN PATIENTS WITH CANCER PAIN: AN EVIDENCE BASED CASE REPORT

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Background: Music therapy is a frequently used complementary and creative arts treatment in psychosocial cancer care. Particularly in advanced cancer populations and palliative care, music therapy has recently received high attention in both research and clinical care. This evidence-based case report is aimed to assess the effect of music therapy for improving quality of life in patients with cancer pain.

Methods: the search was conducted on Pubmed, Cochrane Library, and EMBASE according to clinical question. The studies were selected based on inclusion and exclusion criteria. The selected study was critically appraised.

Results: All selected studies significantly showed effectiveness of music therapy towards quality of life in cancer patient.

Conclusion: Music therapy might be beneficial adjuvant for cancer patients.

Liming Su¹, Yibing Shuai², Shaoqi Mou³, Yue Shen², Xinhua Shen², Zhongxia Shen². DEVELOPMENT AND VALIDATION A NOMOGRAM WITH LYMPHOCYTE SUBSETS FOR DIFFERENTIATING BETWEEN BIPOLAR DEPRESSION AND MAJOR DEPRESSIVE DISORDER: A RETROSPECTIVE STUDY

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Objective: Bipolar Depression (BD) and Major Depressive Disorder (MDD) are common severe affective diseases, and had similarities in clinical characteristics and pathogenesis with high comorbidities. It is critical to differentiate between BD and MDD to avoid misdiagnosis and mistreatment inducing potential grave implication such as suicide, turn mania and disability, etc. The purpose of this study was to develop and validate a nomogram model that incorporates both the demographic features, disease conditions and characteristics of lymphocyte subsets available to differentiate between and BD and MDD.

Methods: We conducted a retrospective study used the electronic medical records on hospitalized patients, age 18-65 years diagnosed with BD or MDD between June 2018 to January

2022. The Least Absolute Shrinkage and Selection Operator (LASSO) regression model and Multivariable Logistic Regression analysis (LR) with forward selection were used for select indicators with significant value and for developing a differential diagnosis nomogram model between BD and MDD, respectively. Performance of the nomogram model was assessed using Receiver Operating Characteristics (ROC) analysis, Harrell's Concordance index (C-index) and the calibration curve. Clinical utility of the nomogram was assessed performing Decision Curve Analysis (DCA). Internal validation was estimated using the bootstrap algorithm with 1,000 repetitions to obtain a relatively robust C-index.

Results: A total of 166 inpatients with BD (83 cases) and MDD (83 cases) were analyzed. On the basis of the final regression analysis, the age, duration of illness, baseline Hamilton Rating Scale for Depression (HAMD) scores, the percentages of CD3-CD16/56+ NK cells and the lymphocyte count were identified and were incorporated into the nomogram model. The nomogram model had a good discriminating capability with a high C-index of 0.918 (95% CI, 0.876-0.960) and was confirmed as 0.902 (95% CI, 0.823-0.848) following internal validation. The calibration plot for distinguishing BD from MDD showed optimal consistency between the nomogram model and actual observation. The decision curves indicated significant clinical net benefits.

Conclusions: A differential diagnosis nomogram model were established and validated based on lymphocyte subsets which leads to a better understanding of characteristics with BD and MDD patients, and will be of certain value in precise diagnosis of BD from MDD.

Lin Xu¹ Zhu Ai¹ Xuan Liu² Rong Xue¹. TO STUDY THE MECHANISM OF NEUROPSYCHOLOGICAL AND COGNITIVE CHANGES IN TYPE 1 NARCOLEPSY WITH RESTING-STATE FMRI

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The study used the resting blood oxygen level dependent (BOLD) fMRI to discover the neural mechanism of neuropsychological and cognitive changes in patients with type 1 narcolepsy. A total of 34 diagnosed narcolepsy type 1 patients and 34 age-matched and gender-matched healthy volunteers were recruited as the control group. All subjects were assessed with the following scales, Severity of Sleepiness: Hamilton Anxiety Scale (HAMA) and Hamilton Depression Scale

(HAMD-17), Trail- Making Tests A and B assessed attention-executive function and the Digital Span Test (DST) assessed attention. All subjects scanned BOLD sequences. Regional homogeneity (ReHo) was assessed to compare the differences of resting state brain function in two groups. Independent component analysis (ICA) was performed to obtain the spatial distribution map of functional network, and the changes of inner-connections of brain networks were compared. Partial correlation analysis was further performed between ReHo values of the brain areas with statistical significance and scores of these scales. We found that there were abnormalities in frontoparietal cortex and bilateral cerebellum posterior lobe that are helpful to understand the pathogenesis and the biological basis of the associated cognitive and emotional disorders of type 1 narcolepsy

Enkhnarar Tumorbaatar^{1,2}, Gantsetseg Tumor-Ochir^{1,3}, Battuvshin Lkhagvasuren^{1,4}. A COMPARATIVE STUDY ON HEART RATE VARIABILITY BETWEEN URBAN AND RURAL POPULATIONS

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Background: Heart rate varies constantly as a consequence of activity in the sympathetic and parasympathetic autonomic nervous systems (SNS and PNS). In short-term recordings, heart rate variability (HRV) is mostly related to the inhibitory activity of the vagal nerves, which are part of the PNS. HRV is a noninvasive and sensitive technique to evaluate individuals' health, lower when under stress as well as in several illnesses and psychiatric conditions. Autonomic imbalance, measured as HRV, is suggested as a mediator between psychosocial distress and cardiovascular disease. The urban environment is associated with increased opportunities for mechanized or sedentary employment, consumption of processed foods, and other lifestyle characteristics associated with the development of several illnesses and psychiatric conditions. A study also reported that rural to urban migration augments sedentary lifestyle and undesirable eating habits among both men and women and thus accelerates the development of risk obesity, hypertension, and stress-related disorders has increased significantly in urban and slowly in rural areas.

Methods: This population-based, cross-sectional study among the general population of Mongolia (n=286, mean age = 42.9±12.5 years), was carried out between July and November 2020, in 64 sampling centers. We evaluated the risk factors for mental distress using HRV, between urban and rural Mongolian populations ranging in age from 19 to 72 years.

Demographic, vital sign examination, anthropometric measures, psychological, and HRV data were assessed. The psychological data included anxiety, depression Hospital Anxiety and Depression Scale (HADS).

Results: The urban population had a lower square root of the mean of the sum of the squares of differences between adjacent normal R-R intervals (RMSSD) compared with controls. Findings of the analysis of HRV frequency domains have shown that low frequency (LF) that reflects cardiac sympathetic activity (61.9 ± 16.4 versus 55.6 ± 18.4) were significantly higher in the urban population than that of their rural counterparts. Further, age and body mass index were significantly correlated with indices of HRV. Alongside, depression score was negatively correlated with LF.

Conclusions: The study concludes that the rural Mongolian population has lower stress levels when compared to the urban population.

Batkhuuyag Enkzaya¹, Endonjamts Munkhzul², Tumurbaatar Enkhnarant³, Tumur-Ochir Gantsetseg^{3,4}, Xihua Zeng¹. STUDENTS' MENTAL HEALTH ISSUES

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Background: The long-lasting deadly disease Covid-19 has a significant impact on people's mental health and well-being. Several studies in China have shown that it has a strong impact on mental health such as stress-related symptoms, depression, and anxiety among health care workers and the general public. 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 Mongolian students' mental health issues.

Purpose: The study is proposed to conduct comparative study of the mental health of Chinese and Mongolian medical students.

Material and Method: The study was designed as a cross-sectional study with a self-report questionnaire and conducted between December 5th and February 5th of 2022. The mental health was assessed using Generalized Anxiety Disorder (GAD-7) scale and Patient Health Questionnaire (PHQ-9) among students from both countries. Statistical analysis was performed using SPSS version 24. The present study was undertaken following ethical approval from the MNUMS scientific research ethics committee (approval number: 2021/3-06).

Results: A total of 3137 university students (2440 Chinese and 697 Mongolian) participated in current study. Of these 65.7% (n = 2062) were female students including 1558 Chinese and 504

Mongolian female students. This shows that the majority of medical students in both countries are women. 35.4% (n = 1112) of the total students were not depressed, 41.2% (n = 1293) were mild, 16.0% (n = 502) were moderate, 1.8% (n = 56) were moderately severe, and 10.8% (n = 339) were severely depressed. However, 53.5% (n = 1679) had no anxiety, 31.1% (n = 975) had mild anxiety, 11.7% (n = 367) had moderate anxiety, and 3.7% (n = 116) had severe level anxiety. This shows that anxiety is more common among students than depression. The mean score of the depression questionnaire was 5.86 ± 4.28 for Chinese students and 9.81 ± 5.27 for Mongolian students, and statistically significant ($p < 0.001$) difference was found between Mongolian and Chinese students. Moreover, the mean score for the anxiety questionnaire was 4.00 ± 3.84 among Chinese students and 8.53 ± 4.86 among Mongolian students. The difference between students of both countries' anxiety scores was statistically significant ($p < 0.001$).

Conclusion: Anxiety is more common among students than depression. However, Mongolian students have relatively high mean scores on both depression and anxiety assessments compared to Chinese students.

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*L.Nasantsengel*². **ASSESSING MENTAL HEALTH STATUS OF ADULTS IN
MONGOLIA BY SRQ - 20 QUESTIONNAIRE**

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Introduction: Covid pandemic has direct and indirect impacts on social and economic situation of people's life. Researchers are focusing on the impact on mental health. For instance, in a result of meta-analysis study published in 2021, it was defined that during the COVID pandemic: the prevalence of depression was-28.0%, anxiety disorder was 26.9%, distress was- 50.0%, and sleep problem was - 27.6%, respectively. It can be concluded that the Covid pandemic has a negative impact on mental health and it increases the prevalence of anxiety, depression, unexplained physical pain, insomnia, and alcohol use. Therefore we aimed to conduct this study.

Purpose: To assess the mental health issue among the adults in Mongolia during the Covid Pandemic.

Methods: Based on the total population of Mongolia aged 18 and over, this survey was conducted from November 15 to December 21, 2021 using a cross sectional study design with questionnaire method and data collection was collected using limesurvey software. A total of 9,873 people from 330 soums in 21 aimags of Mongolia and 163 khoroos in 9 districts of Ulaanbaatar were randomly selected from the total population aged 18 and over. Mental health was assessed using the internationally widely used questionnaires, Self-reporting questionnaire

(SRQ 20) and the Patient Health Questionnaire (PHQ-9). Statistical processing was done by SPSS 24 software. As a result of the survey, a total of 7919 people were statistically processed. Ethical consent of the study was obtained at the meeting of the Ethical Review Committee of the Ministry of Health on November 9, 202 (No. 7267).

