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GABRIELLA DÖRNYEI PHD
DEAN

EDITED BY:

ÉVA KÁMÁN
COORDINATOR

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DEPARTMENT OF ADDICTOLOGY

HEAD OF THE DEPARTMENT: **JÓZSEF RÁCZ MD, PHD, DSC, PROFESSOR**

CONTACT: TEL: +36-1-48-64919, E-MAIL: ETK.ADDIKTOLOGIA@SEMMELWEIS.HU

PSYCHOSOCIAL CHARACTERISTICS OF NEW PSYCHOACTIVE SUBSTANCE USERS

The number of new psychoactive substance users continuously grows in Europe and in Hungary. Traditional health and social care interventions do not work effectively in these cases so we have to develop new prevention and treatment methods, which necessitates a better understanding of substance use and users. A part of this task is studying the psychosocial characteristics of users and assessing their respective risk.

The users of the new psychoactive substances pose a challenge for the system of health and social services therefore it is important to know the psychosocial characteristics of users and of the patients undergoing therapy. Based on this information, we can plan more targeted interventions for them in terms of e.g. prevention, outreach, admission to treatment, and treatment planning.

HEADS OF RESEARCH: Dr. RÁCZ, József, Dr. DEMETROVICS, Zsolt (Eötvös Loránd University)

CONTACT: Dr. KAPITÁNY-FÖVÉNY, Máté - kapitany-foveny.mate@semmelweis.hu

PARTNER INSTITUTION: Eötvös Loránd University Institute of Psychology

NEUROPSYCHOLINGUISTICS ANALYSIS OF MENTAL DISORDERS

In recent years, computational linguistic and psycholinguistic approaches have become increasingly accepted within the field of psychiatry. This is especially true for identifying language markers of depression and psychotic states. Linguistic characteristics are sensitive indicators of these mental disorders, and in many cases are more reliable in signaling depression or psychosis than common screening instruments routinely used in psychiatric practice. The psycholinguistic approach also involves differential diagnostic opportunities: drug-induced psychosis and schizophrenia can be distinguished by analyzing signs of language use.

HEAD OF RESEARCH: Dr. KAPITÁNY-FÖVÉNY, Máté

CONTACT: Dr. KAPITÁNY-FÖVÉNY, Máté - kapitany-foveny.mate@semmelweis.hu

PARTNER INSTITUTION: National Institute of Mental Health, Neurology and Neurosurgery

THE USE OF VIRTUAL REALITY TO REDUCE BYSTANDER INDIFFERENCE IN THE CONTEXT OF GHB-ASSISTED SEXUAL ASSAULT

GHB is known as a roofie (gamma-hydroxybutyrate) and also a popular club drug consumed by a considerable proportion of specific subpopulations – e.g. club goers – and as a potent depressant it has the ability to induce various adverse effects, including respiratory depression, hypoventilation, bradycardia, absence of gag reflex, acidosis or mild hypothermia. Since GHB can further act as a sexual enhancer, it is also commonly used in chemsex parties (i.e. using chemical substances before or during sexual activities to facilitate or prolong sexual desire), alongside with metamphetamine and mephedrone. According to the 2021 World Drug Report from the United Nations Office on Drugs and Crime (UNODC), GHB was still one of the most frequently seized sedatives in 2019, exceeding seizures of benzodiazepines as well, with Sweden, the United States, New Zealand, Canada, China and Australia recorded the largest quantities of GHB intercepted. Nonetheless, and despite its significant recreational use, the lay public still primarily considers GHB as a *date rape drug* and while dozens of psychoactive substances (including ethanol) can potentially be used to commit sexual assaults, GHB is indeed the most common "date rape drug".

The present project aims to highlight multiple factors that can influence the participants' bystander behavior: **diffusion of responsibility** ("Why it is me who should take action and not someone else?"), **pluralistic ignorance** ("I'm the only one here to think that there is something wrong with this guy."), **spotlight effect** ("I do not want to be the focus of attention in a situation where I'm not sure what to do.") and the role of **anonymity** can also play ("I don't know this girl, why should I care" vs. "she is a good old friend and I'm responsible for her"). These social psychological elements will not be directly presented in a frontal and sterile context of the classroom; however, they will be organically integrated into a virtual reality program in which students can find themselves in a party situation as a potential bystander.

The project explores the efficacy of the Missing 10 hours VR program in terms of reducing bystander indifference among teenagers. We hypothesize that those adolescents who try the M10H VR program will show a greater reduction in bystander indifference and behavior and a greater increase in prosocial behavior than those who do not try the app.

HEAD OF RESEARCH: Dr. KAPITÁNY-FÖVÉNY, Máté

CONTACT: Dr. KAPITÁNY-FÖVÉNY, Máté – kapitany-foveny.mate@semmelweis.hu

PARTNER INSTITUTIONS: Eötvös Loránd University, Faculty of Education and Psychology, Institute of Psychology; Université d'Artois; Victoria University of Wellington

THE SOCIOLOGICAL-PSYCHOLOGICAL-EXISTENTIAL TRAP OF EXTREME DEPRIVATION: PRESENT ORIENTATION AND PSYCHOACTIVE SUBSTANCE USE

Extreme deprivation creates a sociological-psychological-existential trap: it draws the focus on the present, where meaning of life is concentrated. This process makes other opportunities impossible, such as the future orientation, which would provide perspective for planning and collecting. Our research plan is aiming to explore the points where this vicious circle can be broken.

Our study aims to explore the role of psychoactive substance in the life of those living under socially extremely deprived conditions: if substance use is a reason or a cause of this structural position; if the patterns of functions and malfunctions are variable among different kinds of substance users; and what kind of differences are among various forms of deprived situations?

Our special focus is on new psychoactive substances (NPS) use.

Previous studies were focusing on certain aspects of this complex problem. Our research is the first which is aiming to observe all this complex phenomenon mentioned above with an interdisciplinary aspect. This interdisciplinary aspect is unifying psychologic, psychiatric, social work, sociological and existentialist perspectives.

HEAD OF RESEARCH: Dr. RÁCZ, József

CONTACT: Dr. Kapitány-Fövény Máté - kapitany-foveny.mate@semmelweis.hu

PARTNER INSTITUTIONS: Eötvös Loránd University, Faculty of Education and Psychology, Institute of Psychology, ELTE Faculty of Social Sciences, Institute of Sociology, University of Gibraltar

BODY IMAGE, BODY AWARENESS AND ADDICTION

The alterations of body image are more related to other psychiatric disorders than addiction. However, eating disorders and body dysmorphic disorders could be described by the symptoms of addictions and body image has a primary significance among these disorders. It has been slightly emphasised what impact substance use disorders have on body image and body awareness. Research has indicated that smoking and the avoidance of quitting smoking are related to the motivation of body weight control. Furthermore, qualitative research has shown the transformation from clinical body to performative body among substance use disorders during recovery. Although this process is the key function of Georges Baal's theatre therapy and other body awareness activities, there is a lack of impact assessment.

The aim of future research is to gain a deeper knowledge of the subjective experience related to body among substance users.

HEAD OF RESEARCH: Dr. MARJAI, Kamilla

CONTACT: Dr. Marjai Kamilla – marjai.kamilla.diana@semmelweis.hu

PARTNER INSTITUTIONS: Eötvös Loránd University, Faculty of Education and Psychology, Institute of Psychology, ELTE Faculty of Social Sciences, Institute of Sociology, University of Gibraltar

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HEAD OF DEPARTMENT: ILDIKÓ BAJI PHD, COLLEGE PROFESSOR

CONTACT: TEL: +36-1-48-64920, E-MAIL: ETK.PSZICHOLOGIA@SEMMELWEIS.HU

ASSESSMENT OF STRESS MANAGEMENT AMONG STUDENTS

At the beginning of their university studies, the pressure significantly increases on students. They face difficulties in terms of fitting in, performance pressure related to obtaining the desired grades and the more intense exposure to stress, which may result in increased anxiety, stress, depression, fatigue, and burn out.

At a global level, the effects of stress on students and together with their negative consequences have reached a degree that students are increasingly exposed to the risk of depression, anxiety and burnout. According to the latest studies, 21-90% of students experience stress load and 27-75% of students experience burn out. 5-10% of students have suicidal thoughts. General exhaustion may induce additional health problems such as sleep disturbances, blood pressure fluctuations or other psychosomatic symptoms.

The purpose of our research is to assess students' overall psychosocial and health psychological state, identify stress factors, analyse the effect of the distress generated by the exam situation on students' psychological and mental condition, and test results. Our goal, furthermore, is to explore approaches that are more effective in dealing with stress, to emotion management and to coping, and to identify all mobilisable resources for students' wellbeing. We intend to develop and study the effect of psychosocial interventions that can effectively help students cope with stress, achieve good exam results and reduce dropout.

In our study, we plan to create a sample involves about 400 students across all university programmes of the Faculty.

HEAD OF RESEARCH: Dr. KOVÁCS, Zsuzsanna

CONTACT: Dr. KOVÁCS, Zsuzsanna - kovacs.zsuzsanna@semmelweis.hu

Anorexia nervosa (AN) has the highest mortality rate among psychiatric disorders at the moment. Its leading symptom is body image disorder. The correction of body image disorders in a therapeutic setting is difficult, sometimes not even addressed, and as a consequence the relapse rate in eating disorders is significant. Body image disorders usually precede pathological eating habits; its diagnosis is of utmost importance. The situation is made more difficult due to the earlier onset of eating and body image disorders thanks to the ever stronger media influence.

There are many methods to measure body image disorders, however, these are mostly questionnaires. Computer-based techniques became available in the last 3 decades, which are able to measure both the perceptual and the attitudinal component of body image. These methods, however, are not yet widespread. The advantage of these methods are that they are immersive, detailed, and they do not require specific equipment other than a computer or a tablet.

One goal of my research is to validate computer-based methods that will be available for practitioners in clinical settings. Presently there are more than one 3D graphic modeling softwares that are perfect for body image measurement, however they are not used for that purpose. As my research I aim to validate the DAZ 3D Studio program, so that I could provide a statistically reliable and valid measurement for clinicians. Moreover, I would like to explore the possibilities provided by the detail-oriented nature of these softwares; body image might not be as homogenous as we have thought earlier – not referring to the perceptual and attitude component – since due to the simultaneously present body image ideals and media messages different body parts might actually carry different significance. Exploring the nature of body image this way might provide valuable insight and contribution to improve the care of eating and body image disordered patients.

HEAD OF RESEARCH: LEINDLER, Milán

CONTACT: LEINDLER, Milán - leindler.milan@semmelweis.hu

HEAD OF DEPARTMENT: **GABRIELLA DÖRNYEI PHD, COLLEGE PROFESSOR, DEAN**

CONTACT: TEL: +36-1-48-64940, E-MAIL:ETK.MORFOLOGIA@SEMMELWEIS.HU

THE POTENTIAL THERAPY OF MOTION DISORDERS BY WHOLE BODY VIBRATION AT EARLY DEVELOPMENTAL STAGE

In our fundamental research program, attention deficit hyperactivity disorder (ADHD) and a potential therapy of it is studied. Previous experiments have established an animal model of ADHD. In this model, the physiology of animals, especially of their brains, can be intensively studied, which is impossible or difficult to perform on human subjects. The basic symptoms of the disorder will be presented on the animals (Wistar rats): hyperactivity, attention deficit, impulsivity and accompanied cognitive and social disturbances. Animals will be exposed to whole body vibration (WBV) at different stages of development and the improvement of symptoms will be tested. Then the positive effects of WBV will be examined on 7-12 year-old children diagnosed with ADHD.

In the followings, the WBV treatment will be applied on children suffered in cerebral palsy as well as in muscle dystrophy.

Our long-term goal is to present the advantages of a simple, non-invasive treatment, and to improve the condition in the mentioned motion disorders.

HEAD OF RESEARCH: Dr. FELSZEGHY, Klára (University of Physical Education)

CONTACT: Dr. HRUSKA, Anett - hruska.anett@semmelweis.hu

PARTNER INSTITUTION: University of Physical Education

EFFECTS OF ENDOCANNABINOID SIGNALING ON VASCULAR FUNCTIONS AND REMODELING

It has been known that endogenously produced cannabinoids (endocannabinoids) play a role in the physiological functions. It has also been known that consuming exogenous cannabinoid-derived drugs may induce alterations of cardiovascular and hormonal system. Effects of endocannabinoids in the nervous system and other tissues are mediated mostly via CB1 cannabinoid receptors (CB1R). We have reported before that CB1Rs influence vascular control mechanisms in some vascular beds.

Thus we aim to investigate the roles of endocannabinoid system and CB1 cannabinoid receptor signaling on the vascular functions and remodeling induced by pathological states (e.g. hypertension, hormonal and metabolic diseases).

Research experimental work is performed in the Laboratory of Molecular Physiology, Department of Physiology of Semmelweis University. Blood pressure of rats and transgenic mice (CB1R knockout) is measured and functions of vessels are measured with myography. Vascular remodeling is detected by tissue staining methods.

Beneficial outcomes of the research project targeting endocannabinoid system and cannabinoid signaling may reveal physiological mechanisms and give a therapeutic potential.

HEADS OF RESEARCH: Dr. SZEKERES, Mária, Dr. KISS Judit

CONTACT: Dr. SZEKERES, Mária – szekeres.maria@semmelweis.hu

PARTNER INSTITUTION: Semmelweis University Faculty of Medicine, Department of Physiology

PUBLICATIONS:

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MAINTAINING OF FUNCTIONAL ABILITIES AND PREVENTION OF FALLS AMONG OLDER ADULTS

We conduct controlled studies to investigate whether different types of physical activity and other preventive programs could be feasible exercise forms for Hungarian older adults too. In addition, we evaluate the short-term and long-term effects of these programs on balance, functional mobility, and kinematic variables of gait, lower limb strength, and aerobic endurance in this population. Furthermore, we assess the factors which influence functional abilities in older adults. Outcome variables including static and dynamic balance, kinematic parameters of walking, functional mobility, lower limb strength, and aerobic endurance are measured with standard clinical tests or biomechanical tools. Between and within groups changes and associations will be analysed with statistical tests depending on data quality.

HEAD OF RESEARCH: Dr. KOVÁCS, Éva

CONTACT: Dr. KOVÁCS, Éva - kovacs.eva@semmelweis.hu

PARTNER INSTITUTION: Regional Methodological Centre and Nursing Home of Municipality of Budapest

PUBLICATIONS:

1. Simonné Wiesel, I., Kis-Kós, P., Gyombolai, Zs., Kubik, A., Báthory, Sz., Kovács, É. (2022). Prevalence of risk factors for falls among older adult ambulant patients on a chronic inpatient ward. *Developments in Health Sciences* (5), 1-7.
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3. Kovács, É. (2023). Az időskorúak elesésének megelőzése. In Bálint, G., Katona, F., Klauber, A., Kullmann, L., Vén, I., *Mozgásszervi betegek és sérültek rehabilitációja*. (pp. 227-235.). Medicina Könyvkiadó Zrt.

As a result of the development of public health and medicine, the population of modern societies worldwide including Hungary is ageing. Shortly, by 2050, one in three people will be over 65.

Over the past decades, the scientific community has made considerable efforts to understand the biological basis of ageing and then to increase life expectancy. However, in recent years, the focus has increasingly focused on extending the quality of old age. This is reflected in Havighurst's famous phrase "more life to the years", for which he first used the term "successful ageing".