Results: A total of 7919 people, 3118 (39.4%) males and 4801 (60.6%) females, aged 18-70 years with an average age of 37.61 ± 12.2 were involved in the survey. 1602 people were doctors and medical staff. In our study, 66.3% (n = 5250) were from rural areas and 33.7% were from Ulaanbaatar. 62.2% of the respondents had chronic fatigue, 55.0% has anxiety, 48.5% had somatization, and 39.6% had depression. 60.5% (n = 3174) of the respondents from rural areas had chronic fatigue, 53.3 % (n = 2800) had anxiety, 46.8% (n = 2458) had somatization, and 37.3% (n = 1957) had depression whereas, 65.6 % (n = 1750) of the respondents from Ulaanbaatar city had chronic fatigue , 58.2 % (n = 1554) had anxiety, and 51.9 % (n = 1386) had somatization and 44.1 % (n = 1,178) had depression. This suggests that chronic fatigue (p <0.001), anxiety (p <0.001), somatization (p <0.001) and depression (p <0.001) are higher in Ulaanbaatar respondents than rural respondents.

Conclusion: High prevalence of chronic fatigue, anxiety, somatization and depression were defined among Mongolian adults by SRQ - 20 during the Covid-19 pandemic. questionnaires, anxiety, physical disorders, Statistically, the prevalence of these disorders were higher in Ulaanbaatar than in rural areas.

Enkhjin Bat-Erdene¹, Enkhnarantumurbaatar^{1,2}, Gantsetseg Tumur-Ochir^{1,3}, Tsolmon Jadamba¹, Takakazu Oka⁴, Battuvshin Lkhagvasuren^{1,4}. URBAN POPULATION HAS DECREASED QUALITY OF LIFE: A CROSS-SECTIONAL STUDY IN MONGOLIA

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Quality of life of the general population differs in lifestyle and residency locations. The aim of this study was to determine the difference of quality of life in the urban and rural populations in Mongolia. This population-based cross-sectional study was conducted in 48 sampling centers across the country in 2020. The World Health Organization Quality of Life–Brief Version (WHOQOL-BREF) and the Hospital Anxiety and Depression Scale (HADS), vital indices, and lifestyle determinants were measured. A total of 714 participants (261 males and 453 females) with a mean age of 40.7 years were recruited. The mean scores of WHOQOL-BREF subscales were 61.5 for physical health, 73.4 psychological health, 70.1 for social relationship, and 67.2

environmental health domains. The prevalence of poor quality of life was 13-19% among the participants. Participants living in an apartment in urban areas with the high HADS scores had low quality of life. All domains of WHOQOL-BREF were inversely correlated with anxiety score ($r=-0.175-0.363$, $p<0.001$) and depression scores ($r=-0.121-0.349$, $p<0.001$). Physical health was low compared to international data. Poor quality of life was found among those living in the urban areas and having mental health issues.

Enkhsaikhan Tumurbaatar¹, Enkhzaya Batkhuyag², Enkh-Uchral Perenleisambuu¹, Munkh-Erdene Byambachuluun¹, Enkhnarantumurbaatar³, Dolgorsuren Dorj⁴, Dolgorsuren Sukhbaatar⁵, Xihua Zeng^{1*}, Gantsetseg Tumur-Ochir^{3,5}. STUDY ENGAGEMENT AND ANXIETY AMONG UNIVERSITY STUDENTS

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Background: The Covid-19 pandemic lead us to be exposed to uncertainties. Numerous studies have reported that the intolerance of uncertainty can cause anxiety, depression, улигт албадмал байдал, айдас. In 2019, a meta-analysis found that the prevalence of anxiety among medical students worldwide was 33.8%, much higher than the general population, and highlighted the need for further study to identify the risk factors for anxiety among medical students in their social and cultural contexts.

Purpose: The current study aimed to explore the relationship between study engagement and anxiety.

Materials and Method: The study was designed as a cross-sectional study with a self-report questionnaire and conducted for 3 months from January to April of 2022. The Utrecht Work Engagement Scale (UWES-17) is used for measuring study engagement (SE), and the Generalized Anxiety Disorder (GAD-7) is for assessing anxiety levels among students. Statistical analysis was performed using SPSS version 24. The present study was undertaken following ethical approval from the MNUMS scientific research ethics committee (approval number: 2021/3-06).

Results: A total of 697 students aged between 17-29 years old (mean 21.03 ± 1.85) participated. The majority of the students had an average to low level of vigor (average 47.1%, low 34.3%) for their study, the ability to dedicate themselves the learning (average 62.7%, weak 26.3%), and the ability of absorption (average 58.5%, weak 23.8%) was in an average to a low level.

The mean score of the General-anxiety-disorder-7 questionnaire among participated students was 8.53 ± 4.86 . Of these 22.5% (n = 157) had no anxiety, 39.3% (n = 274) had mild anxiety, 26.7% (n = 186) had moderate anxiety, and 11.5% (n = 80) had severe anxiety. This suggests that moderate (26.7%, n = 186) to severe (11.5%, n = 80) level anxiety predominate among students. A statistically significant difference ($p < 0.001$) was found between higher and lower study engaged students. Of the lower engaged students, 36.8% (n = 25) had moderate anxiety and 26.5% (n = 18) had severe anxiety, whereas, of highly engaged students 42.0% (n=21) had no anxiety, and 34.0% (n=17) had mild anxiety. We examined the relationship between study engagement and anxiety using linear regression, revealing that the mean score of the anxiety was decreased by 1.4 (-1.436 ± 0.203) while the mean of the UWES-17 questionnaire increased by one.

Conclusion: The students exhibit better mental health while they are highly engaged in their studies. Conversely, students who are less engaged in their studies are more likely to suffer from anxiety.

Shin Murakami. A STUDY ON THE EFFECTIVENESS OF YOGA THERAPY ON EMPLOYEES' STRESS MANAGEMENT

Beingmode Inc., Tokyo, Japan

Background & Purpose. The percentage of employees who are stressed about work has remained high in the workplace; in response to this, we have observed an increase in yoga therapy initiatives. This study examines the effects of a comprehensive and pragmatic yoga therapy intervention - not only physical exercise, also breathing and meditation, without change clothes, easy, short time and once - on employees' stress management.

Methods. Research subjects included 305 individuals (160 men and 145 women; hereinafter, "intervention group") who participated in yoga therapy training that was held at six companies located in Tokyo, and 48 non-participating employees (22 men and 26 women; hereinafter, "control group"). A 10-minute explanation of the effectiveness of yoga therapy and a 30-minute practical training session comprising physical exercises, breathing, and meditation methods was implemented for the intervention group. In addition, questionnaire surveys including the Brief Job Stress Questionnaire (BJSQ) were conducted prior to the intervention and one month after completion of the program. The differences between the values for these two time points that were established according to the survey's rating scale were examined in non-parametric fashion.

Results. Improvements in stress response, decreasing of irritation, anxiety, and physical complaints were recorded for the intervention group. No significant change was observed for the control group.

Discussion. It was suggested that participants in the intervention group gained the prospect of controlling their stress through simple yoga therapy, which improved their stress response.

Conclusion. The results suggest a comprehensive and pragmatic yoga therapy intervention is effective for employees' stress management.

***Mu Xiali.* ASSOCIATION BETWEEN INTRAVENOUS TISSUE PLASMINOGEN ACTIVATOR (RT-PA) AND POST STROKE DEPRESSION IN YOUNG ADULTS**

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Objective Post-stroke depression (PSD) is associated with multiple negative psychological, physical, and social consequences, particularly in young adults with acute ischemic stroke. The benefit of intravenous thrombolysis in young PSD patients remains uncertain. We aimed to explore whether intravenous rt-PA for acute ischemic stroke is associated with a lower incidence of depression in young patients.

Methods We conducted a retrospective study of young acute ischemic stroke patients that enrolled from 2017 to 2020 in the Department of Neurology, Fuyang people's hospital, and collected demographics data and clinical features. Groups of 110 thrombolysed and 100 non-thrombolysed patients matched for age and gender were examined at 2-week and 3-month. We compared the frequency of depressive symptoms in stroke survivors treated, and non-treated with intravenous thrombolysis. PSD was assessed using Hamilton Depression Scale.

Results At 2 weeks, PSD was presented in 19.1% of the thrombolysed and 31.0% in the non-thrombolysed groups ($p=0.046$). At 3 months, the frequencies were 20.9% and 28.0% ($p=0.231$). Logistic regression of the combined group of thrombolysed and non-thrombolysed patients indicated that at 2 weeks, the adjusted predictors of PSD was disability, and protective factor of PSD was thrombolytic treatment. At 3 months, the predictors were disability and lacking of social support.

Conclusions Thrombolytic therapy had protective effect on PSD in young adults on the acute phase. All stroke patients, irrespective of the method of treatment, should be monitored for the presence of depression.

Na Du^{a*}, Yingjie Ouyang^a, Yunge Li^a, Ting Geng^a, Chunya Li^a, Yu Xiao^a, Chan Yu^b, Yalan Hu^a, Fengyu Liu^a, Li Zhang^a, Min Zhu^a, Lishi Luo^a, Juan Huang^a. THE LONGITUDINAL STUDY ON THE CHANGE OF MENTAL HEALTH STATUS OF GENERAL PUBLIC LIVING IN HUBEI PROVINCE AND THEIR LONG-TERM INFLUENCING FACTORS

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Abstract: The COVID-19 pandemic is ongoing, and the world continues to work to defeat it. We aimed to understand the longitudinal change in the mental health of the general public from the most severely impacted area in China, and to explore their long-term influencing factors. The Perceived Stress Scale (PSS), Generalized Anxiety Scale (GAD-7), and Patient Health Questionnaire-9 (PHQ-9) were administered to the same sample three times: during the initial outbreak (T1), one month later (T2), and 1.5 years later (T3). A total of 411 participants completed all the follow-ups. The mean PSS score of the subjects dropped between T2 and T1 and rebounded at T3, while the mean GAD-7 and PHQ-9 scores did not change significantly from T2 to T1. At T3, the mean GAD-7 score decreased significantly, but the mean PHQ-9 score did not. The influencing factors of stress included age, employment status, history of psychosis at T1, self-perceived health conditions, infection of family members by COVID-19 at T1 and T3, and quarantine status at T1, T2 and T3. The influencing factors of anxiety included gender, self-perceived health conditions, infection of family members by COVID-19 at T1, and quarantine status at T1. The influencing factors of depression were age, self-perceived health conditions, infection of family members by COVID-19 at T1 and T3, and quarantine status at T1 and T3. The stress of the general public dropped in the short term, while anxiety and depression did not. In the long term, stress increased again, while anxiety decreased, but depression showed no change.