Based on the biomedical model of successful ageing, successful ageing means a low risk of chronic diseases and disability resulting from diseases that become more common with age, the highest possible mental and physical functional capacity, and active participation in everyday life.

These components are influenced by the diagnostic and therapeutic methods of health science, the effectiveness and feasibility of which are being investigated by a research team including a doctor, physiotherapists, nurses, dieticians and mental health professionals.

Diagnostic and therapeutic methods based on international literature are used in our studies.

Structural and functional status of the neuromusculoskeletal system, performance of common movements in daily life, mobility and quality of life are measured using biomechanical instruments, functional tests and validated questionnaires. The studies are conducted among community-living older people.

HEAD OF RESEARCH: Dr. KOVÁCS, Éva

CONTACT: Dr. KOVÁCS, Éva - kovacs.eva@semmelweis.hu

A MODEL OF THE VENOUS VARICOSITY DISEASE IN RATS

It is important to know the effects of pressure and flow on the biomechanical changes in the venous wall and on its collateral vessel network for understanding the pathomechanism of venous varicosity. A new animal model was introduced, in which a part of the saphenous vein of rats was partially occluded (4 weeks, pressure increased, flow decreased). Notable angiogenesis and varicosity-like distensions of the side branches were observed after the occlusion. The changes proportionally enhanced with the duration of the occlusion (8-, 12 weeks). The occlusion was combined also with gravitational load (4 weeks, 45° head up tilt position in a tube-like cage). As a result, tortuous vessel segments and significantly enhanced collateral vessel network developed even after 4 weeks. Our further aim is to elucidate the extent of angiogenesis with immunohistochemical markers (f. e. KI-67 (cell division activity), CD 68 (macrophage activity), SMA (smooth muscle actin, angiogenesis), rezorcin fuchsin dye (elastic fibers)).

HEAD OF RESEARCH: Dr. NÁDASY, György (Semmelweis University Faculty of Medicine)

CONTACT: Dr. DÖRNYEI, Gabriella - dornyei.gabriella@semmelweis.hu

PARTNER INSTITUTION: Hungarian Defence Forces Medical Centre, Department of Pathology

PUBLICATIONS:

1. Molnár, A.Á., Nádasy, G.L., Dörnyei, G., Patai, B.B., Delfavero, J., Fülöp, G.Á., Kirkpatrick, A.C., Ungvári, Z., Merkely, B. (2021). The aging venous system: from varicosities to vascular cognitive impairment. *Geroscience*. 43(6):2761-2784. <https://doi.org/10.1007/s11357-021-00475-2>.
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3. Patai, B.B., Dörnyei, G., Tókes, A.M., Hetthéssy, J.R., Fees, A., Nádasy, G.L. (2020). Initiation of reticular and spider veins, incompetent perforantes and varicose veins in the saphenous vein network of the rat. *Sci Rep*. 10(1):15381. <https://doi.org/10.1038/s41598-020-71982-z>.

ROLE OF PHYSICAL ACTIVITY (SPORT) IN PREVENTING VASOMOTOR AND COGNITIVE DYSFUNCTION DURING AGING

It is known that mental / cognitive functions are diminishing with aging. It has also been shown that increased physical and mental activity significantly reduces cognitive aging. This is due to the improved functioning of the cardiovascular system, especially cerebrovascular circulation and its (auto) regulation. Today, the phenomenon the "so-called vascular dementia" (such as forgetfulness) has been recognized, that is the mental decline is due to pathological functioning of cerebral vessels. In the course of our research, this idea is continued by examining the vasomotor function of arteries isolated from the brain of the exercised (EX), compared with the sedentary (SED) rats (young and old, male and female), and correlations will be established among these groups regarding vascular and mental / cognitive function. This research is an extension of our previous research in a similar field. The following specific experiments are planned:

Animal studies:

1. Studying the vasomotor function of cerebral vessels, correlated with the aging of the brain, the cognitive and psycho-motor performance of elderly rats. Functional (vascular changes, agents with known mechanism of action), morphological (such as, wall thickness, enzyme detection, immunocytochemistry and histochemistry) and biochemical (Western blot, PCR) parameters are measured. The focus includes endothelial (NO, PGs), smooth muscle (contractility), and neuro-vascular coupling factors, such as neurotransmitters. Measurement of synaptogenesis and functions under the control of BDNF, PACAP, serotonin, etc., which are crucial for the regulation of learning and sensory motor processes. Later, we are also planning age-related changes. Age will be studied: 3, 12, 24 and 30-32 months.

2. We assume that the following "interventions", "influences", which can be used in clinical practice, improve positively both the vasomotor function of the cerebral vessels and the mental functions of the rats. There are two types of effects that have clinical significance: active and passive exercise types.

Active:

a) rat treadmill: chronic moderately intense therapy (which meets the requirements of the human age), b) rotarod: improving chronic learning and balancing skills and progressing as the workout progresses, c) 'enriched environment' which improves the psychosocial environment d) a combination of the above

Passive:

a) Whole body, pulsed electromagnetic field stimulation (EMT pacing) b) Whole body vibration c) Acute or chronic age dependent

Human Studies:

Examination of forearm and foot skin microvascular reactions (with Perimed Laser Doppler Flow-meter) in various conditions of young and old subjects and the effects of passive and active exercise treatments.

HEADS OF RESEARCH: Dr. KOLLER, Ákos, Dr. NYAKAS, Csaba

CONTACT: Dr. NYAKAS, Csaba – nyakas.csaba@semmelweis.hu

APPLICATION AND ANALYSIS OF MECHANICAL AND ELECTROMAGNETIC TREATMENT METHODS FOR CHILDHOOD CEREBRAL PALSY (CP)

Cerebral palsy (CP) is a central nervous system injury that involves the perception and cognitive functions in addition to damage of motor areas, with cognitive, communication, and affective deficits as co-symptoms. Based on our own and international research, the organization of movement and brain activity (including its early development) are closely related. It is promising to supplement movement development with modern device treatments, in which bionics and bioelectronics play a significant role.

The aim of the study is to assess the possible effects of the devices in relieving the symptoms associated with spastic disease, such as resolving contractures, relaxing spasms, improving balance, movement coordination, and cognitive perception: development of attention and response time. The former is since we consider the central nervous system injury (CP) as a disorder of the learning process, a condition for which there is no cure, and to which we give answers with a pedagogical approach. We hypothesize that several positive observations can be expected using both treatments, however, the focus of our research is to examine which treatment produces effective results and to compare which of the two treatments is more effective.

HEADS OF RESEARCH: Dr. NYAKAS, Csaba, Dr. TÚRI, Ibolya, Dr. BRETZ, Károly

CONTACTS: Dr. NYAKAS, Csaba – nyakas.csaba@semmelweis.hu,
MATISCSÁK, Attila - matiscsak.attila@semmelweis.hu

PARTNER INSTITUTION: Semmelweis University András Pető Faculty

THE GENETIC, EPIGENETIC AS WELL AS CELLULAR FUNCTIONAL CHANGES THAT CHARACTERISE AGEING AND THE PROGRESSION OF GAMMOPATHIES

Steps in the progressive development of symptomatic myeloma multiplex (MM) reveal many genetic and epigenetic changes similar to those seen in the course of ageing without a clinical diagnosis, i.e. in healthy or, in the newer nomenclature, "successful" ageing.

Age-related changes can be considered partly as causal factors in the progression of gammopathies, or they can be seen as more or less independent, parallel cellular events that may accelerate the development of MM. Because of the overlapping phenomena, we conclude that it is not wrong to think of ageing as a causal factor in the progression of MM, adding that memory B cells are particularly susceptible to ageing processes.

Follow-up of research against cellular ageing and geriatric assessment is of great importance in the care of elderly haematological patients. Judicious application of our growing knowledge can be incorporated into prevention, slowing down progression and even becoming part of therapy.

HEADS OF RESEARCH: Dr. MIKALA, Gábor, Dr. URBÁN, Veronika

CONTACT: Dr. URBÁN, Veronika - suhajdane.urban.veronika@semmelweis.hu

PARTNER INSTITUTION: Department of Hematology and Stem Cell Transplantation, South Pest Central Hospital – National Institute for Hematology and Infectious Diseases, Budapest, Hungary

PUBLICATIONS:

1. Urban, V.S., Cegledi, A., Mikala, G. (2023). Multiple myeloma, a quintessential malignant disease of aging: a geroscience perspective on pathogenesis and treatment. *Geroscience*. 45(2), 727-746. <https://doi.org/10.1007/s11357-022-00698-x>. Epub 2022 Dec 12. PMID: 36508077; PMCID: PMC9742673.
2. Urbán, S. V., Kocsis, L. L., Mikala, G., (2022). Az idősödés során jellemző genetikai és epigenetikai változások és a gammopátiák progressziója. *Hematológia-Transzfuziológia* 55, 171-177.

De Quervain's tendinopathy (DQT) is a disease affecting the wrist-hand region. Moving the thumb becomes painful, the hand significantly loses its ability to function. Recent research suggests that the disease is degenerative rather than inflammatory. In Hungary, the first step is the splinting of the hand, the use of non-steroidal anti-inflammatory drugs and various physiotherapy treatments. If these are ineffective, further options include steroid injections into the tendon sheath and surgical incision of the tendon sheath. Among the imaging modalities, conventional X-ray, bone scintigraphy, ultrasound, CT and MRI can help to draw appropriate conclusions. Radiographs do not reveal any lesion in DQT, although there is published research recognising that focal abnormality of the proc. styloideus radii may be a sign of DQT. Bone scintigraphy can detect if there is increased bone resorption along the first carpal compartment, which may also be an indicator of DQT. Ultrasound is also an increasingly common tool for diagnosis and is increasingly being recommended as a monitoring tool alongside certain therapies.

Our aim is to explore the treatment options for de Quervain's tendinopathy, with a special focus on the comparison of Hungarian and foreign recommendations. Treatment efficacy of de Quervain's tendinopathy with eccentric training. Investigation of the treatment efficiency of de Quervain's tendinopathy with imaging diagnostic methods. Differential diagnosis of hand disorders.

The data collection and measurements are carried out in institutions providing inpatient care, on the one hand, and on the other hand, we examine the patient population participating in outpatient care. The socio-demographic data and medical data are obtained from the medical records and the physical and imaging diagnostic examinations in accordance with the ethical approval, and are carried out with the involvement of a specialist practicing a given area of competence. In addition, the eccentric training sessions and additional data collection using a personal interview or questionnaire are carried out, also in accordance with the ethical licence.

HEADS OF RESEARCH: Dr. FÖLDVÁRI-NAGY, Lászlóné Dr. LENTI, Katalin, Dr. FÖLDVÁRI-NAGY, László

CONTACTS: Dr. FÖLDVÁRI-NAGY, Lászlóné Dr. LENTI, Katalin – lenti.katalin@semmelweis.hu

Dr. FÖLDVÁRI-NAGY, László – foldvari-nagy.laszlo@semmelweis.hu

RESEARCH OF THE GASTROINTESTINAL TRACT

Nowadays, microbiome research is one of the most dynamically developing research areas in medicine, providing new data on many diseases, pathomechanisms and new approaches to understand and treat major public health diseases. The gut microbiome is a dynamic system, greatly altered by many factors such as diet, stress, age, environmental factors, and various medical interventions such as antibiotics and chemotherapy. The technological explosion that followed the Human Genome Project opened up the opportunity to understand the bacterial population that lives with us. New generation sequencing has made it possible to determine the composition and species richness of the gut flora, to identify bacterial species/genera with pathologically increased proportions and to investigate their association with various disease states. In recent decades, rapid technical development has helped numerous studies, MetaHIT and the Human Microbiome project, to understand the function, structure, and role of the gut microbiome in health and disease. Extensive association studies of the metagenome (MWAS) map the relationships of the gut microbiome with diseases, host and environmental factors, and wider environmental factors: the rapidly growing amount of data has left many unanswered questions, further research can open new perspectives in the understanding of pathomechanisms and the successful prevention of diseases and treatment, even in the use of new diagnostic markers. The more diverse the gut microbiome, the more stable the ecological equilibrium. The decrease in diversity allows the overgrowth of more resistant invasive dysbiotic species, which may play a role in the development of many diseases of public health importance such as obesity, hypertension, insulin resistance, diabetes, non-alcoholic fatty liver, inflammatory bowel diseases, arthritis, cancer and Alzheimer's disease. Pathologically altered bacterial flora can both induce metabolic changes and increase the permeability of the intestinal barrier by damaging the mucus layer and destroy the structures responsible for integrity by causing low-intensity inflammation. Microbiome-associated diseases lead to pathological conditions such as insulin resistance, obesity and then diabetes. Another group of diseases causes autoimmune inflammations in various organ localizations through inflammatory agents (pathogen associated molecular pattern = PAMP) that pass through biological barriers. The intestinal barrier is a structure consisting of a single layer of epithelial tissue and its anchoring structures, tight-junction proteins, and desmosomes, which is renewed every 3-5 days, plays an important role in the spatial separation of bacteria in the gut, acting as a physical barrier and preventing the translocation of bacteria, toxins, antigens from the lumen. The increased permeability of the barrier contributes to the pathogenesis of many gastrointestinal diseases such as IBD, IBS, celiac disease, and food allergies. Our aim is to gain a better understanding of the microbiome, to explore potentially effective agents and treatment methods in both healthy and unhealthy populations (with a focus on *Clostridioides difficile* infection, the use of probiotics as a supplement to antibiotic therapy or in the treatment of healthy populations). An important focus is on statistical studies with large numbers of cases, systematic reviews and meta-analyses, based on specific criteria found in the literature.

HEADS OF RESEARCH: Dr. FÖLDVÁRI-NAGY, Lászlóné Dr. LENTI, Katalin, Dr. FÖLDVÁRI-NAGY László

CONTACTS: Dr. FÖLDVÁRI-NAGY, Lászlóné Dr. LENTI, Katalin – lenti.katalin@semmelweis.hu

Dr. FÖLDVÁRI-NAGY, László – foldvari-nagy.laszlo@semmelweis.hu

PUBLICATION:

Éliás, A. J., Barna, V., Patoni, C., Demeter, D., Veres, D., Bunduc, S., Erőss, B., Hegyi, P., Földvári-Nagy, L., Lenti, K. (2023). Probiotic supplementation during antibiotic treatment is unjustified in maintaining the gut microbiome diversity: a systematic review and meta-analysis. *BMC Medicine* 21(262) 18 p. <https://doi.org/10.1186/s12916-023-02961-0>

DEPARTMENT OF SOCIAL SCIENCES

HEAD OF DEPARTMENT: **JUDIT HELGA FEITH PHD, HABIL. COLLEGE PROFESSOR**

CONTACT: TEL: +36-1-48-64910, E-MAIL: ETK.TARSTUD@SEMMELWEIS.HU

THE SOCIO-ECONOMIC STATUS OF NURSES

The aim of our research is to get a complex picture about the socio-economic status of Hungarian nurses, along with an understanding of the causes, backgrounds, and expected consequences of their situation. Our plans include making reliable and standard comparison with other reference-groups and with nurse communities of other countries as well. We will examine all dimensions and components of their social status, since we suppose that – just as in other social groups – the particular status-characters are consistent with each other and at the same time, the status-inconsistency appears in the nurse-group as well. To represent the socio-economic status of nurses solely through their income level would be a serious oversimplification. On the contrary, in our research we examine this in 21 dimensions. The causal system, interdependency, and generative correspondence of both subjective and objective indicators of the social status are in the focus of our research.