Tomomi Nakatani¹ Yoshikazu Fukui² Shin-ichi Oura³ Takahiro Imaida⁴. CHANGES IN EXPECTANCIES FOR THE HYPNOTIC STATE DIRECTLY ASSOCIATED WITH IMPROVEMENTS IN CONSCIOUS/NONCONSCIOUS ATTITUDES TOWARDS HYPNOSIS: AN INTERVENTION STUDY WITH JAPANESE UNIVERSITY STUDENTS

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Objective: Evidence shows that hypnosis is effective for psychosomatic disorders such as irritable bowel syndrome. However, hypnosis is rarely used in Japan, probably because of its negative image. Nakatani et al. (2021) demonstrated that the psycho-education to correct expectancies for the hypnotic state (EHS) improved attitudes towards hypnosis (AH). However, this study did not identify the changes in EHS sub-scales that were directly associated with the changes in conscious/nonconscious AH. The current study examined the relationship between the degree of changes in four sub-scale scores of EHS and conscious/nonconscious AH scores using the data of Nakatani et al. (2021).

Materials and Methods: University students (N = 54) were assigned into three conditions of psycho-education (correcting expectancies for loss of control (ELC), correcting expectancies for released potentiality (ERP), and the control), and changes in EHS and conscious/nonconscious AH through psycho-education were assessed. Partial correlation analyses were performed among changes in each scale under each condition of psycho-education using EHS sub-scale scores and conscious/nonconscious AH scores before psycho-education as control variables.

Results and Discussions: Results indicated that the degree of change in conscious AH had a significant positive correlation with the degree of change in expectancy for the ability to improve in the control condition ($r = .60$). In contrast, the degree of change in nonconscious AH showed a significant negative correlation with the degree of change in ELC in the correcting ERP condition ($r = -.59$).

Conclusions: These results indicate that the changes in different aspects of EHS contribute to changes in conscious/nonconscious aspects of AH.

Ruiting Wang, Xian Wang, Lijing Zhang, He Liu, Ruoyi Liu, Li Xu, Yue Wang, Peng Zhao.
PATTERN AND MANAGEMENT STRATEGY OF PSYCHO-CARDIOLOGY IN THE
CARDIOVASCULAR DEPARTMENT OF TRADITIONAL CHINESE MEDICINE

Dongzhimen Hospital, Beijing University of Chinese Medicine

Psycho-cardiology is a subject that focuses on the study and treatment of psychological health, social environment and behavioral problems associated with heart disease. Meanwhile, its importance has become increasingly recognized in clinical practice. However, the operational standards and management procedures for psycho-cardiology have not been established. Under the guidance of Professor Hu Dayi and Professor Wang Xian, the cardiovascular department of Dongzhimen Hospital explored and constructed the pattern and management strategy of Psycho-cardiology in the cardiovascular department of Traditional Chinese Medicine in the diagnosis and treatment of cardiovascular diseases. It may be summarized in five diagnostic and treatment modules, including psychological screening, treatment, nursing, efficacy assessment and return visit. We suggest that the cardiovascular department of traditional Chinese medicine hospitals can refer to these five diagnosis and treatment modules to carry out the psycho-cardiology medicine, to improve the clinical efficacy further.

Poponina T.M.¹, Gunderina K.I.², Poponina Yu.S.^{1,3}. POSSIBILITIES FOR REDUCING
CARDIOVASCULAR RISK IN A COMORBID PATIENT WITH ACUTE CORONARY
SYNDROME ASSOCIATED WITH ANXIETY AND DEPRESSIVE DISORDERS.
PSYCHOLOGICAL INTERVENTION IN COVID-19 PATIENTS

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Introduction: it is recommended to screen for anxiety and depression and to prescribe differential psychopharmacotherapy, since under insufficiently controlled risk factors in patients with acute coronary syndrome (ACS), the risk of cardiovascular complications remains high.

Aim of the study: to study the possibility of reducing cardiovascular risk when prescribing a drug based on technologically processed antibodies to the brain-specific S-100 protein in high dilution (Tenoten) in patients with ACS associated with anxiety-depressive disorders.

Materials and Methods: The Hospital Anxiety and Depression Scale was used to identify the presence of symptoms of anxiety and depression. In the 1st group, against the background of ACS therapy, Tenoten 6 tablets/day was additionally prescribed, in the 2nd group - a placebo. During hospitalization and after 6 months of observation, the dynamics of clinical and mental status was monitored.

Results. Patients of both groups showed clinically expressed anxiety and subclinically expressed depression, insomnia of varying severity. A significant improvement in the quality of sleep and life of patients after 6 months was only in the 1st group. Evaluation of structural and functional parameters of the myocardium has established a positive trend in the form of improvement in myocardial contractility, a decrease in LV volume parameters only in the 1st group.

Conclusion. Patients who have undergone ACS remain at a high risk of developing cardiovascular complications. Appointment of the anti-anxiety drug Tenoten for 6 months leads to an improvement in the mental status, quality of life and sleep of patients, slowing down the processes of left ventricular remodeling, thereby improving the prognosis of patients.

***Belialov Farid.* OPTIMIZATION OF PSYCHOLOGICAL DISTRESS TREATMENT USING THE FORCOM CLASSIFICATION**

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Drug selection in the presence of multimorbidity is a difficult task for physicians. The long lists of contraindications, warnings, and precautions in drug instructions, short sections in guidelines are inconvenient for practice when physicians must quick select optimal drugs for patients with comorbidities. The FORCOM (Fit FOR COMorbidity) classification is a universal drug classification system based on the effects of different drugs on comorbidities. The FORCOM classification unites the other more narrow systems (FORTA, FDA, AzCERT QT drug list) and divides drugs into five classes based on their influence on comorbidities. Class A includes drugs that have pronounced positive effect on comorbid disease, class B includes drugs that may have a mild positive effects, class C includes drugs without any significant effect or contradictory effects, class D consists of drugs with rare non-severe adverse effects, and class X includes drugs with severe, life-threatening adverse effects. So the FORCOM classification unifies existent narrow classifications, simplifies information from guidelines, and helps to select optimal drugs for patients with comorbidities.

Grasella Angelika Putri¹, Rudi Putranto², Hamzah Shatri^{2,3}, Edward Faisal², Irman Firmansyah², Dika Sinulingga², Yanuar Ardani², Vinandia Irvianita². CORTISOL LEVEL IN PATIENTS WITH DEPRESSION POST-MYOCARDIAL INFARCTION

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Patients with myocardial infarction (MI) can develop major depression during hospitalization or after discharge with prevalence vary from 7.2% to 47%. The pathogenesis of depression and anxiety after myocardial infarction is very complex. It could be an acute response triggered by MI. Some factors such as immune, endocrine, autonomous, nutritional, psychological and psychosocial factors are mentioned to play a significant role. HPA axis dysfunction and inflammatory process has been reviewed the most linked to depression. On the other hand, cortisol has been observed plays an important role in patients with depression as well as in coronary heart disease. Many studies observed that increased cortisol level in patients with depression compared to non-depressed patients and it is also associated with coronary heart disease by some linked such as hyperlipidemia, insulin resistance, impaired endothelial dysfunction, changes in hemostatic factors, and pro inflammatory cytokines. Until now, the study about cortisol role in patients with depression after MI is very few, so further study can be conducted in order to know the effectivity of cortisol as a marker in depressed patients, especially in post MI.

Introduction Acute myocardial infarction is an event that can be stressful for some patient. They could not functioning in their daily lives and develop some symptoms of depression and anxiety. About 1 in 5 patients with myocardial infarction (MI) develop major depression during hospitalization.^{1,2} The prevalence of post-MI depression varies from 7.2% to 47%.² Anxiety is also very common in patients with MI, ranging from 30-40% patients during hospitalization. Depression and anxiety become concern because of the less optimal outcomes as compared in patients without depression or anxiety. There are increased risk of subsequent event and premature death in patients with depression or anxiety. For depression, a 22% increased risk of all-cause death in patients after MI, while for anxiety, less data are available.¹ Murphy et al. 2013 conducted 12-year follow up study of 170 female of acute myocardial infarction and CABG. They found that the mortality rate was highest in those whose depression symptoms worsened in the 2 months after hospital discharge, and lowest in those whose in-hospital symptoms remitted by 2 months. Study from Strik et al. 2003, Fraseure observed that anxiety at

one to 2 months post-event has been found to increased risk of 2.3 to 2.8-fold of adverse cardiac events.³

The pathogenesis of depression and anxiety after myocardial infarction is very complex. They could be an acute response triggered by MI. Some factors such as immune, endocrine, autonomous, nutritional, psychological and psychosocial factors are mentioned to play a significant role. Those factors could trigger the activation of proinflammatory cytokines, the autonomous nervous system and hypothalamic pituitary-adrenal (HPA) axis.² Some studies observed that there may be dysregulation in these system. The effect of dysregulation can precipitate depressive symptoms and also be implicated in the pathogenesis of coronary artery disease (CAD). HPA dysregulation also believed to stimulate the release of stress hormones such as cortisol. Unfortunately there remain very few studies in this area.⁴

Study conducted by Weber et al observed that CAD patients who scored high for depression showed dynamic daily cortisol patterns, while patients with anxiety exhibited steeper cortisol increases after awakening.⁴

Anxiety and depression after myocardial infarction Anxiety and depression are both common after cardiac event, such as myocardial infarction or coronary artery bypass graft surgery (CABG). Anxiety and depression are also seen after other traumatic events such as stroke and cancer diagnosis. They became significant because studies predicts worse outcomes in patients with anxiety and depression. Depressive symptoms after MI also associated with increased mortality, revascularization, and impaired quality of life independently of clinical risk factor.⁵ However, symptoms resolved for many patients in early convalescence (from hospital discharge) to the 2 to 4-month. Santos Joao in his short editorial mentioned that most patients have depression or anxiety over a period of up to 31 days after an acute MI, with women had a higher prevalence compared to men. Women also tended to have more severe presentations of both depression and anxiety disorders, regardless the age.⁶

The mechanism of anxiety and depression following acute MI is limited and very complex. It is believed that the mechanism is like a post-traumatic stress, in which patients think about how their life will be going after cardiac event, such as changes in habits, limitation of daily living and the sequelae. This experience could be trigger some stressful feelings and reaction, which become a picture of depression and anxiety disorder.⁶ Some literature also explained some mechanism such as dysfunction of 5-HT, gut microbiota imbalance, hypothalamic pituitary adrenal axis dysregulation, and inflammation.⁷ The mechanisms of anxiety might influence MI are poorly understood. A dysregulation of the HPA axis is one potential pathway linking psychosocial factors and coronary artery disease.⁸