The complexity and the multidimensional character of our study require several research methods, including survey and focus group inquiry.

HEAD OF RESEARCH: Dr. VINGENDER, István

CONTACT: Dr. VINGENDER, István - vingender.istvan@semmelweis.hu

PUBLICATION:

Vingender I. (2020). Ápolók önreflexív társadalmi presztízse. *Esély: Társadalom és szociálpolitikai folyóirat* 31, 3-21.

SOCIO-CULTURAL PATTERNS OF HEALTHCARE SPECIALISTS' WAY OF THINKING, ACTIVITIES AND COMPETENCIES IN CARING FOR ILL PEOPLE IN SPECIAL LIFE-SITUATION

Healthcare professionals more and more often meet patients who are in special a life-situation. These situations are sometimes the causes of the development of their illness or their patient status, while in other cases they merely accompany the specific life situation. The amount of special life-situations is increasingly growing during the postmodernization of the societies. Due to the differentiation and divergency of social life and to the postmodern social way of thinking, there are more and more identified positions that allow or call for such a denomination.

The social, socio-demographic and socio-cultural position of the healthcare professionals, the special ethos and the normative milieu of their work and profession, as well as the significant stress on their social responsibility taking pose several questions. These include the following: what kind of predispositions they have when facing these special life-situations, what kind of cognitive and behavioural strategies they work out for integrating these aspects into the structure of their work and proficiency, and how they construct their life-world in a healthcare providing segment that is increasingly gaining importance.

The diversified thematic structure and multidisciplinary horizon of the research necessitates the application of various research methods from questionnaire-based survey researches across focus-group researches to the content-analyzes of healthcare documents are necessary.

The results of the research can contribute to the improvement of the community and professional support provided for healthcare workers, to the modernization of their studies, and to increase their work-efficiency.

HEAD OF RESEARCH: Dr. VINGENDER, István

CONTACT: Dr. VINGENDER, István - vingender.istvan@semmelweis.hu

PUBLICATION:

Szalóczy N., Vingender I. (2019). Egészségtudatosság az ápolók körében. *Nővér* 32, 33-36.

Human resources for nurses or recruiting nurses raises not only a qualitative, but also a quantitative issue. Not only is the extremely topical question of where the health care system recruits the required supply of professionals, but also what qualitative indicators this echelon has in the helping role in which the profession is classified.

The knowledge of nurses, including general literacy, professional knowledge, and last but not least the relations connected to gaining the knowledge (as Bourdieu calls it *habitus*) is an extremely complex, multidimensional factor, which diversely defines the casual links. The research explores the origin of nurses' habitus, its patterns of evolution, structural and functional nature, adaptability, recognition for the work performed and convertibility into the other types of capital.

Applying Bourdieu's field-theory, we examine the sociocultural context dealing, interpreting and evaluating this habitus, in other words, the network society, which defines the origin and development of the examined habitus.

HEAD OF RESEARCH: Dr. VINGENDER, István

CONTACT: Dr. VINGENDER, István - vingender.istvan@semmelweis.hu

PUBLIKÁCIÓ:

Vingender I., Szalóczy N., Pálvölgyi M. (2018). The structural components of the situation of nurses in Hungary. *Developments in Health Sciences* 1,49-55.

THE PHILOSOPHICAL HERMENEUTICAL UNDERSTANDING OF INTERCULTURALITY AND ITS CONSEQUENCES ON HEALTHCARE

This research aims at investigating what promises could be identified in deepening the discussion on interculturality by the help of the conceptual framework of philosophical hermeneutics as it was articulated by Hans-Georg Gadamer and Paul Ricoeur. Further to that, it aims to reveal opportunities this inquiry may reveal for the healthcare sector. By analysing the well-known intercultural models in health care delivery, the research would like to foster prevention and resolution of conflicts driven by the relation of parties with different cultural identity.

HEAD OF RESEARCH: Dr. DOBOS, Attila
CONTACT: Dr. DOBOS, Attila - dobos.attila@semmelweis.hu
PARTNER INSTITUTION: University of Debrecen Faculty of Fine Arts

PUBLICATIONS:

1. Dobos A. (2020) Interkulturalitás az egészségügyben. Doktori disszertáció. Debreceni Egyetem BTK Humán Tudományok Doktori Iskola Modern filozófia program.
2. Dobos A. (2010) Use of Hermeneutics *in Dealing with Cultural Diversity* in: M.Onorati-F.Bednarz (eds): *Building Intercultural Competences*. Acco, Leuven
3. Dobos A. (2007) Philosophical Hermeneutical Implications in Geertz's Anthropology. In: *Anthropolis* (3)2., 124-135.

BIOETHICAL DILEMMAS IN PATIENT – PHYSICIAN ENCOUNTER

The aim of the research is to examine the problems that can be thematized in the relationship between healthcare professionals and patients from an intercultural, ethical and bioethical perspective. One of the most important of these is the problem of informed consent and implementation, which is thus the main focus of research. It examines the complementarity of theoretical models prevailing in the doctor-patient relationship through their critical examination.

HEAD OF RESEARCH: Dr. DOBOS, Attila
CONTACT: Dr. DOBOS, Attila - dobos.attila@semmelweis.hu

PUBLICATIONS:

1. Dobos A. (2020) Interkulturalitás az egészségügyben. Doktori disszertáció. Debreceni Egyetem BTK Humán Tudományok Doktori Iskola Modern filozófia program.
2. Dobos A. (2010) Use of Hermeneutics *in Dealing with Cultural Diversity* in: M.Onorati-F.Bednarz (eds): *Building Intercultural Competences*. Acco, Leuven
3. Dobos A. (2007) Philosophical Hermeneutical Implications in Geertz's Anthropology. In: *Anthropolis* (3)2., 124-135.

PATIENT SAFETY COMMUNICATION IN MULTICULTURAL AND MULTILINGUAL HEALTHCARE SETTINGS – A REVIEW OF THE MAIN HEALTH SYSTEMS IN EUROPE

Numerous research has reported on the difficulties of communication in multicultural, multilingual healthcare settings, which often lead to misunderstandings and miscommunication exerting a negative impact on patient care, such as serious harm and preventable adverse events. Therefore, experts emphasize the necessity of clear communication, which can only be established if healthcare institutions have a policy and system for managing multicultural, multilingual cases, their healthcare staff is trained, and professional language services are available.

The aim of the research is to explore what tools the main European health systems have to manage cultural diversity and overcome language barriers in order to prevent minorities and patients not speaking the local language from experiencing inequalities and disparities and provide them with safe and quality care.

HEADS OF RESEARCH: HORVÁTH, Ágnes, Dr. PÖRZSE, Gábor PhD
CONTACT: HORVÁTH, Ágnes - horvath.agnes1@semmelweis-univ.hu
PARTNER INSTITUTION: Semmelweis University Institute for Specific Purposes

ETHICAL AND LEGAL DILEMMAS IN THE PRACTICE OF PERINATAL INTENSIVE CARE AND TO THE LEGAL REPRESENTATIVES OF PATIENTS, FROM THE POINT OF VIEW OF THE BEGINNING AND THE END OF LIFE

The general goal of the research is to shed light on the formation of the social and professional identities and roles of medical and health care professionals working in perinatal intensive care. Furthermore, we aim to understand the coping strategies these professionals use when facing communicational, professional, personal, and social challenges. At the same time, we concentrate on the effects of brand new technological solutions in the everyday medical practice of the field.

Our research focuses on those critical points where the related ethical and legal norms no longer correspond with professional and personal values. Due to these conflicting argumentations, several questions arise about the beginning and the end of life.

The other aim of our research is to conduct a survey among parents of children treated in perinatal intensive care centers in Hungary, primarily to explore the psychological, communication and decision-making difficulties encountered during patient care, especially in relation to the legal dilemmas involved.

HEAD OF RESEARCH: Dr. FEITH, Helga Judit

CONTACT: Dr. FEITH, Helga Judit - feith.helga@semmelweis.hu

PUBLICATIONS:

1. Feith, H.J., Soósné Kiss, Zs., Pilling, J., Kovács, A., Szabó, M., Cuttini, M., Berbik, I., Gézsi, A., Gradwohl, E. (2019). The impact of ethical and legal decision-making in neonatal intensive care on psychosocial wellbeing of the health care professionals – The overview of the HUNIC project study design. *European Journal of Mental Health*, 14 (2), 311-323.
2. Feith, H.J., Sallai, E.Zs., Soósné, Kiss Zs., Kovács, A., Szabó, M., Gézsi, A., Berbik, I., Gradwohl, E. (2019) Orvosok és ápolók véleménye a szülői döntési kompetenciákról a NIC osztályokon. *Gyermekgyógyászati Közlemény*, 70 (6), 393-398.
3. Feith, H.J., Sallai, E.Zs., Soósné, Kiss Zs., Gézsi, A., Gradwohl, E., Kovács, A., Berbik, I., Szabó, M. (2022) Életvégi döntésekkel kapcsolatos attitűdök a neonatológiai intenzív ellátásban dolgozók körében - Jogi szempontok a döntések hátterében. *Lege Artis Medicinae*, 32 (06-07), 289-297.

INTEGRATION EXPERIENCES OF PARENTS OF SCHOOL-AGED-CHILDREN WITH AUTISM SPECTRUM DISORDER IN A LOCAL SOCIAL CONTEXT

Social and symbolic boundary-processes related to disability experiences are put in a particular ray of light by the perspective of families raising a kid with a disability. The boundaries that define family itself are re-understood in relation to disability, as caring of a disabled child supposes a social network of relationships of educators, health and social care professionals, informal actors (such as neighbours, friends) as active agents of the everyday life of the family. Based on the social model of disability, disability is situative because all the family members around the disabled are sharing experiences of disability: even though family members may acquire different perspectives, experiences, tasks, understandings, the family in its unity experiences disability. The different formal and informal actors helping the family may reacting differently to the needs of the family and creates their narratives about it in different ways too. The central focus of this research is on families raising kids living with autism. It concentrates on the relevance of the developed family-school interface on the experiences of inclusion of these families. In doing so, it explores the discourses of the local society and school about autism, inclusion/exclusion that forms the educational strategies of the parents also. Therefore, the local social-cultural-economic context has to be discovered too, because it forms many phenomena, including patterns of interactions about school disadvantages or disabilities.

HEAD OF RESEARCH: NAGY, Éva

CONTACT: NAGY, Éva - nagy.eva@semmelweis.hu

PARTNER INSTITUTION: University of Debrecen Faculty of Fine Arts

PUBLICATIONS:

1. Nagy, É. (2021). Az autonómia és a gondoskodás fogalmai a szülőség kontextusában. *Socio.hu - Társadalomtudományi Szemle*, 11(4), 85–113. <https://doi.org/10.18030/socio.hu.2021.4.85>
2. Nagy, É. – Horkai, A. (2021): Parental caringscapes - the analyses of mothering practices in local community contexts. *Acta Medicinae et Sociologica* (12). No. 33.

Cognitive functioning refers to multiple mental abilities, including learning, thinking, reasoning, remembering, problem-solving, decision-making, and attention. Cognitive functions and abilities enable intellectual functioning. During many diseases, cognitive functions can also be impaired, but lifestyle factors also have a significant impact on cognitive functioning. So far, our studies examined cognitive dysfunctions following SARS-CoV-2 infection, which usually manifests as frontal dysexecutive syndrome combined with fatigue and dysphoria and/or attention and memory impairments.

In the present studies, we examine the relationship between smartphone use and cognitive functioning. The vast majority of previous studies have focused on problematic smartphone use, which results in reduced/poor performance in many cognitive functions. At the same time, everyday smartphone use can have both negative and positive effects on cognitive functioning. The mode of "use", process or social, is highly individual-dependent and has different effects on cognitive functioning. Furthermore, the impact of smartphone use on cognitive functioning is significantly influenced by individual differences in users, such as socioeconomic status, mental state (anxiety, self-confidence, FOMO, fear of missing out, etc.), personality (e.g. neuroticism), which can influence the negative impact of smartphone use on cognitive functioning.

The strength of our studies is that compared to previous studies, which use dementia screening tools with limited sensitivity to assess cognitive functioning, we conduct an objective, computerized cognitive assessment (Vienna Test System). With this type of assessment of cognitive functioning, subtle differences in performance can be measured in different conditions.

HEAD OF RESEARCH: TAKÁCS, Johanna, PhD

CONTACT: TAKÁCS, Johanna, PhD – takacs.johanna@semmelweis.hu

PUBLICATIONS:

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SCIENCE, RESEARCH AND INNOVATION POLICY AND MANAGEMENT, AS WELL AS ITS PRACTICAL APPLICATIONS

The fundamentally changing structure of research and education makes it essential to pay more and more attention to the development of the synergistic cooperation between the University, Industry and Government. It is becoming increasingly necessary to build an efficient science and research organization, to create a well-thought-out innovation policy, for which the analysis of financing systems, the extensive mapping of their more effective exploitation possibilities, and the examination of the practical applications of innovative solutions are of fundamental importance. With their research in the fields of health, social and management sciences, the students participating in the program promote the generalization of innovative thinking, the adaptation and further development of international guidelines in the domestic environment. In addition to the training of practical specialists, it is essential to place a strong emphasis on research combining theory and practice of these topics at an international scientific level. The task of research is to shed light on the economic and social connections between innovation processes and new types of solutions and approaches. The topic includes many subfields, which in themselves are on the border of several scientific fields. A fundamental objective for the students participating in the research is to view these different multidisciplinary approaches as a unit.

Innovation activities and their financing is one of the key issues of the economy. This has increased importance in the field of health and management sciences. The existing research potentials can only lead to success if they are properly organized. By now, the importance and necessity of research networks has become unquestionable. Researching the possibilities and effectiveness of clusters, competitiveness poles, knowledge centers, and innovation-oriented institutional operations that establish bridges and connections between the university, industry, and state spheres is an important step in order for networks that adapt to international trends to function. The goal is for the research to prioritize the multidisciplinary, subject-specific aspects of innovation related to health, social and management sciences, and to find key gaps and seek solutions for them.

HEAD OF RESEARCH: Dr. PÖRZSE, Gábor Ferenc PhD

CONTACT: Dr. PÖRZSE, Gábor Ferenc PhD - porzse.gabor@semmelweis.hu

PARTNER INSTITUTION: Corvinus University of Budapest, Sorbonne University, Paris

HEALTH OF THE PERIPHERIES - THE PERIPHERIES OF HEALTH: EARLY CHILDHOOD HEALTH INEQUALITIES IN BELSŐ-CSEREHÁT

The unequal distribution of the social determinants of health manifests itself in the most unfair way possible in the case of young children. In the early years of life, not only development, but also vulnerability is the most intense, therefore various risk factors threaten long-term health. Moreover, the rate of return on investing in early childhood is very high, thus it is pivotal at the level of society, too. As a result of these moral and socio-economic considerations an extensive body of literature exists on the trends, mechanisms and consequences of early childhood health inequalities at the international level. However, in Hungary relatively little social scientific attention is paid to it. There is a lack of in-depth research addressing the mechanisms of spatial and social inequalities in health within a coherent theoretical framework. Consequently, evidence may remain hidden that could inform interventions to create the conditions essential for the health of young children. The proposed research aims to contribute to filling these gaps in knowledge.

The research explores the interconnections between social and spatial determinants of health in one of the most deprived micro-regions in Hungary. The study also exposes the local imprint of macro processes from a bottom-up perspective. It investigates how phenomena that transcend the local level influence the health-related behaviour, patterns and opportunities of families as well as their sociocultural, economic, infrastructural, institutional and service environment.

HEAD OF RESEARCH: Dr. VINGENDER, István, NÉMET, Erzsébet Anita

CONTACT: NÉMET, Erzsébet Anita - nemet.erszebet.anita@semmelweis.hu

DEPARTMENT OF NURSING

HEAD OF DEPARTMENT: **ZOLTÁN BALOGH BSN, MSC, PHD, COLLEGE PROFESSOR, VICE DEAN**

CONTACT: TEL: +36-1-48-65929, E-MAIL: **ETK.APOLASTAN@SEMMELWEIS.HU**

THE IMPACT OF COVID-19 ON THE DEVELOPMENT OF SIMULATION-BASED TEACHING METHODS

Simulation as an innovative teaching method is becoming increasingly popular in all areas of training for healthcare professionals. Understanding and applying this state-of-the-art educational technique is essential to training the health professionals of the future. As a result of the COVID-19 pandemic, several novel, unknown, simulation-based teaching methods have emerged as alternatives.

The aim of the research is to introduce and apply different simulation - based teaching techniques for educators and healthcare teachers. It is especially important to examine how new simulation-based techniques can be placed in different subjects, and how simulation can be placed as an educational methodology in the curriculum and further training of healthcare teachers and nursing professionals.

WELL-BEING INVESTIGATION OF PERSONS WITH DEMENTIA IN HUNGARY AND SWEDEN: QUALITATIVE INTERVIEW RESEARCH FROM THE PERSPECTIVES OF THE RELATIVES

Introduction: Dementia is one of the leading challenges of the aging societies of the 21st century, which is a featured problem in the European Union, including in Hungary and Sweden. One of the corner stones of caring for a person with dementia is maintaining his/her well-being, which cannot be measured due to the nature of the disease. The theory of person-centred care and symbolic interactionism emphasizes the focus on the attitudes of relatives, which can be used to examine the nursing-care approach of a person with dementia, including the observation of patient well-being.

Objectives: Analysis of the perceptions of the well-being of relatives of people with dementia living in elderly care institution in Sweden and Hungary. The research has a touch of ethnographic approach and uses phenomenographic qualitative research analysis with the help of individually edited help questions that leads to semi-structured in-depth interviews.

Method: As a data collection tool, we apply five to five deep interviews that will be conducted in each country with a pre-selected method for relatives at a pre-arranged location. Interview will be made by using an interview guide and lasts approximately 30-40 minutes. The interviews in both countries will be recorded, transcribed and the Hungarian material will be translated to Swedish. The material will be shared with the help of an excel spreadsheet via Dalarna University's cloud (coded storage) and will be analysed using the data analysis method of phenomenographic research.

Conclusion: The research will hopefully contribute to the rise of attention of care and nursing approaches for people with dementia. It could draw attention to the dignity of people who suffer in dementia and the interrelationships between aspects of their care and well-being. It highlights the importance of person-centred care and the need of support for relatives. The bilateral nature of the research emphasizes the international path of dementia and may contribute to the modernization and cost-effectiveness of future social care in the European Union and to the development of university-level nursing training.

HEAD OF RESEARCH: BALOGH, Zoltán PhD

CONTACT: STALLER, Judit - staller.judit@semmelweis.hu

FROM, Ingrid PhD - ifr@du.se

NILSSON, Jenny - v19jenil@du.se

PARTNER INSTITUTION: Dalarna University, Sweden

PUBLICATION:

Nilsson, J., Staller, J., Gesar, B., From, I. (2023). The Well-Being of People with Dementia in Sweden and Hungary from the Perspective of Relatives: A Qualitative Interview Study. *Health and Social Care in the Community*, 2023. Article ID 4754066

MENTAL HEALTH AND COPING CAPACITY OF NURSES

Introduction: In 2021, an international cross-sectional study was conducted to map the mental health and coping capacity of nurses during the COVID-19 pandemic, internationally. The COVID-19 pandemic placed great demands and enormous stress on healthcare workers. The results of the study were as follows: fear of infection, intention to leave care work and fear of infection related to care were inversely related to nurses' resilience ($p < 0.05$). Regression analysis showed that nurses in the US had significantly higher resilience than those in the other countries studied ($p < 0.001$). Nurses who reported organizational support in the survey and those who participated in policy and procedure development had higher resilience ($p < 0.01$).

Objectives: The results of that study confirmed further, more focused research is needed to examine more extensively the correlations with nurses' education, place of care, and years in practice and whether these factors correlate with nurses' resilience, and how they mitigate the quality-of-care responses to the pandemic in different countries.

Method: In 2023, the same researchers plan to carry out a geographically expanded follow-up study. Hungary would be appointed to this cross-section follow-up version. The Hungarian translation of the official 10-item validated Connor-Davidson Resilience Scale 10 (CD-RISC-10) © has been obtained, and the official Hungarian validated Professional Quality of Life Scale ProQOL will also be used in the questionnaire.

HEAD OF RESEARCH: BALOGH, Zoltán PhD

CONTACT: STALLER, Judit - staller.judit@semmelweis.hu

REIFSNIDER, Elizabeth PHD, RN, FAANP, FAAN) -
Elizabeth.Reifsnider@asu.edu

PARTNER INSTITUTION: College of Nursing and Health Innovation, Arizona State University, USA

The European Union regulated the cuts and needlestick injury prevention issues, methods in 2010, which the domestic legal system adapted in 2013. We performed four investigative researches into the Hungarian situation with regard to needlestick injuries among health care workers in the period 2006-2019.

The objectives of the previous study were twofold: to reveal the trend in the extent to which health workers are affected, and to draw the attention of economic and professional decision-makers to the importance and currency of the issue.

The aim of current study is to explore what changes have occurred over the past five years in the practice of care, the incidence of needlestick accidents, the orders of accident reporting procedures and in the attitudes of healthcare workers as well as in the methods and tools used.

The results of the research are basically for the development of professional trainings for workers, which are organized on a yearly basis to prevent needlestick and cut injuries, to prevent accidents, to apply preventive mechanisms to be followed, and to learn about post-accident work and good practice. At the same time, we intend to use the research results in the development of curricula at nursing education at BSc and MSc.

HEAD OF RESEARCH: BALOGH, Zoltán PhD

CONTACTS: BALOGH, Zoltán PhD – balogh.zoltan@semmelweis.hu

SINKA LÁSZLÓNÉ ADAMIK, Erika - sinka@emk.semmelweis.hu

SMUK, Veronika – smuk.veronika@semmelweis.hu

PARTNER INSTITUTIONS: Chamber of Hungarian Healthcare Professionals, Semmelweis University
Health Services Management Training Centre, Semmelweis University
Doctorial School of Health Sciences

POSSIBILITIES OF STUDENT ATTITUDE FORMATION IN THE FRAMEWORK OF TEACHING THE SUBJECT „PSYCHIATRY AND NURSING”

In the first phase of our research, which ended in 2020, we examined the knowledge of health professionals about mental illnesses and their attitudes towards the people affected by the ailments. In addition to the historical development of psychiatric care, we presented the prevailing views today, general theories about stigma, and the stigma associated with mental disorders. Exploring the most important research results of the international and domestic literature, we confirmed the lack of nursing education and the need for attitude formation with the conclusions drawn from the results of our own research.

Using the results of our online questionnaire survey to uncover hidden stigmatizing attitudes, we would like to continue our previous research and examine student attitudes in the second phase. The theoretical teaching of the subject “psychiatry and nursing” in our department, has been involving experiential experts for the third year in a row. From the very beginning, we have been using a questionnaire before a lesson starts to measure the attitudes of students, and at the end of the course the effectiveness of teaching with experiential experts. In connection with the previously mentioned things, our further plans include the development and application of a new type of „psychiatric simulation scenario”, which is still unknown in college psychiatry education.

In line with our previous objectives, we would like to use educational development tools to promote the acceptance of people with mental disorders. We would like to reduce stigma and thereby strengthen the core values of the nursing profession.

HEADS OF RESEARCH: BALOGH, Zoltán PhD, Dr. ÁCS Andrea PhD

CONTACT: ÁCS, Andrea PhD - acs.andrea@semmelweis.hu

PARTNER INSTITUTION: Awakenings Foundation - Semmelweis University Community Psychiatric Centre

APPLICABILITY OF BIOLUMINESCENT MONITORING DEVICES IN NURSING PRACTICE

The prevention of healthcare-associated infections is a multifaceted task. The real results can be achieved with a complex approach only, involving the relevant disciplines (technical or health science). In contrast to the previous, predominantly environment-oriented approach, recently we are talking about infection control activities, in which, traditional methods continue to play a role, necessarily. Currently, the basis for examining the effectiveness of the certain procedures and protocols is mostly provided by culture testing following environmental or personal sampling, or merely visual inspection. Nowadays, an innovative solution have been accepted as the Semmelweis Scanner, which provide opportunities primarily in the field of education and further training, especially in the field of improving the protocol and the movements of hand disinfection. In contrast, in the practice the measurement of effectivity is still carried out by traditional methods of microbiological analysis. Although, these are essential procedures that provide a lot of information, their disadvantage is that we do not receive immediate feedback on the examined area, and therefore, the possibility of correction is extended. The application of the lumitester instrument in nursing practice can be an advantage, especially due to the time and cost implications of microbiological methods. In the bioluminescence-based method, the products of the enzymatic degradation of adenosine triphosphate (ATP) and adenosine monophosphate (AMP), luciferase and pyruvate phosphate dikinase, are detected

Within the framework of our multi- and interdisciplinary research, we want to investigate the application possibilities of bioluminescence in an active patient care environment. The study focuses primarily on high-risk elements of nursing activities in terms of infections, including milieu and surfaces where the possibility of biofilm formation arises, playing a role in the development of colonization or infection. The analysis of the samples is quantified with mathematical operations and characteristic intervals that can be performed with quantified data.

The main area of application of our research is education, with a special emphasis on the joint program that can be implemented in connection with the training of nurses and public health inspectors. In any case, education must play a major role in achieving safe patient care. Thus, bioluminescent monitoring devices could be used to a large extent in the effectiveness of the teaching of (hand) hygiene good practice, within the framework of the projects of the two specialization.

HEADS OF RESEARCH: RAJKI, Veronika PhD, KÁDÁR, László Csaba

CONTACTS: RAJKI, Veronika PhD – rajki.veronika@semmelweis.hu

KÁDÁR, László Csaba – kadar.laszlo@semmelweis.hu

PARTNER INSTITUTIONS: Semmelweis University Faculty of Health Sciences, Department of Epidemiology

When the WHO and the International Council of Nurses declared 2020 the International Year of the Nurse and the Midwife, it was not suspected at all that the world's attention was focused on health care and health care professionals so much. It all happened because of the COVID-19 pandemic. However, attention to another pandemic, HIV / AIDS, remains much lower.

The topic of HIV infection / AIDS is one of the common link between the nursing and midwifery professions. Representatives of both professions have / would have a part in providing information on how HIV spreads and how HIV does not spread. The role would be common in supporting HIV prevention and promoting medical confidentiality. Both nurses and midwives have a common moral and ethical responsibility in dealing with fear, stigmatization, isolation, marginalization, and discrimination. The responsibility is also shared in shaping attitudes. Furthermore, both nurses and midwives are at risk of HIV infection, due to their work. Therefore, the monitoring and ensuring the post-exposure prophylaxis (PEP) and precautions have paramount importance for nurses and midwives. Through their trainings, nurses and midwives become competent in caring for problems associated with HIV infection and the students are aware of the used medical treatments, cART therapy, and the specifics of caring for HIV-infected pregnant and their newborns.

Keeping the possibilities of multi- and interdisciplinary pedagogy in mind, we intend to carry out joint researches on the topic of HIV/AIDS with the involvement of students from the two specializations. The results of these researches focus on education, with special emphasis on joint professional programs in nursing and midwifery and the development of topic-specific knowledge too.

HEADS OF RESEARCH: RAJKI, Veronika PhD, KRÉMER LIPIENNÉ, Ibolya PhD

CONTACTS: RAJKI, Veronika PhD – rajki.veronika@semmelweis.hu

KRÉMER LIPIENNÉ, Ibolya PhD – kremer.ibolya@semmelweis.hu

PARTNER INSTITUTIONS: Semmelweis University Faculty of Health Sciences, Department of Clinical Studies in Obstetrics and Gynaecology

Nowadays, blood safety and hemovigilance remain a top priority issue in healthcare in Hungary and internationally. The importance of the topic is clarified by the domestic and international practice, as well as the domestic and international legal aspects, guidelines and strategies affecting patient safety, covering the entire process of the transfusion chain.

In the previous years, a nationwide survey was conducted on the topic of transfusion-related knowledge of Hungarian nurses and their role in blood safety. The further research is the continuation of a survey of nurses. The new research aims to fill the gaps in the medical, professional aspects of transfusion therapy. As part of the research, a survey will be conducted among physicians and healthcare practitioners on the topic of clinical transfusiology on local habits, knowledge, attitude, and administrative and/or technical errors in the practice.

A further aim of the research is to highlight on the practical problems of transfusion therapy due to a lack of knowledge, in order to outline the extent and form of further improvements in transfusion therapy in courses in order to effectively reduce errors, mistakes in the practice.

HEAD OF RESEARCH: RAJKI, Veronika PhD

CONTACT: RAJKI, Veronika PhD – rajki.veronika@semmelweis.hu

DEPARTMENT OF DIETETICS AND NUTRITION SCIENCES

HEAD OF DEPARTMENT: **CSAJBÓKNÉ DR. CSOBOD, ÉVA PHD, COLLEGE PROFESSOR**

CONTACT: TEL: +36-1-48-64820 E-MAIL:ETK.DIETETIKA@SEMMELWEIS.HU

MONITORING THE NUTRITIONAL STATUS AND NUTRIENT INTAKE VALUES OF THE ELDERLY. ELDER EDUCATION FOR INFLUENCING NUTRITIONAL ATTITUDES

More and more attention is paid to the nutritional status and testing of nutritional problems that affect the development and quality of life of the human body from conception all the way to old age. The problem occurs not only in developing but also in developed countries. Therefore, the study of the dietary habits and nutritional status is in the centre of focus even here.

The target group will be elderly people. The assessment of nutritional status will be made with BMI (body mass index) and with bioelectrical impedance analysis equipment (InBody 170/770). For the malnutritional risk screening Mini Nutritional Assessment (MNA) method will be used. The dietary assessment methods will be examined with the help of 3-day records, 2x24-hour recall. The nutritional attitude will be tested with Likert / Osgood scale. The data processing will be performed with "NutriComp Sport" programme. The evaluation of the data (descriptive statistics, significance analysis, correlation test) will be done with SPSS statistical and Excel program. In our country, primarily cross-sectional studies have been carried out so far, thus the novelty of his study is its longitudinal investigation.