5-HT dysfunction The first mechanism is dysfunction of 5-HT (5- Hydroxytryptamine). 5-HT is a neurotransmitter, found in the central and peripheral nervous systems. Most of 5-HT is produced in the intestinal tract, 90% is distributed to intestinal chromaffin cells, and the remaining 5% is detected in the enteric nervous system. 5-HT plays an important role in depression. 5-HT works by binding to its receptors, which is a key regulator to control emotion in the hippocampal region and the dentate gyrus. Dysfunction of 5-HT (decrease 5-HT in hippocampus and increase 5-HT in gut or peripheral) can causes abnormalities in brain related to mood, memory, dan learning. Some studies observed that 5-HT increase in intestinal tract and peripheral blood after MI. There are some 5-HT receptor found in the heart, locating in cardiomyocytes, vagus nerves, and sympathetic nerves. Increased 5-HT in peripheral can induces platelet aggregation and vasoconstriction, leading to thrombosis. During MI, the synthesis of 5-HT in the intestine and metabolism in the brain are disordered, leading to a low level of 5-HT in the hippocampus and causing depression, which may be related to the regulation of the gut–brain and brain–gut axes.⁷

Gut microbiota imbalance Recently, there is increasing evidence indicates that gut microbiota is associated with nervous systems. The change of the microbiota composition can increase the permeability of the intestinal barrier, activate the inflammatory response, regulate the release of monoamine neurotransmitters, change the function of HPA, and modify neurotrophic factors, which might lead to depression. Study from Wu et al. 2017, showed that damage of gut microbiota in rats after MI. The link between gut microbiota, the heart, and the brain can alter HAP axis function and lead to depression.⁷

The hypothalamus–pituitary–adrenal (HPA) axis and sympathetic system in depression HPA axis is an important part of the neuroendocrine system and regulates various activities of the body. During stress such as after MI, hypothalamic neurons can secrete corticotropin releasing hormone (CRH), which promotes the release of adrenocortical hormones (ACTH) in the anterior pituitary, thereby promoting the synthesis of glucocorticoids by the adrenal cortex. Some studies have shown that patients with cardiovascular disease and depression have hyperfunction of HPA.⁷ HPA axis dysregulation can increase cortisol levels and make normal homeostatic negative feedback mechanisms loss. The dysregulation has been associated with hypertension, changes in body composition, hyperlipidemia, insulin resistance, impaired endothelial dysfunction, changes in hemostatic factors, and, if sustained over a long period, increase in the activity of proinflammatory cytokines.⁵

Inflammation Inflammation is thought to be one of the major pathogenic factors for depression after MI. MI will promote some pro inflammatory marker and reaction such as TNF- α , IL-17a, IL-6, and C-reactive protein. This condition lasts at least several hours to weeks. Systemic

inflammation that occur in MI has been suggested to be one that can alter blood brain barrier. MI-induced peripheral cytokine release may cause cerebral endothelial leakage. The affected BBB induces a neuroinflammatory reaction which is believed leading to depression. Moreover, it is reported that TNF- α has contributed to the pathogenesis of depression by activating the HPA axis and neuronal serotonin transporters and depletion of tryptophan (the precursor of 5-HT).⁷

Risk factors affecting anxiety and depression after MI Studies have been successfully found some risk factors affecting anxiety and depression post-MI. Those risk factors include feeling depressed prior the cardiac event, young population, low financial status, low socioeconomic, smoking, poorer health status. Georgiades et al. in 2009 mentioned that financial strain was identified as a predictor of recurrent cardiac event in patients with coronary artery disease. Other risk factor has been observed by Cheok et al in 2003, Iliffe et al. in 2007, and Manemann et al. 2018. They identified patients that living alone and have no partner in life are more possible to have depression and suicide at late convalescence. Similar findings also observed in study by Compare et al. 2013. Murphy et al. 2008 showed social isolation has been important factor to hospital readmission in patient with heart disease. Moreover, social isolation can be associated with smoking affecting general health. The more risk factors that patients have, risk for having anxiety and depression is elevated. Comorbidities such as diabetes and obesity were also identified as risk factors but less significant. Some studies already found that both those factors as risk factors. For people having diabetes, cardiac event can make patients vulnerable to mental health problems. For obesity, the study from meta analysis have confirmed the relationship between obesity and depression. Obesity increases the risk of depression and depression can be a predictor of developing obesity.³

Cortisol test in patients with depression and anxiety after MI Cortisol (17-hydroxyl-11-dehydrocorticosterone) is one of hypothalamus pituitary adrenal (HPA) axis hormone secreted from adrenal gland in response to stress. The association between stress and depression is already explored. Up to 80% of people who have depression experienced a major stressful event that precede the onset of depressive episode.⁹ As mentioned before in mechanism of depression, there is a role of HPA axis and association with serum cortisol level in people who has depressive episode. Some studies observed that there is significant increase of cortisol compared to healthy individual, whereas the treatment of depression reduced salivary cortisol within three weeks. However the longitudinal study conducted among depressive patients showed no difference in serum oxytocin and cortisol concentration before and after 12 weeks of SSRIs (serotonin selective reuptake inhibitor) treatment. Hence, the diagnosis of major depressive disorder always assess clinically, because the accuracy of estimating diagnosis and treatment

outcome is limited, which might be due to contradictory report of studies in diagnostic serum markers such as cortisol.⁹

As in post-MI, some studies observed that immediate increase in cortisol after MI and the concentration of cortisol will be normalised during the first 72 hour after MI. One study from Wilkowska Alina et al. 2019 showed that there was no significant difference between depressed and non depressed group in either morning or afternoon cortisol concentration on the fifth day of MI. However, there was a significant difference in the diurnal profile of the cortisol between them. The non-depressed group showed a normal cortisol secretion rhythm, but the depressed group showed flattened daily rhythm of cortisol as we see in patients with a longer duration of depression (≥ 3 months). The flattened rhythm of cortisol is also observed in young patients with major depressive disorder¹⁰ and in adolescence patients after major depression.^{2,11} Higher morning cortisol and higher evening cortisol also found by Vreeberg et al in 2009 in depressed patients when compared to non-depressed patients.¹² A flattened diurnal cortisol is related to poorer prognosis in patients after CABG¹³ and could be associated with the progression of atherosclerosis in patients with depression and cardiac disease.² Under normal circumstances, cortisol increase until the peak at 20-45 minutes after waking and then steadily decreases through the day, with the lowest levels during in the early morning and the night. The increase cortisol after waking is called as cortisol awakening response (CAR). Elevated morning cortisol is a risk factor for clinical depression and larger CAR is associated with depressive symptoms, low positive affect, chronic job stress, and high levels of perceived stress.⁵

Conclusion Cortisol profile diurnal in patients with depression after MI is higher compared to non-depressed group. Cortisol is associated with HPA axis dysfunction that elevated from a stressful event such as myocardial infarction. Until now, the study about cortisol role in patients with depression after MI is scarce, but some studies have been observed about the role of cortisol in depressed patient as well as in coronary heart disease. Further study can be conducted in order to know the effectivity of cortisol as a marker in depressed patients, especially in post MI.

***Rezky Ananda Rianto¹, Edward Faisal¹, Rudi Putranto¹, Hamzah Shatri¹. PLATELET
SEROTONIN AS A MECHANISM THAT LINK DEPRESSION AND
CARDIOVASCULAR DISEASE***

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Medicine Universitas Indonesia, CiptoMangunkusumo Hospital*

Background: it has been observed that depression has a close relation with cardiovascular disease. both condition affect the prognosis and severity of each other. Platelet activation and

Serotonin has important role in this cases. This evidence-based case report tried to evaluate the whether serotonin signaling and platelet has a role in pathophysiology

Methods: search was conducted on Pubmed, Cochrane Library, and EMBASE.. The studies were selected based on inclusion and exclusion criteria. The selected study was critically appraised. **Results:** Data from this study showed a glimpse of the role of serotonin and platelet but number of research in this topic is still not massive.

Conclusion: further research is needed to explore the pathophysiology process.

***Sayaka Higuchi*¹, *Yukiko Kezuka*², *Shohei Mitani*¹. THE INVESTIGATION OF CHANGING EFFECTS OF YOGA THERAPY ON PSYCHOLOGICAL AND GENE EXPRESSION STATES OF HEALTHY SUBJECTS**

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Recently, yoga has been becoming the one of the most popular activities to improve the health. However, the investigation of scientific evidences, especially the mechanism, has just begun. In this study, we focused on the effects the psychological change and gene expression on healthy subjects before and after yoga therapy program intervention.

Objective: To investigate the effect of yoga therapy on psychological and gene expression, and to provide the evidence of the yoga therapy effects on mind-body relationships.

Research design and Methods: The seven volunteers of healthy subjects were enrolled in the yoga therapy program, which was an isometric breathing exercise for less than one hour, for three months once a week. The two psychological tests, STAI and POMS, were checked, and saliva were harvested for gene expression analysis before and after intervention. The expression levels of inflammatory system related genes, anti-inflammatory related genes and superoxide dismutase genes were analyzed by quantitative real time PCR analysis. The effects of yoga were evaluated for each of the seven volunteers.

Results and Discussions: The results of two volunteers indicated that yoga therapy was effective to improve the health both of mind and body. They reduced state-anxiety level and disappeared their not serious but unpleasant symptoms, unexpected back pain, premenstrual syndrome and disturbance of sleep induction. The one reduced the expression level of the NFkB1, an inflammatory system related gene, and the other up-regulated SOD1, superoxide dismutase 1, and IL10, an anti-inflammatory related gene. In this study, there were no adverse event in all of the volunteers.

Conclusions: The yoga therapy can be safely used to improve the health of mind and body. The effect maybe to adjust to each body suitable for each person, through the stability of the mind.

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***Hamzah Shatri^{1,2}, Putra Nur Hidayat³, Edward Faisal¹, Rudi Putranto¹. PAIN
PALLIATION BY CELIAC PLEXUS NEUROLYSIS IN HEPATOCELLULAR
CARCINOMA-RELATED ABDOMINAL PAIN***

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² *Clinical Epidemiology in Department of Internal Medicine, Faculty of Medicine Universitas Indonesia- Cipto Mangunkusumo Hospital, Jakarta, Indonesia.*

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Background: Abdominal pain is one of the most commonly reported symptoms is hepatocellular carcinoma (HCC). It has negative impact on patient's quality of life. Pain management is crucial in advance HCC which is not eligible for further therapeutic option. Unfortunately, analgesic use in patients with liver disease faces many obstacles as liver has important role in opioid metabolism and NSAIDs themselves are contraindicated in cirrhotic liver.