HEAD OF RESEARCH: VERESNÉ Dr. BÁLINT, Márta

CONTACT: VERESNÉ Dr. BÁLINT, Márta – veresne.balint.marta@semmelweis.hu

THE HYGIENE OF FORMULA KITCHENS, ACTIVITY PROCESS MANAGEMENT AND ITS INFORMATION SYSTEM

In hospitals that supply infants, formula kitchens operate attached to the infant care units. There are no guidelines on how to operate these kitchens and how to regulate the ongoing activities. Since hygiene is of key importance in such places, in the hygiene manual of the institution these questions - regarding food preparations, breast milk collection, the preparation of the possible complementary foods - should be discussed. The aim of our research is to assess whether healthcare institutions regulate the above-mentioned activities to any extent. Based on the results, we would like to make recommendations for universal criteria that would fit in the good hygienic practice.

HEAD OF RESEARCH: CSAJBÓKNÉ Dr. CSOBOD, Éva, Dr. SINKA, Magdolna

CONTACT: CSAJBÓKNÉ Dr. CSOBOD, Éva – csajbokne.csobod.eva@semmelweis.hu

HEALTHY FUTURE – SUSTAINABILITY IN PUBLIC FOOD

The social, public health and nutritional significance of public catering is becoming the center of attention today, and there is an increasing expectation in consumer, economic, political and social terms. However, the responsibility of public catering is not just about shaping the public's health, responding to the objective and subjective needs of consumers, it is not just an economic question, but also its impact on the environment is becoming more and more important in many countries in terms of sustainable development. Sustainability is a process of development (land, cities, production processes, societies, etc.) that "satisfies the needs of today without reducing the ability of future generations to meet their own needs" (United Nations Organization 1987 Brundtland report). In the course of our research, we examine the ways in which the various catering establishments can help to realize this.

HEADS OF RESEARCH: CSAJBÓKNÉ Dr. CSOBOD, Éva, BARTOS, Krisztina

CONTACT: CSAJBÓKNÉ Dr. CSOBOD, Éva - csajbokne.csobod.eva@semmelweis.hu

FACTORS INFLUENCING INTELLIGENCE LEVEL WITH SPECIAL ATTENTION TO NUTRITION

The aim of the research is to find out the dietary habits that influence the development of intelligence levels. To look for correlations between the intake of vitamins, minerals and trace elements and the existing level of intelligence. How do dietary behaviours such as vegetarianism and higher intakes of long-chain polyunsaturated fatty acids and iron in children who have been breastfed for a long time affect the intelligence level of the Hungarian population, as described in previous literature.

Methods: Questionnaires and food diaries will be used to assess the dietary habits of the subjects. Methods will also include reviews and meta-analysis studies of previous publications.

HEAD OF RESEARCH: Dr. MÁK, Erzsébet

CONTACT: Dr. MÁK, Erzsébet – mak.erszsebet@semmelweis.hu

ROLE OF DIFFERENT DIETARY FIBRES IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

The primary aim of this research is to summarise the dietary implications of dietary management of PCOS, with a particular focus on the role of dietary fibre. The immediate objective is to get at least 50% of patients to have a normal blood glucose curve by eating a diet rich in a particular type of fibre. The dietary habits of the subjects will be assessed by questionnaire or by dietary diary. Methods will also include review or meta-analysis type studies from previous publications.

HEADS OF RESEARCH: HERMÁNNÉ Dr. JUHÁSZ, Réka, Dr. MÁK, Erzsébet

CONTACT: HERMÁNNÉ Dr. JUHÁSZ, Réka – hermanne.juhasz.reka@semmelweis.hu

SUPPORT OF THE DIETOTHERAPY OF DIABETES PATIENTS BY USING A MOBILE APPLICATION PROGRAM

According to the data of the International Diabetes Federation, there are 387 million people living with diabetes, the prevalence of diabetes is 8.3%. The diabetes prevalence is 7.5% among the domestic population. The object and purpose of the research is to support the development of a mobile application system from the point of view of dietetics. This application would hinder the progression of diabetes and thus decrease complications. Our hypothesis is that the mobile application systems and motivational trainings providing individualized patient motivation assessment systems as well as blood sugar level prognosis possibilities would support the development of better life-style habits.

HEAD OF RESEARCH: Dr. MÁK, Erzsébet

CONTACT: Dr. MÁK, Erzsébet - mak.erszebet@semmelweis.hu

PARTNER INSTITUTION: University of Pannonia Healthcare Business Analytics R&D Center

STUDY OF THE EFFECTS OF SPELT AND LOW FODMAP DIETS IN PATIENTS WITH IRRITABLE BOWEL SYNDROME AND INFLAMMATORY BOWEL DISEASE IN REMISSION

Irritable bowel syndrome (IBS) is a functional disorder affecting the gastrointestinal system. It affects 10-15% of the population worldwide and accounts for about 25% of all presentations in gastroenterology outpatient clinics. Low-FODMAP (low fermentable oligosaccharide, disaccharide, monosaccharide and polyol) diets have been shown to alleviate symptoms in patients with IBS and improvements in IBD disease-specific scores have been demonstrated. The aim of this study is to investigate the effects of sourdough and conventional gluten-free breads on quality of life, with a focus on abdominal discomfort and bloating, using clinical data.

HEADS OF RESEARCH: Dr. MÁK, Erzsébet, Dr. IHÁSZ, Ferenc (University of West Hungary)

CONTACT: Dr. MÁK, Erzsébet - mak.erszebet@semmelweis.hu

PARTNER INSTITUTION: Grain Research Nonprofit Ltd.

COMPARISON OF THE DIETS OF VEGAN AND CONVENTIONAL DIET GROUPS AS A FUNCTION OF SEASONALITY

The current huge popularity of plant-based diets can be attributed to a number of reasons, most of which are ethical, ecological, spiritual and health-related. My aim was to compare a domestic vegan and a conventional dietary sample in terms of nutrient intake and seasonality, as such studies have not yet been done in our country. I also aimed to investigate the ecological footprint, taking into account seasonality. I have applied for ethical approval (SE RKEB 275/220) to carry out this research. The diets of the two groups (n=15/15 individuals) were monitored seasonally for one year using a three-day food diary. diaries were analysed using NutriComp software. I adopted the World Health Organization and European Food Safety Authority recommendations as the basis for nutrient requirements.

HEAD OF RESEARCH: Dr. MÁK, Erzsébet

CONTACT: Dr. MÁK, Erzsébet - mak.ertzsebet@semmelweis.hu

THE ROLE OF PUBLIC CATERING AS A FORM OF NUTRITION EDUCATION IN THE DEVELOPMENT OF NUTRITIONAL ATTITUDES

Civilisation diseases include overweight and obesity, which are potential causes of other chronic non-communicable diseases. These include cardiovascular disease, malignant tumours and diabetes and its complications. Public catering is the organised provision of food to populations of different ages, sexes, occupations and varying health status. My work will examine the organised form of nutrition, public catering, from a complex health-science perspective, analysing studies that will provide a sound basis for the necessary direction of change. My aim is to map the current public catering system, to identify its shortcomings and deficiencies, and to find its positive features.

HEAD OF RESEARCH: Dr. MOLNÁR, Szilvia

CONTACT: Dr. MOLNÁR, Szilvia - molnar.szilvia@semmelweis.hu

ASSESSMENT OF THE NUTRITIONAL ATTITUDES OF AND THE PREVALENCE OF TAKING PRENATAL VITAMIN PRODUCTS BY PREGNANT WOMEN IN THE LIGHT OF THEIR MENTAL HEALTH

The means as infants are fed during the first 1,000 days of their life has a significant bearing on their later exposure to obesity and/or to non-contagious, chronic diseases. Such first 1,000-day period is deemed to start on the date of their conception and last when they become of 2 years old. The adequate nutrition of the mother is important for the healthy development of the infant and the mental well-being of the mother is also indispensable from the same aspect. The aim of our research was mapping the health consciousness and the nutritional habits of pregnant women and their inclination take prenatal vitamin products and folic acid while their mental status was also surveyed and assessed in the same context. We also surveyed the correlation between our findings and the socio-demographic characteristics of the participants.

HEAD OF RESEARCH: Dr. MOLNÁR, Szilvia

CONTACT: Dr. MOLNÁR, Szilvia - molnar.szilvia@semmelweis.hu

INVESTIGATION OF BIOLOGICALLY ACTIVE COMPONENTS IN FOOD

One of the focus points of the research is the determination of the antioxidant properties of domestic foodstuffs (e.g. honey, small-series vinegars, fruits and vegetables as well as their preparations, fermented alcoholic beverages). We also investigate the impact of certain food processing technologies (e.g. thermal treatment) on changes in antioxidant capacity. These results are completed by targeted, product-specific physico-chemical measurements and (classical and instrumental) sensory analyses. The relationships existing between the different properties can be determined by statistical methods, highlighting new interdependences between these, enabling estimation of botanical/geographical origin. The other main direction of our research is the determination of allergen contaminants and mycotoxins in selected foodstuffs and devices used during food processing.

HEADS OF RESEARCH: Dr. BENEDEK, Csilla, HERMÁNNÉ Dr. JUHÁSZ, Réka

CONTACT: Dr. BENEDEK, Csilla - benedek.csilla@semmelweis.hu

HERMÁNNÉ Dr. JUHÁSZ, Réka – hermanne.juhasz.reka@semmelweis.hu

PARTNER INSTITUTION: Hungarian University of Agriculture and Life Sciences Faculty of Food Science

MONITORING NUTRITION STATUS AND NUTRIENT VALUE AT ALL AGES TO IDENTIFY FACTORS OF DIET-RELATED DISEASES AND HEALTH PRESERVATION

There is a worldwide growing interest in the investigation of the nutritional status and erroneous eating habits. These interrelated factors heavily affect the development and quality of life of the human organism from conception to ripe old age. Nutrition related problems also occur in the developed countries apart from the developing countries. Therefore, the study and assessment of the nutritional habits and of the closely related nutritional status are important focus areas of reseraches in the developed countries. The study of the young adult age group plays a particularly important part in this field, because during these formative years young adults are consolidating their health-influencing life habits. The investigations will be planned to be conducted among young adults. The research participants are the students of the Semmelweis University Faculty of Health Sciences. The nutritional status analysis will be carried out on InBody 770 bioimpedance analyser device. The procedure incorporates Body Mass Index calculation. The nutritional intake of the subjects will be recorded with the help of a 3-day dietary record. The recorded data will be analysed with the help of the NutriComp nutrition analysis software. The statistical evaluation will be carried out with the help of SPSS and Microsoft Excel softwares. There have been mainly cross-sectional studies conducted in our country to this day. The novelty content of this study is that it is a groundbreaking longitudinal study.

HEAD OF RESEARCH: Dr. LICHTHAMMER, Adrienn

CONTACT: Dr. LICHTHAMMER, Adrienn – lichthammer.adrienn@semmelweis.hu

INVESTIGATING THE RELATIONSHIP BETWEEN HUMAN NUTRITION AND COMPANION ANIMAL NUTRITION

According to available data, one in four people is a dog keeper. The complex relationship between the owner and his/her pet (companion animal) is primarily an ethologically studied area. The influencing effects of dog / cat husbandry on human lifestyle, nutrition and physical activity are even less known and less researched areas. The effect of dog / cat husbandry on physical activity is well-known, but the effect on human lifestyle and diet has been negligible.

The aim of our research is to assess the health status and nutritional attitude of a group of pet owners. Examination of pet husbandry as an influencing factor on health behaviors, especially with regard to nutrition, including in detail the rhythm of eating, following fad, alternative diets (vegan, B.A.R.F., ketogen), similarities between their cooking habits. Another goal is to explore and analyze the behavioral relationships of nutrition between the owner and the pet (companion animal), and to implement a quality of life study.

HEADS OF RESEARCH: VÉKONY, Blanka, Dr. MÁK, Erzsébet

CONTACTS: VÉKONY, Blanka – vekony.blanka@semmelweis.hu

Dr. MÁK, Erzsébet – mak.erszebet@semmelweis.hu

Polycystic ovary syndrome (PCOS) is one of the most common (12-24%) diseases in women of reproductive age resulting infertility. Diagnosis of PCOS based on a consensus since cause and mechanism are not exactly known. However, most of patients suffer from obesity and insulin resistance, therefore suitable diet is essential in their treatment. Diet includes limitation of carbohydrate intake. Every meal should include a certain amount of carbohydrate obtained by a mix of fast and slow absorbing sources.

Slow absorbing carbohydrates can be provided by high dietary fiber content food such as cereals, wheat or oat bran, wheat germ, fruits and vegetables. Among dietary fibers the most common types are cellulose, inulin, beta-glucan and non digestible oligosaccharides (ie xylo-oligosaccharides). The main benefit of consuming proper amount of dietary fibers are their ability to decrease absorbing rate of sugars thus facilitate to achieve the optimal blood sugar curve and normal blood sugar level.

Aim of research is to develop a dietotherapy effective in medicine less treatment of women with PCOS. Effect of regular consumption of dietary fibers on blood sugar level, insulin level and certain female hormones are investigated in comparison with the recently used blood sugar regulating medicines.

HEADS OF RESEARCH: HERMÁNNÉ Dr. JUHÁSZ, Réka, Dr. MÁK, Erzsébet

CONTACT: HERMÁNNÉ Dr. JUHÁSZ, Réka – hermanne.juhasz.reka@semmelweis.hu

PARTNER INSTITUTION: Centre of Translation Medicine

DEVELOPMENT OF FUNCTIONAL FOOD PRODUCTS

Objective of the research is to develop food products in several food groups (such as bakery products, dried pasta, milk substitute drinks etc.) that are suit to certain diets and have additional nutritional value. Gluten and milk free food products are intended to produce with high protein, dietary fiber, vitamin and antioxidant content and with low sugar and carbohydrate content in order to meet the requirements of both the food industry and the consumers.

Product composition and technological properties are analysed using classic and instrumental analytical methods such as titration, spectrophotometry, liquid chromatography. Physical properties are also tested with special focus on rheological characteristics using rotational viscometry and texture profile analysis methods. Sensory properties of product are evaluated using well documented methods including statistical analysis.

Wide range of measurement results allows us to investigate the interactions between certain food ingredients and to evaluate nutritional value of the developed food products. Nutritional and technological aspects of food development are combined resulting healthy and attractive products.

HEADS OF RESEARCH: Dr. BENEDEK, Csilla, HERMÁNNÉ Dr. JUHÁSZ, Réka

CONTACTS: Dr. BENEDEK, Csilla - benedek.csilla@semmelweis.hu

HERMÁNNÉ Dr. JUHÁSZ, Réka – hermanne.juhasz.reka@semmelweis.hu

HAJAS, Lívía - hajas.livia@semmelweis.hu

PARTNER INSTITUTION: Hungarian University of Agriculture and Life Sciences Faculty of Food Science

PUBLICATIONS:

1. Hajas, L., Benedek, Cs., Csajbókné Csobod, É., & Juhász, R. (2022). Development of Protein- and Fiber-Enriched, Sugar-Free Lentil Cookies: Impact of Whey Protein, Inulin, and Xylitol on Physical, Textural, and Sensory Characteristics. *Foods 11* (23). <https://doi.org/10.3390/foods11233819> Q1- IF 5,561
2. Hajas, L., Sipos, L., Csajbókné Csobod, É., Veresné Bálint, M., Juhász, R. & Benedek, Cs. (2022). Lentil (Lens Culinaris Medik.) Flour Varieties as Promising New Ingredients for Gluten-Free Cookies. *Foods 11* (14). <https://doi.org/10.3390/foods11142028> Q1 - IF 5,561

The presence of fad diets in the public consciousness is now natural, which is partly due to the fact that the number of obese people has tripled worldwide in the last nearly 50 years. As part of this, dieters and those suffering from other diseases are constantly looking for new-minded diets and lifestyle-changing approaches. In recent decades, a variety of eating trends that promise weight loss or health have appeared in several waves. Their effectiveness has not been proven. Their different prescriptions mostly from a misunderstanding of basic life processes. This is why it is often the case that dieters do harm to themselves rather than benefit from the diet they follow.

The aim of our research is to assess the habits, motivations, orientation habits and knowledge of healthy dieters following different fad /alternative diets (eg: intermittent fasting, ketogenic, paleo, vegan, raw vegan). Our study included a comparison of diets followed, demographic data such as body mass index, level of education, type of residence. A further aim of the research is to assess the dietary attitudes, food choices, possible cooking habits, adverse and desirable effects, and their frequency of those who follow popular diets.

HEADS OF RESEARCH: VÉKONY, Blanka, Dr. MÁK, Erzsébet

CONTACTS: VÉKONY, Blanka – vekony.blanka@semmelweis.hu

Dr. MÁK, Erzsébet – mak.erzsebet@semmelweis.hu

DIETARY ADHERENCE OF PATIENTS WITH LIFELONG DIET-ASSOCIATED GASTROINTESTINAL DISEASE AND ITS RELATIONSHIP WITH HEALTH STATUS AND NUTRITIONAL STATUS

Ethics clearance: SE RKEB-7/2018 and SE RKEB 162/2020

The research includes cross-sectional and follow-up surveys on diet quality, dietary adherence, health literacy, and nutritional status.

The studies examine the diet quality and dietary adherence of adults with coeliac disease and adolescents (12-18 years) with inflammatory bowel disease (IBD) based on diet diaries and compare their health understanding and nutritional status. During patient encounters (face-to-face and online), nutritional diaries are validated by dietitians, a 24-hour feedback survey is conducted, dietary adherence is assessed using the KID-MED and CDAT adherence tests, and health understanding is assessed using the Newest Vital Sign (NVS) questionnaire.

The novelty of this research is that we are looking for associations between diet adherence, health understanding, and nutritional status of adults with celiac disease and adolescents with IBD. The long-term practical outcome of these studies would be a greater emphasis on regular dietary counseling, monitoring, and tracking of dietary adherence in the care of patients with coeliac disease and IBD. A further important outcome would be to raise awareness of the importance of the patient's understanding of the information needed to implement the diet.

HEAD OF RESEARCH: Dr. PÁLFI, Erzsébet

CONTACT: Dr. PÁLFI, Erzsébet – palfi.erszsebet@semmelweis.hu

PUBLICATIONS:

1. Dako, E., Dako, S., Papp, V., Juhasz, M., Takacs, J., Csajbokne Csobod, E., & Palfi, E. (2023). Energy and nutrient intakes and their relationship to body composition in patients with celiac disease. *Orvosi Hetilap*, 164(51), 2024-2032. <https://doi.org/10.1556/650.2023.32928>
2. Pintér, H. K., Boros, K. K., Pálfi, E., & Veres, G. (2019). Nutritional intake and body composition in children with inflammatory bowel disease. *Developments in Health Sciences*, 2(4), 97-103. <https://doi.org/10.1556/2066.2019.00004>

HEAD OF DEPARTMENT: **MÓNIKA HORVÁTH DPT, PHD, COLLEGE PROFESSOR**

CONTACT: TEL: +36-1-48-65980, E-MAIL: ETK.FIZIOTERAPIA@SEMMELWEIS.HU

THE ROLE OF WHOLE BODY VIBRATION IN THE TREATMENT OF SARCOPENIA

Sarcopenia is a progressive, generalised disease of the musculoskeletal system, associated with loss of muscle mass, qualitative changes and deterioration of muscle function. Sarcopenia is closely associated with advancing age, leading to difficulty of movement and poor quality of life. In its management, it is important to maintain physical function and improve health, which we aim to achieve in our research by applying whole body vibration training. Whole body vibration training is widely used in sports, fitness and physiotherapy. Continuous and intermittent vibrations can be given, producing acute and chronic effects. Exercises on a vibration platform are safe and well tolerated by patients with various diseases. Biological effects have been demonstrated by surface electromyography, with an increase in striated muscle activity. Vibration training in geriatrics is used for prophylactic and therapeutic purposes. The procedure is safe and easy to apply, and its effects on physical and functional performance have been proven in numerous studies. It increases physical performance, muscle strength and improves static balance. By increasing the efficiency of movements, falls can be prevented and quality of life improved. In this study, whole body vibration is used in the patient population. The aim of the research is to improve muscle strength, balance and coordination, where research results will be used to demonstrate the positive effects of whole body vibration in the treatment of sarcopenia.

HEADS OF RESEARCH: Dr. HORVÁTH, Mónika, KISS-BÁLVÁNYOSSY, Eszter

CONTACT: KISS-BÁLVÁNYOSSY, Eszter - kiss.balvanyossy.eszter@semmelweis.hu

PARTNER INSTITUTION: Semmelweis University Geriatrics Clinic and Centre for Nursing Sciences

THE EFFECT OF THE UPPER LIMB IMMOBILISATION ON WALKING AND BALANCING

During walking, the alternating movement of the lower limbs causes the whole body to perform a continuous forward motion, during which the movement of the upper limbs has been shown to be related to the movement of the lower limbs. Arm swing is largely passive, but active control is also required. The aim is to increase and optimise the stability of gait. Its role in dynamic balancing and thus in the prevention of falls is proven. The subject of our research is the effect of a fixed upper limb on gait parameters and balancing. When the arms are restricted, postural control and dynamic balancing are reduced, thereby reducing performance, and gait performance is reduced. Upper limb immobilisation affects gait parameters differently across age groups. Deterioration in gait regularity may also be associated with an increased risk of falls, i.e. it may be an index of instability. The aim of this research is to objectively determine these parameters with the aim of highlighting the importance and necessity of balance and gait development in the rehabilitation of older people, people with upper limb dysfunction and shoulder injuries.

HEADS OF RESEARCH: Dr. HORVÁTH, Mónika, KISS-BÁLVÁNYOSSY, Eszter

CONTACT: KISS-BÁLVÁNYOSSY, Eszter- kiss.balvanyossy.eszter@semmelweis.hu

EFFECT OF PELVIC STABILITY ON ANGULAR DEVIATIONS OF THE LOWER LIMB

When we talk about lower extremity angular deviations caused by pelvic instability, we first think of the valgus state of the knee. A large proportion of cruciate ligament tears resulting from non-contact injuries commonly suffered by athletes are caused by weakness in the muscles of the pelvis. The aim of this research is to develop an exercise programme to reduce the risk of lower limb injuries in both competitive and recreational athletes. Muscle strength and activity are detected using biomechanical measuring devices. The kinetics of the lower limb are analysed using a motion analysis device, and manual therapy is performed to identify pelvic dysfunctions and muscle stereotypies. The training consists of three therapeutic phases. The first part is the segmental stabilisation training, the main task of which is to activate the core muscles. In the second stage, the aim is to perform functional exercises, first on a stable surface and then, depending on progress, on an unstable surface. In the third part, in addition to functional exercises, participants will also perform sport-specific exercises.

HEAD OF RESEARCH: Dr. HORVÁTH, Mónika

CONTACT: WOLF, Gabriella - wolf.gabriella@semmelweis.hu

MAPPING OF MUSCLE IMBALANCES AND ASYMMETRIES AFFECTING SHOWJUMPING PERFORMANCE

Due to the diversity of equestrian disciplines, the specificities of a rider's performance vary considerably. Although research in this area is limited, some published studies have concluded that riding alone improves the rider's physical abilities only to a minimal extent, and that additional training is required to achieve optimal physiological fitness. Weakness in the muscles that stabilise the spine can contribute to asymmetry in the rider's position. Such unevenness can lead to conflict between horse and rider communication, loss of balance, reduced performance and possible injury. When riding, propulsive forces from the horse's limbs are transmitted to the rider and the asymmetry of these forces can affect the load symmetry of the rider's pelvis. The prevalence of low back pain in riders is higher than in the general population but it is not clear whether the risks are specific to riding. Years of riding lead to the accumulation of various types of asymmetries, as well as an increased incidence of postural errors and pain.

Our aim is to identify the most common muscular dysbalance caused by riding, to map the possible causes of riders' low back pain, and to investigate the effect of reducing asymmetries on rider performance. EMG and dynamometer will be used to determine muscle imbalances, load asymmetry will be detected by means of a plantar pressure sensor, and manual therapy will be used to determine pelvic dysfunction. We monitor rider performance through sport-specific functional testing.

HEADS OF RESEARCH: Dr. NYAKAS, Csaba, BALOGH, Orsolya

CONTACT: WOLF, Gabriella - wolf.gabriella@semmelweis.hu

PARTNER INSTITUTION: Hungarian University of Sport Science

MUSCULOSKELETAL INJURY PREVENTION IN PARAATHLETS

Paraathletes may be considered to be at high risk for musculoskeletal injuries due to their congenital or acquired disabilities and / or disabilities. The available literature is incomplete in the international context, and no comprehensive research assessing musculoskeletal complaints has been carried out in our country. The aim of our research is to develop a prevention program in cooperation with the Hungarian Paralympic Committee. According to a preliminary questionnaire survey, almost 60% of the surveyed Hungarian athletes have pain related to sports. The extremely heterogeneous sample - different disabilities and classification - only partially allows the development of a group sports-specific program. We aimed to develop individual programs based on the results of the physical examination, the type of disability and the knowledge of the sport.

HEAD OF RESEARCH: Dr. MAYER, Ágnes
CONTACT: Dr. MAYER, Ágnes - mayer.agnes@semmelweis.hu
PARTNER INSTITUTION: Hungarian Paralympic Committee, SE Department of Orthopaedics

DEVELOPMENT OF THE SKELETAL MUSCLES OF ADOLESCENTS WITHIN THE FRAMEWORK OF PHYSICAL EDUCATION CLASSES

According to the WHO, one of the most serious public health challenges of the 21st century is the reduced physical activity, which is a risk factor for many diseases. In Hungary, the NETFIT test battery was introduced in 2014 to test and follow children's physical condition. Our previous research analyzed the test results of students after the introduction of NETFIT until 2021. We found that the students' performance on NETFIT tests did not improve.

The aim of our research is to assess whether adolescents can be improved within the framework of physical education classes by including a specific set of exercises compiled by a physiotherapist in the curriculum during the school year.

HEADS OF RESEARCH: BODNÁR, Hajnalka, Dr. MAYER, Ágnes
CONTACT: BODNÁR, Hajnalka – bodnar.hajnalka@semmelweis.hu

NEW WAYS OF IMPROVING THE FITNESS ABILITIES OF THE INTERVENING STAFF, MANAGING THE EXTREME EFFECTS OCCURING DURING DISASTER ERADICATION

Based on the HAC's science-taxonomic classification and its 2012/7/III/9. and 2014/7/VI/1. resolutions, military science resides within the disciplines of the field of social sciences. Definition: knowledge system summarizing hypothetical theses and experiences defining the success of the military forces and tools applied against the challenges and dangers threatening national and international security.

Modern military science makes recommendations, besides military strategy, military doctrines, military operations, military tactics, on the most expedient organization and execution of the construction of the armed forces, specific shaping of their organizations, their preparations, their material, technical and military healthcare supply and logistics.

Defense science includes the military theory and practice related to warfare, armed combats, defense economics, military technology, policing and law enforcement. In the more and more complex and broad understanding of the defense of the country, the role of the law enforcement is interpretable beside the „classic” military science or within military science (Police; Disaster Management, including the roles of civil defense and firefighting; the NTCA).

The biggest asset of the armed and law enforcement organizations is their staff. The aptitude of personnel should be examined during selection and preparation. The objective of field retention (while upholding deployability, combat capability) is the continuous training, the development of conditional abilities and rehabilitation when necessary. The development of conditional abilities deserves distinct attention in all branches of national defense and law enforcement. During the everyday work of the intervening personnel, they are subjected to enormous burdens. Central nervous systemic, regulatory and muscular (local) factors play a crucial role in the reduction of performance, exhaustion. The hardened can utilize their reserves better; therefore such development of the nervous system needs to play a role in order to keep up the performance of the personnel in the long run. I have given the neurological approach a prominent role in my research, like the examination of coordination and balancing ability. I examine all possible opportunity, which could reduce the damage to health, but at the same time could maximize the years in service and professional fulfillment and the expected quality of life.

HEAD OF RESEARCH: VÁSÁRHELYI-NAGY, Ildikó

CONTACT: VÁSÁRHELYI-NAGY, Ildikó – vasarhelyi-nagy.ildiko@semmelweis.hu

PARTNER INSTITUTIONS: National University of Public Service, Doctoral School of Military Engineering

HEAD OF DEPARTMENT: JÁNOS RIGÓ MD, PHD, DSC, PROFESSOR

CONTACT: TEL: +36-1-48-64890, E-MAIL: ETK.SZULESZETI@SEMMELWEIS.HU

THE IMPACT OF ENDOMETRIOSIS ON THE QUALITY OF LIFE

Endometriosis is an inflammatory chronic pain condition caused by uterine tissue growing outside of the uterus. This problem affects at least 10% of women worldwide. Endometriosis may have a profound negative influence on the lives of individuals, seriously affecting quality of life, participation in daily and social activities, physical and sexual functioning (especially fertility), educational and work productivity, mental health, and well-being.

The aim of our study is to measure the long-term impact of endometriosis on different aspects of women's lives based on a validated questionnaire (Endometriosis Impact Questionnaire) completed with our questions (with the permission of the original authors) in order to gain comprehensive informations about the quality of life of these women.

HEADS OF RESEARCH: Dr. BORJÁN, Eszter, Prof. Dr. RIGÓ, János

CONTACT: Dr. BORJÁN, Eszter - borjan.eszter@semmelweis.hu

EVALUATION OF STUDENTS' PERFORMANCE DURING OBSTETRIC SIMULATION PRACTICES

Simulation is an essential part of healthcare education nowadays. Complexity of simulation practices provide excellent opportunities to evaluate students in a safe and controlled environment. We use the Creighton Simulation Evaluation Instrument as a validated tool during the exams after obstetric simulation courses in order to evaluate students' performance.

HEADS OF RESEARCH: Dr. BORJÁN, Eszter, Prof. Dr. RIGÓ, János

CONTACT: Dr. BORJÁN, Eszter - borjan.eszter@semmelweis.hu

DEPARTMENT OF CLINICAL OPHTHALMOLOGY

HEAD OF DEPARTMENT: ILLÉS KOVÁCS MD, PHD, ASSOCIATE PROFESSOR

CONTACT: TEL: +36-1-48-65855, E-MAIL: ETK.SZEMESZETI@SEMMELWEIS.HU

DIAGNOSIS AND THERAPY OF CORNEAL DYSTROPHIES

The aim of this study is to evaluate the accuracy of new imaging methods in the diagnosis of vision-threatening corneal dystrophies as well as to measure the improvement in visual acuity after therapy. As a result of this study we can acquire knowledge concerning corneal dystrophies causing poor vision and through the management of the disease we can assure a better quality of life for patients.