Methods: Literature searching was performed using online database such as EBSCO, ProQuest, PubMed, Cochrane, ScienceDirect according to clinical question. The studies were selected based on the suitability of the inclusion and exclusion criteria followed by critical appraisal.

Results: EUS-CPN successfully reduced the pain score in postendoscopy period. Percutaneous CPN also showed marked decreases in pain severity over the course of 3 months of followup. The addition of dexmetomidine in EUS-CPN could prolong pain relief period. No major complications were reported in all of the CPN procedures.

Conclusion: Percutaneous CPN or EUS-CPN shown as an effective and safe way in palliative pain management of patients with HCC.

Wanmin Huang¹, Guang Shi², Yanying Feng³. STRESS, RESILIENCE, EMERGENCY COMPETENCIES, AND RESPONSE TO PUBLIC EMERGENCY AMONG NURSES IN SOUTH CHINA

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Objective: To explore the perceived stress, resilience, emergency competencies, and response to public emergency among nurses. Based on the theoretical model of stress-coping theory formulated by Lazarus and Folkman.

Materials and Methods: A total of 646 nurses from a tertiary hospital in Guangdong Province were eligible for this investigation. They were responded to self-reported questionnaires through a web survey. Stress, resilience, emergency competencies, and Response to public emergency were determined by Perceived Stress Scale, 10-item Conn or-Davidson Resilience Scale, core competence of nurses in public emergencies and simplified coping style questionnaire. Data were analyzed with the t test and one-way analysis for differences between groups, and analyze main influencing factors for core emergency by SPSS25.0.

Table 2 Multiple linear regression analysis of the emergency response competencies of nursing personnel for public emergency

Independent variable	B value	β value	t value	P-value	
Constant	86.048		7.656	0	Note: R ² = 0.323, F = 5.745
Resilience	2.778	0.542	16.675	0	
working years	3.935	0.137	4.19	0	
participate in the treatment of infectious diseases or not	-10.745	-0.078	-2.397	0.017	

Results and Discussions: The mean score of perceived stress, resilience, emergency competencies, positive coping and negative coping among nurses was (24.38±5.56) , (36.48±6.95) , (177.20±35.62) , (35.82±7.40) and (18.19±5.02) . There was a significantly positively correlated between perceived Stress, resilience, positive coping and negative coping. Multiple linear regression analysis demonstrated that the main influencing factors for emergency competencies were resilience, working years and participate in the treatment of infectious diseases or not. The final model explained 32.3% of the variance in emergency competencies.

Conclusions: The finding of this study suggest that resilience and positive coping predicted higher score of the emergency competencies when nurses facing the public emergency in the

stressful condition. It is important that interventions be adopted to strengthen their resilience and explore effective training methods to improve their way for coping with the difficult by enhance the emergency competencies

***Zhuoliang Hou.* AN INVESTIGATION INTO THE ASSOCIATION BETWEEN MULTILOCUS GENETIC PROFILE SCORES, INDIVIDUAL VARIABILITY PATTERNS OF BRAIN FUNCTIONAL CONNECTIVITY, AND CLINICAL FEATURE IN MAJOR DEPRESSIVE DISORDER**

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Objective: Major depressive disorder (MDD) is a highly heterogeneous disease, which brings great difficulties for clinical diagnosis and therapy. Its mechanism is still not fully characterized. Prior neuroimaging studies of MDD have mainly focused on determining group mean differences in brain connectivity between patients and healthy controls (HC), largely ignoring individual differences between patients. This study explored the changes of individual variability patterns of brain functional connectivity (IVFC) in patients with MDD at both level of brain regions and networks, and explored the effects of common genetic risks of MDD on brain IVFC patterns in MDD patients.

Materials and Methods: The present study included 112 MDD patients and 93 HC patients. Whole-brain resting state functional MRI data were obtained, and IVFC were examined in MDD patients and HC patients. The genetic risks of dopamine pathway, serotonin pathway, norepinephrine pathway, hypothalamic-pituitary-adrenal axis and synaptic plasticity were assessed by multilocus genetic profile scores (MGPS), respectively. Permutation tests were used to identify the brain regions where differences of IVFC existed between groups and the critical connections that contributed to the differences. Secondly, multiple linear regression and partial correlation analysis were used to examine the relationship between IVFC and genetic risks and clinical variables. Finally, mediation analysis was used to further determine whether changes in IVFC mediated the associations between genetic risks and clinical characteristics in MDD.

Results and Discussions: The whole-brain IVFC pattern in the MDD group was generally similar but higher than that in HCs. The critical connections that contributed to alterations of IVFC in MDD were inter-network functional connectivities between the default mode network and sensorimotor network, salience network and cerebellar network. Serotonin, norepinephrine and hypothalamic-pituitary-adrenal axis pathway genes affected IVFC in MDD patients. The interaction of MDD, HPA pathway genes and NE pathway genes affected the auxiliary motor area. As disease course and onset age increased, the IVFC of several regions showed an increasing trend. With the increase of the severity of depression, the IVFC of the left

ventromedial prefrontal lobe and the left posterior parietal lobe were larger in MDD patients. MDD patients with higher IVFC had better 2-week curative effects, but higher IVFC in left basal ganglia predicted poor curative effect at 8 weeks. IVFC in the left ventromedial prefrontal lobe had a mediating effect between 5-HT-MGPS and baseline depression severity.

Conclusions: In this study, we found that MDD patients had significantly different interindividual functional connectivity variations than healthy people, and genetic risk might affect clinical manifestations through brain function heterogeneity. Changes of IVFC patterns in MDD have potential implications for understanding the high clinical heterogeneity of MDD and might be helpful in individualized clinical diagnosis and treatment of the disease in the future.

Kiryukhina S.V., Baranov D.V., Labunsky D.A., Kolmykova N.A. . EFFECT OF COMBINATION THERAPY ON THE DYNAMICS OF PSYCHOPATHOLOGICAL AND SOMATIC DISORDERS, CATECHOLAMINE CONCENTRATION IN ORGANIC MENTAL DISORDERS ASSOCIATED WITH COVID-19

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Relevance: the mechanisms of the damaging effect of COVID-19 in mental disorders and the possibility of their pharmacological correction remain an urgent problem in medicine.

The purpose of the study: to study the dynamics of mental and somatic functions under the influence of combined psychotropic, antioxidant therapy in combination with hyperbaric oxygenation in people with organic mental disorders who underwent COVID-19; to investigate the relationship between the degree of disturbed psychosomatic changes and the level of catecholamines.

Methods: the mental and somatic statuses were studied according to the modified maps of Avrutsky-Zaitsev, the concentration of catecholamines by enzyme immunoassay in the test kits "3-CAT ELISA Fast Track". Statistical processing: Statistica 10.0 package using Student's t-test, Pearson's rank correlation.

Results: A simple, randomized, parallel-group comparison study was conducted in 62 patients with organic mental disorders who had experienced COVID-19. The patients of the first group were treated with antidepressants and antipsychotics. In the second group, along with treatment similar to the first group, hyperbaric oxygenation and 3-hydroxypyridine succinate were used for 30 days. Combination therapy increased plasma concentrations of epinephrine, norepinephrine, serotonin by 1.96 times ($p=0.042$), 1.42 times ($p=0.031$) and 1.34 times ($p=0.044$), respectively, and reduced dopamine levels.

Conclusion: the effect of combination therapy on the pathogenetic mechanisms of the development of organic mental disorders associated with COVID-19 is confirmed by the revealed negative correlation between the degree of disadaptation of patients and the concentration of serotonin ($r = -0.709$, $p = 0.016$), the positive correlation between the severity of disadaptation and the level dopamine ($r = 0.564$, $p = 0.029$).

Muhammad Yusuf Hanif¹, Edward Faisal², Rudi Putranto^{2,3}, Hamzah Shatri^{2,3}. THE ROLE OF HEART RATE VARIABILITY (HRV) AS A PREDICTOR FOR TREATMENT RESPONSE IN ANXIETY DISORDER: AN EVIDENCE-BASE CASE REPORT

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Background: General Anxiety Disorder (GAD) is the most prevalent anxiety disorder in primary care setting with prevalence around 3.7% globally. There are several treatment options for GAD consisting pharmacologic and non-pharmacologic intervention. However, efficacy of these treatment is varied across study. Approximately 35- 55% of GAD patients do not respond to interventions. Heart Rate Variability (HRV) has been used to measure regulated emotional response by evaluating differential of sympathetic and vagal control. This Evidence Based Case Report was aimed to investigate the role of HRV as predictor for GAD treatment response. **Methods:** the search was conducted on Pubmed, Cochrane Library, EBSCOhost and EMBASE according to clinical question. The studies were selected based on inclusion and exclusion criteria. The selected study was critically appraised. **Results:** One study in this report showed that lower HRV result correlates with GAD and as a better predictor for treatment response. **Conclusion:** HRV is a promising biomarker for predicting treatment response in GAD patient.

Yukiko Kezuka. THE EFFECTIVENESS OF YOGA THERAPY PRACTICE IN A SELF-HELP GROUP FOR DRUG ADDICTION

Graduate School of Faculty of Information Science and Arts Toyo University

Recently, addiction is not only a global problem, but also a familiar one. In particular, alcohol and drug addiction are detrimental to physical health. It is difficult to reintegrate patients into society through Western medical treatment alone, and we support their reintegration through various support systems, such as group work and cognitive behavioral therapy. There are various possibilities for psychotherapy, and some addiction hospitals and facilities in Japan and abroad have introduced yoga therapy. By assessing the patient and understanding their individual

situation, yoga therapy can be done in a safe manner. If there is a positive effect on the mind and body, it may be useful in supporting patients' reintegration into society. This study focuses on the effects of yoga therapy practice using the Yoga Therapy Assessment for physical and mental changes during yoga therapy practice.

Objective: To determine the effects of yoga therapy on the body and mind of drug addicts.

Method: Practiced yoga therapy in a self-help group for drug addicts. 30 people practicing yoga therapy for the first time were checked for changes in subjective sensations of body and mind (rated 6 on the face scale), blood pressure, and pulse rate before and after the intervention. The statistical method used was the correspondence t-test.

Results: The mean values of back pain, lethargy, sleepiness, and pulse rate significantly decreased after the training in comparison with before the training ($p < 0.01$). The mean values of anxiety were significantly lower after the training ($p < 0.05$). These results suggest that the practice reduced back pain, lethargy, sleepiness, anxiety, irritability, and pulse rate, even though it was the first time for the participants to practice yoga therapy.

Discussion: Even those who practiced yoga therapy for the first time subjectively felt positive physical and mental effects. Further benefits may be expected with continued practice.

***Toyohiro Hamaguchi*¹, *Jun Tayama*². SELF-MANAGEMENT TECHNIQUES AS NON-PHARMACOLOGICAL TREATMENT FOR IRRITABLE BOWEL SYNDROME**

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Irritated bowel syndrome (IBS) is a disorder of chronic abdominal pain and abnormal bowel movements. These symptoms often come and go. This is a chronic condition that requires long-term management. IBS can interfere with daily life. However, for some people, certain lifestyle habits can help manage symptoms. We are developing non-drug interventions for people with IBS to modify their lifestyles and relieve their symptoms. In this symposium, we will report and discuss four research results on the development of Attention Bias Modification (ABM) and Decoded Neurofeedback (DecNef) therapy as a method of transforming the cognition of people with IBS. These findings will help people with IBS to self-manage their symptoms on a daily living.

***Toyohiro Hamaguchi.* THE EFFECTS OF PHYSICAL ACTIVITY ON
GASTROINTESTINAL SYMPTOMS OF IBS AMONG YOUNGER PEOPLE**

*Department of Rehabilitation, Saitama Prefectural University, Graduate School of Health
Sciences, Saitama, Japan*

Introduction: Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder associated with abdominal pain, diarrhea, constipation, or a mix of symptoms. Treatment strategies for IBS may include both non-pharmacologic and pharmacologic approaches. Lifestyle modifications that aim to improve exercise and stress may be warranted. Aim of this study was to evaluate the 4-week exercise results of loco-motor activity and gastrointestinal symptoms in university students with IBS.

Methods: At baseline 154 students, recruited via local campus, were assigned into 3 groups: a high amount of walking group (51 subjects, over 7000 steps/day on pedometer), a low amount of walking group (50 subjects) and a group without symptoms of IBS which received personal and e-mail advice respectively. All participants underwent experimental muscle stretching and walking with pedometer for 4-week. Two way analysis of variance were used to identify benefits of intervention effectiveness (executing rate of exercise and steps per day) using the gastrointestinal symptoms rating scale (GSRS). This study was approved by the ethics committee of Saitama Prefecture University.

Results: GSRS score of low-activity group was more severe than high-activity group in IBS (Difference of the mean=.526, 95% confidence interval .042-1.010, $p=.024$). After exercise intervention, the favorable quality of slightly indicating a successful result in low-activity group with low-executing of exercise and high-activity group with high-executing of exercise.

Conclusions: Our results suggest that some gentle physical activity is of benefit for GI symptoms. Well-designed prospective trials evaluating the benefits of exercise and physical activity on IBS are recommended for future research.

***Jun Tayama.* EFFECTS OF SELF-MANAGEMENT METHOD ON BRAIN FUNCTION AND PSYCHOLOGICAL SYMPTOMS IN PATIENTS WITH IRRITABLE BOWEL SYNDROME**

Faculty of Human Sciences, Waseda University, Saitama, Japan

Background: We hypothesized that IBS- related electroencephalographic abnormalities would be normalized after attention bias modification (ABM) therapy. Methods: Seventeen patients with IBS and 13 healthy subjects completed five ABM intervention sessions over a 2- month period. EEG data were collected during the 1st and 5th sessions.

Key Results: Generalized estimating equations of relative alpha power revealed a significant effect of period was identified at O2 ($P=.036$). Paired t tests revealed that ABM significantly increased relative alpha power at O2 in patients with IBS.

Conclusions & Inferences: ABM may normalize brain function related to attention and anxiety in patients with IBS.

***Hirokazu Takizawa.* ATTENTION BIAS IN STROKE PATIENTS IS AFFECTED BY PSYCHOLOGICAL STATE AND COGNITIVE FUNCTION**

Department of Rehabilitation, Saitama Prefectural University, Graduate School of Health Sciences, Saitama, Japan

Background: Post-stroke depression adversely affects rehabilitation. Attentional bias (AB) for negative stimuli is important in depression onset, maintenance, and remission. Attention bias modification (ABM) in stroke patients may support their activity. Stroke patients are older, and cognitive function is declined. Individuals with mild cognitive impairment (MCI) can have delayed reaction times (RTs). We hypothesized that RT to select neutral facial expression is different by depressive symptoms and cognitive function in patients with stroke.

Methods: This study analyzed 61 patients with stroke. Beck Depression Inventory-Second Edition (BDI-II) and Profile of Mood States (short version), Mini Mental State Examination (MMSE) scores were determined. AB was measured as the RT to select the neutral face in two simultaneously presented images using ABM software. We used statistical analysis of ANCOVA as the dependent variable to select the neutral stimulus RT that to using two groups of depressive symptoms and cognitive function as factors. There is no conflict of interest (COI) associated with this study.

Results: Stroke patient's RT to choose a neutral facial expression had no interaction when

depressive symptoms and cognitive function were factors ($F [3, 57] = 0.492, p = 0.486$). RT had the main effect of cognitive function ($F [3, 57] = 7.488, p = 0.008$) and was not depressive ($F [3, 57] = 2.719, p = 0.105$). In stroke patients with depressive symptoms, RT was significantly shorter in those without MCI than in those with MCI ($p = 0.01$).

Conclusions: Patients with stroke and elevated depression symptoms without MCI quickly selected neutral facial expressions from neutral and aversive expressions. ABM in response to aversive stimuli may be useful in evaluating negative emotions in individuals with post-stroke depression without MCI.

Kohei Koizumi. SUPPORT VECTOR MACHINE-BASED CLASSIFIER TO DETERMINE THE PRESENCE OR ABSENCE OF IBS SYMPTOMS BY FREQUENCY ANALYSIS OF ELECTROENCEPHALOGRAPH DATA

Department of Rehabilitation, Saitama Prefectural University, Graduate School of Health Sciences, Saitama, Japan

Background: Young adults with irritable bowel syndrome (IBS) occasionally exhibit specific abdominal symptoms, including abdominal pain associated with brain activity patterns. Decoded neural feedback (DecNef) is a biofeedback exercise that allows symptomatic people to exercise self-control over their brain activity patterns relative to those without symptoms. To establish a DecNef practice for IBS, it is necessary to develop a classifier that can distinguish the electroencephalography (EEG) patterns of IBS between symptomatic and healthy people. Additionally, the accuracy of the “classifier” must be evaluated.

Methods: This study analyzed EEG data obtained from symptomatic and asymptomatic young adults with IBS to develop a support vector machine-based IBS classifier and verify its usefulness. EEG data were recorded for 28 university students with IBS and 24 without IBS. EEG data were frequency-analyzed by fast Fourier transform analysis, and IBS classifiers were created by supervised learning using a support vector machine.

Results: The diagnostic accuracy of IBS symptoms was verified for the whole brain and the frontal, parietal, and occipital regions. We estimated >90% accuracy of the IBS classifier in the whole brain and frontal region.

Conclusions: The results of this study suggest that EEG data can be used to determine the presence or absence of IBS symptoms. With the IBS classifier, EEG may help provide feedback regarding the presence or absence of symptoms to patients, which is the basis for developing self-management strategies for IBS.

Sobennikov V.S., Mandanov N.A. . PSYCHOSOMATIC DYSFUNCTIONS ASSOCIATED WITH NON-PSYCHOTIC AFFECTIVE DISORDERS IN ADOLESCENT GIRLS

Department of Psychiatry and Medical Psychology, Irkutsk State Medical University

Relevance. Adolescents with amenorrhea show a higher incidence of subclinical symptoms of anorexia nervosa, including psychosomatic discomfort, and mild depressive traits. The limitations of studies on patients with amenorrhea and comorbid depression have received little attention. Therefore, we performed this study to evaluate endocrine hormones levels in the presence of these conditions in an attempt to further explore the relationship between amenorrhea and anxietydepressive disorders and to evaluate the role that endocrine hormones play in AN and comorbid depression.

Objective. To assess the prevalence and clinical and psychopathological features of comorbid affective disorders among adolescent girls with changes in the hormonal profile (luteinizing and follicle-stimulating hormones) depending on the concomitant gynecological pathology observed in the Department of Gynecology of Children and Adolescents of the Clinic of the Scientific Center for Health Care and Human Resources of the Siberian Branch of the Russian Academy of Sciences.

Materials and methods. Adolescent girls, patients of the gynecological hospital aged 15 to 18 years with menstrual irregularities and comorbid affective spectrum disorders. Total - 194 girls. All girls gave their informed consent to participate in the study. The patients were divided into two large groups according to the level of LH and FSH. For the primary screening of patients PHQ-9 and GAD-7 questionnaires were used to assess the severity of affective disorders, the MINI-KID diagnostic interview and the Achenbach questionnaire to assess mental disorders, for follow-up during two years, as well as MMPI to assess the presence of personality disorders. Laboratory studies included the determination of the level of LH, FSH, prolactin, estradiol, testosterone and anthropometric data (height, weight, waist circumference, body mass index). Statistical processing of the results was carried out using the JASP Statistics for comparative and descriptive statistics (U - Mann-Whitney test, Pearson correlation coefficient)

Results. Most of the dysmorphophobic patients and patients with anorexia nervosa qualify as patients with adjustment disorder, which is due to a significant number of stress factors: parental divorce (37%), alcoholism of one or, less often, both parents (21%), conflict situations at school, bullying by peers (30%). For most psychometric indicators there is a statistically significant excess in people with mental disorders ($p=0.001$). If we divide the sample according to the hormonal profile, then a clear picture does not emerge, there is a statistically significant increase in the level of anxiety ($p=0.001$) and depression ($p=0.001$) with a certain tendency towards an

increase in the level of aggression ($p=0.06$) and socialization in general ($p=0.07$), which, however, does not lead to a significantly higher level of social maladjustment and suicidal behavior ($p=0.08$). Patients with suspected personality disorders are also recorded in the category of adjustment disorders (F43) due to a short follow-up.

According to the spectrum of disorders, we will see that there is also a trend towards increased levels of anxiety ($p=0.05$) and depression ($p=0.06$). For patients with symptoms of dysmorphophobia, this tendency is also characteristic ($p=0.04$). It is important to note here that in the structure of disorders of this spectrum, eating disorders are not found in the entire cohort, but only in 40% of the participating patients. Of this number, the vast majority of 36% had disorders of the type of restrictive anorexia nervosa, and only 4% - cleansing. According to the Eating Disorders Scale, only 5% of girls had bulimia.