HEAD OF RESEARCH: Dr. SZENTMÁRY, Nóra

CONTACT: Dr. KOVÁCS, Illés - szemeszeti.tanszek@se-etk.hu

THE ROLE OF ORTHOKERATOLOGY IN MYOPIA CONTROL

The aim of this study is to analyze the outcomes in more than 150 patients who have undergone orthokeratology at the Department of Ophthalmology, Semmelweis University. This study focuses on objective tests (such as measuring refraction, axial length, corneal thickness) during the follow-up period. The variation of axial length in children subjected to orthokeratology treatment is slight. The control group exhibits more change in axial length than the orthokeratology group. As a result of this study we acquire knowledge about the pathomechanism of myopia progression and the possibilities of influencing it in order to improve the quality of life of patients.

HEAD OF RESEARCH: Dr. TAPASZTÓ, Beáta

CONTACT: Dr. TAPASZTÓ, Beáta - tapaszto.beata@semmelweis.hu

NEW POSSIBILITIES IN THE THERAPY OF KERATOCONUS

Keratoconus is a progressive, bilateral corneal ectatic disease that, if not diagnosed preoperatively, can lead to corneal ectasia following refractive surgery. The aim of this prospective clinical study is to evaluate the effectivity of corneal crosslinking treatment in keratoconus at different stages of the disease. We use Scheimpflug imaging, aberrometry and corneal sensitivity measurements to detect subtle changes in corneal topographic, tomographic, optical and sensory parameters after treatment. The results of this study might help to initiate therapy in a timely manner to prevent disease progression and might be used in planning an individualized treatment to effectively prevent further postoperative corneal ectasia in patients with keratoconus.

HEAD OF RESEARCH: Dr. NAGY, Zoltán Zsolt

CONTACT: Dr. NAGY, Zoltán Zsolt – nagy.zoltan_zsolt@med.semmelweis-univ.hu

NEW POSSIBILITIES IN THE DIAGNOSIS OF EARLY KERATOCONUS

Keratoconus is a progressive, bilateral corneal ectatic disease that, if not diagnosed preoperatively, can lead to corneal ectasia following refractive surgery. The aim of this prospective clinical study is to evaluate the accuracy of new imaging methods in the diagnosis of early keratoconus with no associated clinical signs. We use Scheimpflug imaging and aberrometry to detect subtle changes in corneal topographic, tomographic and optical parameters. The results of this study might help to initiate therapy in a timely manner to prevent disease progression and might be used in keratoconus screening to prevent postoperative corneal ectasia in patients scheduled for corneal refractive surgery.

HEAD OF RESEARCH: Dr. KOVÁCS, Illés

CONTACT: Dr. KOVÁCS, Illés - szemeszeti.tanszek@se-etk.hu

DEPARTMENT OF FAMILY CARE METHODOLOGY

HEAD OF DEPARTMENT: LAJOS ATTILA RÉTHY MD, PHD, DSC

CONTACT: TEL: +36-1-48-64840, E-MAIL: ETK.CSALADGONDOZAS@SEMMELWEIS.HU

SURVEY ON THE GASTROINTESTINAL SIDE EFFECTS OF ANTIBIOTICS IN CHILDREN & RECENT PREVENTIVE MEASURES

In the lack of representative and comparable data on the side effects and efficacy of probiotic support during antibiotic (AB) therapy among children, the main goals of present study are:

- a. to evaluate the data of a representative, large scale survey targeting the current prevalence of AB-associated gastrointestinal (aaGI) side effects in children.
- b. To evaluate current preventive therapies and their effects among children receiving AB treatment.

HEAD OF RESEARCH: Dr. RÉTHY, Lajos Attila PhD DSc

CONTACT: Dr. RÉTHY, Lajos Attila - rethy.lajos.attila@semmelweis.hu

ROLE OF INDOOR ALLERGENS IN THE DEVELOPMENT OF ALLERGIES FROM CHILDHOOD

Airway symptoms provoked by indoor allergens (house dust mites, fungal allergens, animal dander etc) many times may mimic regular symptoms of common cold. Delay in the diagnosis may result in the development of concomitant further allergies (allergic march).

The main goal of the study is the elaboration of better preventive measures by understanding the role of indoor allergens in this process.

HEAD OF RESEARCH: Dr. RÉTHY, Lajos Attila PhD DSc

CONTACT: Dr. RÉTHY, Lajos Attila - rethy.lajos.attila@semmelweis.hu

PUBLICATION:

Réthy, L. A. (2023). A táplálékallergiák megelőzésének korszerű lehetőségei. In T. Szamosi (Ed.), *Betegségmegelőzés a gyermekgyógyászatban* (pp. 163-185). Medicina Könyvkiadó.

EXAMINATIONS OF URINE HOLDING AND EVACUATION PROBLEMS

Urodynamics is the study of function of the lower urinary tract. There is a significant application of this technology in a number of diverse clinical pediatric problems, and it can be used in patients of both sexes from infancy to adulthood. The aim of the study is to investigate micturition in children with Type 1 (insulin-dependent) diabetes and to look for early signs of diabetic autonomic neuropathy, and to assess the relationship between urinary bladder dysfunction and subclinical cardiovascular autonomic neuropathy in diabetic children and adolescents. To investigate neurotoxicity of different drugs for bladder function.

HEAD OF RESEARCH: Dr. SZABÓ, László PhD DSc

CONTACT: Dr. SZABÓ, László – szabo.laszlo4@semmelweis.hu

PUBLICATIONS:

1. Szabó, L., Vissy, Á., Bajusz, I., Losonczi, K., Deák, M., Réti, Gy., Lombay, B., Meichelbeck, K., Bíró, K., Rudolf, J., Merksz, M., Kiss, A., Poloviczer, M., Molnár, D., Pázmány, P., Kiss, Sz., Földi, M., Zsákai, A., Dorkóné, M., Martonné, T.G., Grosz, T.M., Farkas, B., Martonosi, Á.R. (2023). Urodynamics in childhood, 36 years' experience. *Hungarian Pediatrics*, 2023(1), 7-17.
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3. Martonosi, Á.R., Pázmány, P., Kiss, Sz., Zsákai, A., Szabó, L. (2022). INvesTigating the Abnormality of detrusor ConTractility by uroflowmetry in diabetic children (INTACT Trial): protocol of a prospective, observational study. *BMJ Open* 2022;12:e062198. doi:10.1136/bmjopen-2022-062198

DEVELOPING AN EDUCATIONAL PROGRAMME FOR THE PREVENTION OF SHAKEN CHILD SYNDROME

Based on the results of the first Hungarian research, the development of a primary prevention education material for professionals that can be integrated into the antenatal care. In addition, a pilot abuse prevention education programme for parents.

Directions for further research:

1. Focus on the importance, understanding and management of crying. Crying is the strongest parenting stressor, inducing up to 70% of the upsets.
2. Educational pilot programme - parenting preparation programme for pregnant women and their partners, incorporating a specific abuse (SBS/AHT) prevention programme
3. Development of training methodology material for professionals

HEAD OF RESEARCH: TOMÁNÉ MÉSZÁROS, Andrea

CONTACT: TOMÁNÉ MÉSZÁROS, Andrea – tomane.meszáros.andrea@semmelweis.hu

A PROSPECTIVE ANALYSIS OF POSTPARTUM FEMALE SEXUAL FUNCTIONS

Childbirth bring many changes into a couple's life including sexuality. Postpartum female sexual problems are common after birth. Our research sought to investigate how the mode of delivery, newborn feeding methods, incontinence, and quality of relationship, depression and body image as well as sociodemographic functions influence postpartum female sexual functions. We planned a prospective analysis using validated and self-made questionnaires. The results can help to understand the connection between these factors, which can be the base of further professional protocols.

HEAD OF RESEARCH: SZÖLLŐSI, Katalin

CONTACT: SZÖLLŐSI, Katalin - szollosi.katalin@semmelweis.hu

PUBLICATIONS:

1. Szöllősi, K., Komka K. & Szabó L. (2021). Risk factors for sexual dysfunction during the first year postpartum: A prospective study. *International Journal of Gynecology & Obstetrics*, 157(2), 303-312. <http://doi.org/10.1002/ijgo.13892>
2. Szöllősi, K., Szabó, L. (2021). The Association Between Infant Feeding Methods and Female Sexual Dysfunctions. *Breastfeeding Medicine*, 16(1), 93–99. <http://doi.org/10.1089/bfm.2020.0256>

SURVEY ON THE CAUSES OF THE EMERGENCE OF PREMATURE BIRTH/LOW BIRTH WEIGHT/DEVELOPMENTAL DISORDER

In Hungary, the proportion of premature births is 8.7%. This is higher than the European average (2016), which has not changed significantly over the past two decades. Comparing to European countries, we find the highest proportion of "immature premature babies" (<34 weeks) (15%), which means nearly 1,400 babies per year. In addition to premature births, there is a significant incidence of mild (39.9 / 1000) and severe (13.9 / 1000) developmental disorders. These conditions significantly affect short-term survival chances after birth, and long-term health-related years, causing chronic illnesses and often permanent damage. These facts affect the development of a person and also have a significant effect on the family's functioning, its possible weakening and numerous social processes. The emergence of these two crises has significant implications for pregnancy-related and non-maternal illnesses, demographic, social, economic and psychological impacts on maternal health behaviors, addictive behaviors. The detailed mapping and correlation analysis of these facts help to design interventions based on representative research results in Hungary.

TUKEB number: 5297-2/2018/EKU

HEAD OF RESEARCH: Dr. FOGARASI-GRENCZER, Andrea

CONTACT: Dr. FOGARASI-GRENCZER, Andrea- fogarasi-grenczer.andrea@semmelweis.hu

NUTRITION THERAPY FOR DYSPHAGIA WITH SPECIAL EMPHASIS ON STROKE PATIENTS

Introduction: Stroke and its immediate complications are the third most common cause of death in our country. The increasing number of stroke diseases implies the need to treat the associated dysfunction, including swallowing. 30-50% of acute stroke patients (ASPs) suffer from dysphagia. These patients have a high risk of dehydration, malnutrition, aspiration pneumonia, and cough due to reduced nutrient and fluid intake due to dysphagia. Their poor prognosis is higher mortality. **Aims:** My goal is to draw attention to the negative consequences of dysphagia, its complications, and effective solutions to help patients with dysphagia avoid time-consuming and consistently malnutrition. Supporting their quality of life, effective healing, and rehabilitation. **Method:** A questionnaire design designed at designated stroke department to examine the characteristics of applying a texture-modified (dysphagia diet) will help provide adequate, elaboration of an educational method for dietitians, based on the professional protocols of nutrition therapy, to facilitate the practical implementation of the nutritional therapy of dysphagia. **Result:** The educational program consists of two important elements. One is the dysphagia chef program, which has already been tried and successfully operated for three years, on which we can build the first, unified educational method for dietitians. They will master the technology recommendations based on practical elements and have been tested in advance and will then be taught the circumstances, conditions, needs and process of preparing foods of changed consistency. **Conclusion:** The method first handles and develops educational materials designed for dietitians to enrich the nutrition team with scientifically sound knowledge and practical. experience, helping to provide safe nutrition tailored to the needs of dysphagia stroke patients.

HEADS OF RESEARCH: KOVÁCS, Andrea, Dr. FOLYOVICH, András, Dr. BÁLINT, Márta

CONTACT: KOVÁCS, Andrea – kovacs.andrea.ildiko@semmelweis.hu

PARTNER INSTITUTIONS: New Szent János Hospital Stroke Center, Semmelweis University Faculty of Health Sciences Department of Dietetics and Nutrition

TRENDS IN ABORTION AND CHARACTERISTICS OF APPLICANTS IN HUNGARY

The number of abortions has significantly decreased in Hungary in recent years (56404 individuals terminated their pregnancies in 2001; 21800 individuals in 2022), yet we still remain at the forefront in Europe. The counseling services of the Family Protection Service cover abortion requests, counseling on partner selection, and the dissemination of family planning knowledge. Specially trained health visitors also provide counseling and support to women affected by abortions, aiming to minimize the occurrence of abortions. Our research aims to summarize and present the results of the national database for professional organizations and experts. We intend to determine the outcomes of abortions, the number of terminated pregnancies, and the characteristics of individuals submitting requests (age groups, educational backgrounds, regional distribution). The research data contribute to recognizing the problem, indirectly addressing issues related to contraception, and supporting preventive measures within communities. Our collaborating partner in the research is the National Public Health and Pharmaceutical Center, which manages the database of Family Protection Services' activities."

HEADS OF RESEARCH: Dr. FOGARASI-GRENCZER, Andrea PhD, Dr. KORMOS-TASI, Judit PhD

CONTACT: Dr. FOGARASI-GRENCZER, Andrea- fogarasi-grenczer.andrea@semmelweis.hu
Dr. KORMOS-TASI, Judit – kormos-tasi.judit@semmelweis.hu

PARTNER INSTITUTION: National Institute of Public Health and Pharmacy

HEALTH PROMOTION IN SCHOOL-AGED CHILDREN

One of the areas of the health visitor's work in Hungary is the school nurses work, the main task of which is to improve the health behavior of school-aged children. In our research, we can get a comprehensive picture of the health status of the school-aged children in Hungary by retrospectively analyzing the annual reports (mostly the results of the screening tests) of the school nurses participating in the primary health care of schools. This can be the starting point for planning and then implementing health promotion programs. In addition to the analysis, with the involvement of health visitor students, we make school health promotion work, and we can measure the efficiency with various indicators. During the preparation of the students, we use all elements of the organization and planning of modern health development.

HEADS OF RESEARCH: Dr. KORMOS-TASI, Judit PhD, Dr. FOGARASI-GRENCZER, Andrea PhD

CONTACT: Dr. KORMOS-TASI, Judit – kormos-tasi.judit@semmelweis.hu

DEPARTMENT OF CLINICAL STUDIES

HEAD OF DEPARTMENT: **KLÁRA GADÓ MD, PHD, COLLEGE PROFESSOR, DEPUTY GENERAL DEAN**

CONTACT: TEL: +36-1-48-64850, E-MAIL: ETK.EGTUD.KLINIKAI@SEMMELWEIS.HU

THERAPEUTIC ADHERENCE OF ORAL ANTICOAGULANTS

Therapeutical adherence of patients is necessary for the effective medical treatment. As venous thromboembolic diseases have a high morbidity and mortality rate, and these patients experience significant decrease in the quality of life, prevention and effective treatment have a great importance. It is well known that only 40% of patients with venous thromboembolic diseases are treated effectively. We have to recognize the factors of non-adherence to improve the efficacy of the treatment. The aim of the research is to identify the factors of non-adherence, to map the patient's knowledge about their illnesses, to improve patient education. Comparing the therapeutical adherence to vitamin K antagonists and new oral anticoagulants are also part of the study. The main goal is the improvement of the efficacy of anticoagulant therapy.

HEAD OF RESEARCH: Dr. GADÓ, Klára MD, PhD

CONTACT: Dr. GADÓ, Klára - gado.klara@semmelweis.hu

PARTNER INSTITUTION: Semmelweis Egyetem Szent Rókus University Hospital and its Institutions

ECONOMIC AND PATIENT SAFETY ISSUES RELATED TO ONE-DAY SURGERY

We would like to make a review about the rules, specialities and problems concerning One-Day Surgery in Hungary compared to other countries. Subsequently we project a representative assessment questionnaire about One Day Surgery in Hungary. The topic of this study is the economical organisation and patient safety at One-Day Surgery, especially infection control.