Of the total number of recurrent patients, only 30 turned to a psychiatrist at the place of residence some of them applied again after reaching the age of majority. It can be noted that in patients with anxiety-depressive symptoms, there was a positive trend. Patients with dysmorphophobia and personality disorders did not achieve significant improvement

Conclusion. Patients with diagnosed mental pathology have significantly higher levels of anxiety and depression, the level of social maladaptation. Dysmorphophobia (32%) and anorexia nervosa (17.23%) were diagnosed with the highest frequency. In this regard, the entire spectrum of pathology on the YSR scale was divided into anxiety-depressive and dysmorphophobic disorders, and a relationship was established between the level of anxiety, depression, manifestations of anorexia nervosa and changes in the hormonal profile (LH and FSH). In patients with symptoms of dysmorphophobia, the vast majority (36%) had disorders of the type of restrictive anorexia nervosa, and only 4% - cleansing. According to the Eating Disorders Scale, only 5% of girls had bulimia. According to the severity of eating disorders, we can talk about the relative mildness of manifestations, regardless of hormonal spectrum disorders, the neurotic level of disorders. There is a tendency to reduce the severity of anxiety and depression as the treatment of gynecological pathology in patients with syndromic anxiety-depressive symptoms. Patients with personality disorders (cluster B) do not have such dynamics. The absolute minority of patients with affective pathology, after consultation, turned to a psychiatrist, which indicates low compliance and the need for "oncoming traffic" of internists and psychiatrists



The 19th Congress of the Asian College of
Psychosomatic Medicine

Psychosomatic medicine and multimorbidity in a pandemic

IRKUTSK, RUSSIA
23-24 August 2022

CONGRESS BOOK

www.acpm-russia.com

WELCOME NOTE

Dear Colleagues.

It has been a long road to Irkutsk, but we are finally here. I can't compliment Prof. Sobennikov and the organizing committee enough on their patience and perseverance through the two years the congress had to be postponed because of the Covid crisis. I think you will all agree looking through the congress schedule that they have put together a wonderful program in a wide variety of areas, with broad representation from throughout Asia. It is especially gratifying to see the large number of representatives from the host country. This bodes well for the future of psychosomatic medicine in Asia. It is my hope that the presentations here will stimulate our researchers and help build networks that will benefit our members as we move forward together to build a better Asia.



Chiharu Kubo,
President of ACPM

Chiharu Kubo

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HISTORY OF THE ACPM MEETINGS

1984 Tokyo (Japan)

1986 New Delhi (India)

1988 Kuala Lumpur (Malaysia)

1990 Sendai (Japan)

1992 Taipei (Taiwan)

1994 Fukuoka (Japan)

1996 Dalian (China)

1998 Seoul (Korea)

2000 Tokyo (Japan)

2002 Taipei (Taiwan)

2004 Okinawa (Japan)

2006 Melbourne (Australia)

2008 Seoul (Korea)

2010 Beijing (China)

2012 Ulaanbaatar (Mongolia)

2014 Jakarta (Indonesia)

2016 Fukuoka (Japan)

2018 Seoul (Korea)

2022 Irkutsk (Russia)

WELCOME NOTE

Dear colleagues, On behalf of the Baikal Psychosomatic Association, we are honored to invite you to join us at the 19th Congress of the Asian College of Psychosomatic Medicine in Irkutsk, Russia, August 23–24, 2022. Since the 1st Congress, held in Japan in 1984, Australia, China, India, Indonesia, Korea, Malaysia, Mongolia, Taiwan hosted the Congress. Now, in 2022, Russia has the honor to organize the 19th Congress.

The 19th Congress of the ACPM 2022 will bring together representatives of various profiles and interests, professionals in both health and medical areas. The Congress will include discussion sessions with invited lecturers on the most topical issues during the three days. We hope the Congress will become a great platform for new meetings, building the connections between professionals, dissemination of new ideas and knowledge in the area of psychosomatic medicine to promote the development in psychological care and leadership in the healthcare system. By attending this Congress you will have a unique opportunity to meet the deepest lake in the world – Lake Baikal, and enjoy the scenery around it.

Vasilii Sobennikov,
Congress President





BAIKAL PSYCHOSOMATIC ASSOCIATION [BPA]



Vasilii Sobennikov

President



Lyubov Rychkova

Vice President



Farid Belialov

Vice President

HISTORY OF THE BPA

2005 First psychosomatic conference in Irkutsk

2017 The Baikal Psychosomatic Association [BPA] is organized

2017 The ACPM included the Baikal Psychosomatic Association

2018 Clinical guidelines on psychosomatic medicine is issued

2022 Psychosomatic Symposium at the Congress of the Russian Society of Cardiology



Meeting of the Baikal Psychosomatic Association and the Asian College of Psychosomatic Medicine

Chairman

Vasilii Sobennikov, Russia

Co-chairs

Lyubov Rychkova, Olga Petrunko, Farid Belialov, Russia

Committee members

- Irina Cherevikova, Russia
- Nikolay Mandanov, Russia
- Anna Pogodina, Russia
- Vladimir Polyakov, Russia

Organizations

- Baikal Psychosomatic Association
- Scientific Centre for Family Health and Human Reproduction Problems
- Irkutsk State Medical University
- Russian Medical Academy of Continuous Professional Education

Talisman



WEB LINKS

09.00-12.30 Plenary session

13.00-17.15 Session 1: General Problems of Psychosomatic Medicine

13.00-17.00 Session 2: Psychosomatic Disorders in Childhood

13.00-15.15 Session 3: Psychosomatic Medicine and Cardiovascular Diseases

13.00-14.15 Simposium 1: Yoga Therapy

13.00-14.00 Simposium 2: Self-management techniques as non-pharmacological treatment for irritable bowel syndrome

Web sites:

<https://www.acpm-russia.com>

<https://therapy.irkutsk.ru/society2confen.htm> [English]

<https://therapy.irkutsk.ru/society2confu.htm> [Russian]

Event Times are in Tokyo Time Zone: UTC +9 [GMT +9]

Technical congress organizer:

Scientific Centre for Family Health and Human Reproduction Problems, Irkutsk,
Russia 16 Timiryazev Street, 664003, Irkutsk, Russia

Tel.: +7 3952 20-76-36

iphr@sbamsr.irk.ru

<https://health-family.ru/en/>

Webinar video conferencing:

Ekaterina Poganeva

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Tel.: +79256003369

Semyon Krivoshein

siberiask@gmail.com

Tel.: +79500990883

SCIENTIFIC PROGRAMME

TUESDAY, 23 August 2022

9.00-12.30 Plenary session

9.00-9.30

Psychosomatic Medicine in Russia and Eastern Siberia

Vasilii Sobennikov, Russia

9.30-10.00

The State of Psychosomatic Medicine in Japan

Chiharu Kubo, Japan

10.00-10.30

History, Present and Future of the Asian College of the Psychosomatic Medicine [ACPM]

Hiroshi Ishizu, Japan

10.30-11.00

Brain-Gut Interactions as Psychosomatic Realities in Irritable Bowel Syndrome

Shin Fukudo, Japan

11.00-11.30

Psychosomatic medicine in China

Yonggui Yuan, China

11.30-11.45

Psychosomatics: interdisciplinary scientific researches of family health

Lyubov Rychkova, Russia

11.45-12.00

Basic Research in Psychosomatic Medicine

Amarendra N. Singh, Canada

12.00-12.15

Main Points of Psychosomatic Medicine

Farid Belialov, Russia

12.15-12.30

Psychosocial Factors Related to Chronic, Prolonged and Complex Fibromyalgia

Masato Murakami, Japan

13.00-17.15 Session 1: General Problems of Psychosomatic Medicine

Moderators: Vasilii Sobennikov, Grigory Usov, Olga Petrunko

13.00-13.15

Effectiveness Zinc Preparation for Anxiety and Depression: An Evidence-based Clinical Report

Edward Faisal, Rudi Putranto, Hamzah Shatri, Indonesia

13.15-13.30

The Effect of Virtual Music Therapy on Burnout Syndrome among Healthcare workers in COVID-19 Pandemic Era

Yanuar Ardani, Rudi Putranto, Hamzah Shatri, Indonesia

13.30-13.45

The Effect of Music Therapy for Improving Quality of Life in Patients with Cancer Pain: an Evidence Based Case Report

Ibrahim Achmad, Yanuar Ardani, Edward Faisal, Rudi Putranto, Hamzah Shatri, Indonesia

13.45-14.00

The Role of Psychotherapy in Management of Post Covid-19 Syndrome

Dika Sinulingga, Rudi Putranto, Hamzah Shatri, Indonesia

14.00-14.15

Association between depression, anxiety and stress symptom and glycemic control in type 2 diabetes mellitus patients at outpatient clinic Zainoel Abidin general hospital Banda Aceh

Abdullah V, Andini F, Sucipto KW, Indonesia

14.15-14.30

Pain Palliation by Celiac Plexus Neurolysis in Hepatocellular Carcinoma-Related Abdominal Pain

Hamzah Shatri, Putra Nur Hidayat, Edward Faisal, Rudi Putranto, Indonesia

14.30-14.45

Leveraging digital technologies to optimize care patients with non-psychotic affective spectrum disorders

Evgeniy Vinokurov, Russia

14.45-15.00

Influence combination therapy on the dynamics of psychopathological and somatic disorders, concentration catecholamines at organic associated with COVID-19

Svetlana Kiryukhina, Denis Baranov, Dmitry Labunsky, Natalya Kolmykova, Russia

15.00-15.15

Reliability and Validity of the Korean, Indonesian, and Vietnamese Versions of Public Health Research Foundation Stress Check List Short Form

Masato Murakami, Yoko Hayashi, Yoshie Imasu, Japan

15.15-15.30

Depressive disorder with somatization symptoms

Olga Petrunko, Russia

15.30-15.45

An investigation into the association between multilocus genetic profile scores, individual variability patterns of brain functional connectivity, and clinical feature in major depressive disorder

Zhuoliang Hou, China

15.45-16.00

Stress, resilience, emergency competencies and Response to public emergency among nurses in south China

Wanmin Huang, Guang Shi, Yanying Feng, China

16.00-16.15

Advances in the study of Compulsive Sexual Behaviour Disorder

Bing Liu, Weiyu Zhu, Yongliang Pan, Li Gao, Hang Feng, China

16.15-16.30

Exploring risk factors associated with subacute herpetic neuralgia

Kaina Cao, Yidan Zhang, Sisi YU, Baorong Fan, Tiantian Zhou, Fang Liu, Wei Zhu, Haiping Zhang, China

16.30-16.45

Treatment challenges in depression comorbid with somatic diseases

Grigory Usov, Russia

16.45-17.00

The utility of the Self Grow-up Egogram [SGE] for stress management in patients with respiratory diseases

Etsuo Fujita, Shyuhei Senda, Tatsuya Aoki, Ryosuke Horitani, Tadayuki Hashimoto, Yoji Hirayama, Hironobu Hoshiya, Hideko Nishimura, Kazuya Yoshikawa, Hisako Matsumoto, Yuji Tohda, Kousuke Shimada, Tadatoshi Suruda, Japan

17.00-17.15

Students' mental health issues

Enkzaya Batkhuyag, Munkhzul Endonjamts, Enkhnarant Tumurbaatar, Gantsetseg Tumur-Ochir, Xihua Zeng, China, Mongolia

13.00-17.00 Session 2: Psychosomatic Disorders in Childhood

Moderators: Lyubov Rychkova, Vladimir Polyakov, Irina Cherevikova

13.00-13.15

Neuropsychological aspects of psychosomatic disorders in children and adolescents

Vladimir Polyakov, Russia

13.15-13.30

Stress and obesity

Lyubov Rychkova, Anna Pogodina, Russia

13.30-13.45

Neuropsychological analysis of higher mental functions in children with congenital heart disease

Tatyana Akhutina, A. Priboychenko, Russia

13.45-14.00

The role of environmental factors in the formation of higher mental functions in childhood

Tatyana Fotekova, Russia

14.00-14.15

Origins of intrapersonal conflicts and their manifestations in depression and psychosomatic diseases

Svetlana Radtchenko-Draillard, France; Diana Bekoeva, Russia

14.15-14.30

Comorbid Associations of Smartphone Addiction in Adolescents and Students in Different Regions of Siberia

Lydia Evert, Yulia Kostyuchenko, Russia

14.30-14.45

Hyperactive children: causes and ways to overcome hyperactivity

Elena Tkachuk, Russia

14.45-15.00

Cognitive and emotional impairment in pregnant women with COVID-19

Ariana Kosovtseva, Russia

15.00-15.15

Comparative assessment of adherence to antiretroviral therapy in children with perinatal HIV infection

Alexandra Sambyalova, Tatyana Bairova, Tatiana Manaenkova, Zuhra Yarosh, Russia

15.15-15.30

Obstructive sleep apnea and psychosomatic disorders in pediatrics

Olga Berdina, Russia

15.30-15.45

Dysfunctional Attitudes and Identity among adolescent girls with gynecological disorders

Mikhail Kuzmin, Russia

15.45-16.00

Psychological correction of obesity in adolescents

Zhanna Prokhorova, Anastasia Votineva, Russia

16.00-16.15

Emotional Impairments in adolescents who have undergone COVID-19

Irina Cherevikova, Russia

16.15-16.30

Occurrence of Psychosomatic disorders of children in India and Russia

Ajitha Sureshkumar Aaromal, India; Evgenia Novikova, Russia

16.30-16.45

Alexithymia and psychosomatic diseases in adolescents

Elena Gorobets, Russia

16.45-17.00

Psychosomatic dysfunctions associated with non-psychotic affective disorders in adolescent girls

Vasilii Sobennikov, Nikolai Mandanov, Russia

13.00-15.15 Session 3: Psychosomatic Medicine and Cardiovascular Diseases

Moderators: Farid Belialov, Aleksei Sumin

13.00-13.15

Maladaptive coping strategies in type D personality: impact on prognosis in cardiovascular diseases and a possible target for intervention

Aleksei Sumin, Russia

13.15-13.30

Cortisol level in patients with depression post-myocardial infarction

Grasella Angelika Putri, Rudi Putranto, Hamzah Shatri, Edward Faisal, Irman Firmansyah, Dika Sinulingga, Yanuar Ardani, Vinandia Irvianita, Indonesia

13.30-13.45

Optimization of psychological distress treatment using the FORCOM classification

Farid Belialov, Russia

13.45-14.00

Platelet Serotonin as A Mechanism that Link Depression and Cardiovascular Disease

Rezky Ananda Rianto, Edward Faisal, Rudi Putranto, Hamzah Shatri, Indonesia

14.00-14.15

Association Between Intravenous Tissue Plasminogen Activator (rt-PA) and Post Stroke Depression in Young Adults

Muxiali Li, China

14.15-14.30

Pattern and management strategy of Psycho-cardiology in the cardiovascular department of Traditional Chinese Medicine

Ruiting Wang, Xian Wang, Lijing Zhang, He Liu, Ruoyi Liu, Li Xu, Yue Wang, Peng Zhao, China

14.30-14.45

Possibilities for reducing cardiovascular risk in a comorbid patient with acute coronary syndrome associated with anxiety and depressive disorders. Psychological intervention in COVID-19 patients

Tatiana Poponina, Kseniya Gunderina, Yuliya Poponina, Russia

14.45-15.00

Anxiety is a cause and effect of the syndrome of mutual aggravation of tension-type headache and arterial hypertension

Marina Petrova, Polina Alyabyeva, Natalya Shnayder, Russia

15.00-15.15

Prognostic factors for coronary artery disease in patients with anxiety and depressive disorders: comorbidity and search for solutions

Natalia Garganeeva, Margarita Belokrylova, Irina Kartashova, Russia

13.00-14.15 Symposium 1: Yoga Therapy

Moderators: Chiharu Kuba, Keishin Kimura

13.00-13.15

What is Yoga Therapy?

Keishin Kimura, Japan

13.15-13.30

The Effectiveness of Yoga Therapy Practice in a Self-help Group for Drug Addiction

Yukiko Kezuka, Japan

13.30-13.15

A single session of the integrated yoga program as a stress management education for nursing students using an online tool: effects of self-practice on the daily vs non-daily practitioners

Michiyo Nosaka, Japan

13.45-14.00

The investigation of changing effects of Yoga therapy on psychological and gene expression states of healthy subjects

Sayaka Higuchi, Yukiko Kezuka, Shohei Mitani, Japan

14.00-14.15

A Study on the Effectiveness of Yoga Therapy on Employees' Stress Management

Shin Murakami, Japan

13.00-14.00 Symposium 2: Self-management techniques as non-pharmacological treatment for irritable bowel syndrome

Moderators: Toyohiro Hamaguchi, Jun Tayama

13.00-13.15

The effects of physical activity on gastrointestinal symptoms of IBS among younger people

Toyohiro Hamaguchi, Japan

13.15-13.30

Effects of self-management method on brain function and psychological symptoms in patients with irritable bowel syndrome

Jun Tayama, Japan

13.30-13.45

Attention bias in stroke patients is affected by psychological state and cognitive function

Hirokazu Takizawa, Japan

13.45-14.00

Support vector machine-based classifier to determine the presence or absence of IBS symptoms by Frequency Analysis of Electroencephalogram Data

Kohei Koizumi, Japan

SCIENTIFIC PROGRAMME

WEDNESDAY, 24 August 2022

14.00-17.00 The poster session

In online format in our website: acpm-russia.com

BAIKAL

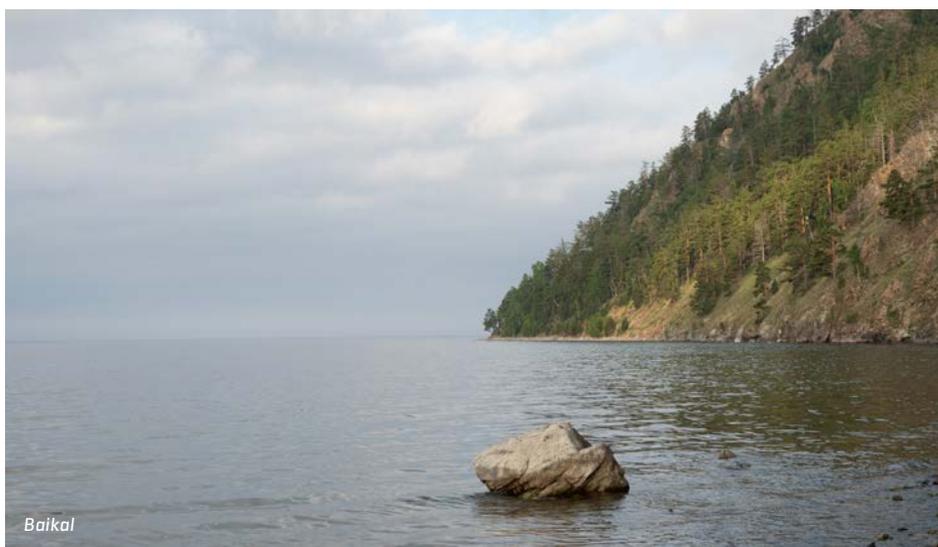
Lake Baikal is considered the largest natural reservoir of fresh water and the deepest lake on Earth with a maximum depth of 1642 m.

Baikal is located in the center of Asia, on the border of the Irkutsk region and the Republic of Buryatia. The lake is elongated from north to southwest for 636 km in the form of a giant crescent, and the width of the lake ranges from 25 to 80 km.

The lake of tectonic origin was formed about 30 million years ago and is located in a depression surrounded by mountain ranges and hills. The western coast is rocky and steep, while the relief of the eastern coast is more gentle. There are 27 islands on Baikal, the largest of which is Olkhon with an area of 700 km².

336 rivers and streams flow into Baikal, and only one Angara river flows out. The temperature of the surface layer of water in the summer in the lake is about +8 degrees Celsius, and in some bays it reaches +15 degrees Celsius. The water in the lake is very transparent and individual stones are visible even at a depth of up to 40 m. Baikal ode contains few mineral salts and can be used instead of distilled water.

There are 2630 species of plants and animals in Baikal, two thirds of which live only in this reservoir (endemics). Such an abundance of living organisms is explained by the high oxygen content in the entire thickness of the Baikal water. Freshwater sponges grow here at great depths. Epishura cancer makes up about 80% of the zooplankton biomass of the lake and purifies the water, passing it through itself.



Baikal



ABOUT IRKUTSK

The city of Irkutsk is located at 70 km from Lake Baikal along the banks of the Angara and was named after the Irkut River, which flows into the Angara.

The city starts from the first Irkutsk burg, laid down by the Cossacks under the leadership of Yakov Pokhabov on July 6, 1661.

Top Facts:

- Population 617 315 (2021)
- Language Russian
- Area 305 square kilometres
- Main religion Orthodoxy
- Main ethnic group Russians
[almost 85% of the population]