HEAD OF RESEARCH: Dr. GADÓ, Klára MD, PhD
CONTACT: Dr. GADÓ, Klára - gado.klara@semmelweis.hu
PARTNER INSTITUTION: Health Care Service of Ferencváros

PREPARATION AND EXAMINATION OF TPN SYSTEMS FOR INDIVIDUAL CLINICAL THERAPY. PRACTICE OF CLINICAL NUTRITION. ANALYSIS OF TEAM WORK PRACTICE IN CLINICAL NUTRITION

Follow-up of the stability of all-in-one TPN mixtures with the use of non-invasive spectrophotometry.
Analysis of the use and effects of enteral nutrition in elderly care in Budapest/countryside and in rehabilitation centres.

HEADS OF RESEARCH: Dr. ZELKÓ, Romána (Semmelweis University Faculty of Pharmacy), Dr. GAÁL, Péter (Semmelweis University Faculty of Health and Public Services)
CONTACT: KOVÁCSNÉ Dr. BALOGH, Judit - balogh.judit@se-etk.hu

EXAMINATION OF PLATELET RETRACTION IN PATIENTS WITH ANTIPHOSPHOLIPID SYNDROME

Decreased platelet retraction augments the possibility of thrombosis generation. Antiphospholipid syndrome is characterized by arterial and venous blood clot generation and also the abnormality of platelet function. Examination of platelet retraction is carried out with the help of a retractometer created in the Department of Biophysics and Radiation Biology. It allows for a new, quick and more informative diagnostic examination.

HEAD OF RESEARCH: Dr. DOMJÁN, Gyula

CONTACT: Dr. GADÓ, Klára - gado.klara@semmelweis.hu

PARTNER INSTITUTIONS: Semmelweis University 1st Department of Internal Medicine, Semmelweis University Department of Laboratory Medicine

EXAMINATION OF AND INFLUENCING THE NUTRITIONAL STATUS OF GERIATRIC PATIENTS

Malnutrition is very common in the elderly. The reason for this is complex: from social circumstances, through defective teeth, to decreased appetite, and cognitive dysfunction, many factors play a role in the development of malnutrition. The problem also has a significant impact on the physical and mental well-being of the elderly, so it is important to examine and influence the process in a positive way. Our aim is to assess the frequency of malnutrition, its characteristics in Hungary, the role of hospital stays, and the possibilities we can use to influence the nutritional status of our patients.

HEAD OF RESEARCH: Dr. GADÓ, Klára MD, PhD

CONTACT: Dr. GADÓ, Klára - gado.klara@semmelweis.hu

PARTNER INSTITUTION: Semmelweis University Geriatrics Clinic and Center of Nursing Sciences

EXAMINATION AND PREVENTION OF SARCOPENIA IN THE ELDERLY

Loss of muscle mass is a characteristic feature of old age. It plays a significant role in the development of frailty syndrome, which is an important factor of mortality, deteriorating quality of life, and loss of independence. Maintaining muscle mass and muscle strength is very important for healthy aging. We aimed to develop an appropriate physiotherapy program and dietary changes to prevent and slow down sarcopenia.

HEAD OF RESEARCH: Dr. GADÓ, Klára MD, PhD

CONTACT: Dr. GADÓ, Klára - gado.klara@semmelweis.hu

PARTNER INSTITUTION: Semmelweis University Geriatrics Clinic and Center of Nursing Sciences

EXAMINATION OF THROMBOTIC RISK IN THE ELDERLY

Treatment in a hospital ward, old age *per se*, increases the risk of blood clots. Internal medicine diseases, such as heart failure, nephrotic syndrome, and obesity, cancer, and certain anti-tumor drug therapies. Consideration of risk factors is very important in order to be able to use appropriate thrombosis prophylaxis to prevent thromboembolic events leading to a significant increase in mortality.

HEAD OF RESEARCH: Dr. GADÓ, Klára MD, PhD

CONTACT: Dr. GADÓ, Klára - gado.klara@semmelweis.hu

PARTNER INSTITUTION: Semmelweis University Geriatrics Clinic and Center of Nursing Sciences

HEAD OF DEPARTMENT: **ANDREA SZÉKELY MD, PHD, PROF. HABIL.**

CONTACT: TEL: +36-1-48-65844, E-MAIL: **ETK.OXIOLOGIA@SEMMEIWEIS.HU**

NATIONAL RESEARCH AIMED AT EXPLORING THE DEATH ATTITUDE OF PARAMEDIC STUDENTS

In young adulthood, the fact of the inevitability of death appears more prominently, thanks to the intellectual and cultural development typical of this age group. However, due to their idea that the chance of death is negligible given their young age, they try not to dwell on the thought of death; based on this, they are characterized by death avoidance. As life progresses, middle-aged people reach a point when their attitude towards death changes and they realize that as their environment and children grow up, so do they. Thus, the fear of death is the highest in this age group. In our previous research assessing Hungarian paramedics, overall, age and death attitude were independent of each other. Thus, neither neutral acceptance nor fear of death could be related to age, which can be considered a characteristic of paramedics. Several analyzes examining nursing students revealed the result that fear of death was the most characteristic, while neutral acceptance was the least common among possible attitudes to death. This is explained by Brody's investigations. It turns out that the fear of death also depends on the composition of the studied population, it shows a decreasing trend as the years go by, and this is also supported by Békés' Hungarian review report. Based on the above, we are planning an investigation among Hungarian paramedic students, which will reveal the levels, dominance, and age characteristics of Hungarian students' fear of death and neutral acceptance.

HEAD OF RESEARCH: Dr. MOSKOLA, Vladimír

CONTACT: Dr. MOSKOLA, Vladimír – moskola.vladimir@semmelweis.hu

PARTNER INSTITUTION: University of Debrecen Faculty of Health Sciences, Department of Emergency and Oxiology; University of Pécs Faculty of Health Sciences, Department of Oxology and Emergency Care

RESEARCH AIMED AT EXPLORING THE BACKGROUND OF THE „NEUTRAL ACCEPTANCE OF DEATH” ATTITUDE OF HUNGARIAN PARAMEDICS BEING CALLED TO A JOB

Our previous study analyzing the death attitude of Hungarian emergency workers being called to a job revealed that the most common form of attitude is neutral acceptance. Neutral acceptance of death was also the dominant attitude in studies of paramedics and nurses working in acute and palliative care in many other areas of the world. Taking a wider perspective, it can be seen that not only European, American, and Australian research results are in line with our results, but also several Iranian research results as well. The phenomenon of the "natural psychological defense mechanism" of paramedics may be behind "neutral acceptance", but it can also be seen as a precursor to burnout. A large-scale, national investigation is needed to reveal the reasons behind the "neutral acceptance" of the (examined) Hungarian paramedics being called to a job, one that we are conducting in the framework of this research.

HEAD OF RESEARCH: Dr. MOSKOLA, Vladimír

CONTACT: Dr. MOSKOLA, Vladimír – moskola.vladimir@semmelweis.hu

PARTNER INSTITUTION: National Ambulance Service

PUBLICATIONS:

1. Moskola, V., Sándor, Á. D., Susánszky, É., Székely, A., Hornyák, I., Ozsvárt, B., Néninger, T., & Balogh, Z. (2021). Examination of Coping Strategies among On-Site Paramedics. *European Journal of Mental Health*, 16(2), 184-195. <https://doi.org/10.5708/EJMH.16.2021.2.9>
2. Moskola, V., Eke., Takács, J., Susánszky, É., Székely, A., Hornyák, I., Ozsvárt, B., Néninger, T., & Balogh, Z. (2021). Investigating the attitude of ambulance workers towards death. *Kontakt*. 23. 14-19. 10.32725/kont.2021.007.
3. Moskola, V., Susánszky, É., Székely, A., Hornyák, I., Ozsvárt, B., Néninger, T., Balogh, Z. (2020). Szülői bánásmód vizsgálata kivonuló mentődolgozók körében. *Nővér*, 33. (3), 27-33.

USE OF MORPHINE IN THE PRE-HOSPITAL CARE OF PATIENTS WITH MYOCARDIAL INFARCTION

Opioids, mainly morphine, are used for ST elevation for symptomatic treatment of myocardial infarction (STEMI). According to our recently published study, smoking patients they received morphine significantly more times than non-smokers. Known chronic obstructive pulmonary disease (COPD) in the same proportion received morphine as non-COPDs. Resuscitation as well as mechanical morphine was significantly less common with respiration. To clarify these differences in a questionnaire survey we measured the morphine use patterns of rescuers in STEMI in the care of patients. In addition, with the permission of OMSZ and SE-RKEB. We also process OMSZ case sheets for patients with STEMI to explore pre-hospital opiate treatment habits.

HEAD OF RESEARCH: Dr. SZÉKELY, Andrea, Dr. SZABÓ, Dominika

CONTACT: Dr. SZÉKELY, Andrea – szekely.andrea1@semmelweis.hu

THE ROLE OF TECHNICAL AND NON-TECHNICAL SKILLS IN DIAGNOSTIC AND THERAPEUTIC PROCESSES IN EMERGENCY CARE

The full range of non-technical skills can be understood and used in the medical and health sciences, in all pre- and intra-hospital care disciplines: communication, team leadership/teamwork, situational awareness, task management and decision-making. Internationally, non-technical skills also play an important role in the simulation education of individual clinics, integrated into the topics and situations, and can be developed in simulation training courses with different foundations and topics, and supported by research results.

HEADS OF RESEARCH: Dr. SZÉKELY, Andrea, , Nagy Tamás

CONTACT: NAGY, Tamás - nagy.tamas1@semmelweis.hu

Dr. SZÉKELY, Andrea - szekely.andrea1@semmelweis.hu

PUBLICATION:

Nagy, T., Fritúz, G., Gál, J., Székely, A., Kovács, E. (2024). Teaching nontechnical skills in the undergraduate education of health care professionals: a nationwide cross-sectional study in Hungary. *BMC MEDICAL EDUCATION* (24)1 Paper: 174, 10.

EXAMINING THE ATTITUDES AND INFLUENCING FACTORS OF HEALTH PROFESSIONALS WORKING IN HOSPITAL EMERGENCY CARE REGARDING DEATH

Dealing with the issue of death is increasingly justified by the demographic and economic changes of welfare societies. The permanent increase in the average age and the decrease in the birth rate in welfare societies have resulted in a decrease in the population, which entails several health, pension insurance and social problems. The rapid increase in the number of elderly people places a significant burden on the health care system, including a special branch of it, emergency care. These patients are often first treated in the emergency department (after the ambulance service). Employees are forced to prepare for this almost everyday experience and must learn different coping strategies in order to work smoothly. The often negative coping strategy developed as a result of stress has a significant long-term health-damaging effect. Over time, this leads to poor quality life years and early death. The presence of increased exposure to stress and its consequences has long been known in the field of emergency care. In the present research, we are looking for an answer to how the attitude towards death among emergency department health professionals affects conflict resolution responses, and whether parenting plays a role in the formation of these responses. The purpose of the study is to look for correlations and influencing factors regarding attitudes towards death as a stressogenic factor, or between the conflict management responses developed as a result, and parenting. We would like to compare all these results with similar research results previously carried out among paramedics.

HEAD OF RESEARCH: Dr. MOSKOLA, Vladimír

CONTACT: Dr. MOSKOLA, Vladimír – moskola.vladimir@semmelweis.hu

PARTNER INSTITUTIONS: Semmelweis University Emergency Clinic SBO; Szent Imre University Teaching Hospital SBO; Military Hospital, SBO; András Jóna Teaching Hospital; University of Pécs, ÁOK, SBO

In all areas of patient care, especially emergency care, it is extremely important to teach and apply non-technical skills in addition to technical skills. Understanding and practicing the forms of communication with patients, relatives, and colleagues, organizing teamwork, situational awareness, task management, and the decision-making process are essential to ensure safe and effective care. The teaching of all this and the development and updating of the teaching methodology are also extremely important elements of the process. Our research aims to map, systematize and standardize the teaching of non-technical skills and the application of certain methodologies in the future, to increase their efficiency and applicability. We assess in which professional fields, in what form and methodology students teach non-technical skills, and whether there is a need to develop these knowledge, methodological guidelines and their own personal skills.

At the same time, we are conducting research in the educational environment on the retention and entrenchment of short- and long-term knowledge of adult basic resuscitation (BLS) performed by students, supplemented by monitoring the effectiveness of resuscitation.

In addition, our plans include the preparation and implementation of an efficiency survey covering various forms of simulation education, with a special focus on exploring the spectra of the student experience in each methodological form, complementing the measurement by monitoring the knowledge and practical application of non-technical skills.

The short-term and long-term goals of our research are to improve the efficiency of non-technical skills education and simulation training, to further think about the methodological possibilities of enhancing the student experience, and to design and implement effective and supportive educational materials for instructors.

HEADS OF RESEARCH: Dr. SZÉKELY, Andrea, Dr. SZABÓ, Dominika, NAGY, Tamás, OZSVÁRT, Barbara

CONTACTS: Dr. SZÉKELY, Andrea – szekely.andrea1@semmelweis.hu

NAGY, Tamás – nagy.tamas1@semmelweis.hu

OZSVÁRT, Barbara – ozsvart.barbara@semmelweis.hu

THE ROLE OF EXPERIENTIAL EDUCATION METHODS IN CPR EDUCATION

In our everyday lives we may encounter many potential threats that can seriously harm our own lives, the lives of our relatives, friends, colleagues and there may come a time when we need to intervene to save lives. First aid education, started in school, can help to raise a generation of people who will take it for granted to help their fellow human beings in distress. This is done by action, not just by knowing the facts. The aim of our research is to apply an educational approach to teaching CPR that makes the care process more human, helps to immediately recall the skills learned, helps to maintain lasting knowledge and develops the willingness to help. In our opinion, experiential learning, the use of experiential pedagogical methods in education, where the experience of learning through experience becomes the driving force of the learning process, would be an appropriate method for this. In the framework of experiential education, we examined how experiential education elements and Kolb's experiential learning cycle change the students' first aid skills, whether they can apply them in different situations and environments, to what extent this knowledge is incorporated into long-term memory, and whether their willingness to provide help is strengthened.

HEADS OF RESEARCH: Dr. SZÉKELY, Andrea, , Ozsvárt Barbara

CONTACTS: Dr. SZÉKELY, Andrea - szekely.andrea1@semmelweis.hu

OZSVÁRT, Barbara – ozsvart.barbara@semmelweis.hu

PARTNER INSTITUTION: ELTE – Faculty of Education and Psychology

DEPARTMENT OF HEALTH PROMOTION METHODOLOGY

HEAD OF DEPARTMENT: DR. ZOLTÁN LANTOS UNIVERSITY ASSOCIATE PROFESSOR

CONTACT: TEL: +36-1-486-5910, E-MAIL: ETK.EGESZSEGTAM@SEMMELWEIS.HU

ONTOLOGICAL AND TERMINOLOGICAL RESEARCH IN SUPPORT OF HEALTH RELATED ARTIFICIAL INTELLIGENCE APPLICATIONS

In industries and services where the use of AI applications is much more widespread, than in healthcare, a key factor for development is the availability of well-defined ontological descriptions, which can also be described as decision trees or knowledge graphs. In addition, given the linguistic diversity in Europe, terminological standardisation is also key to the widespread use of the European Health Data Space that is being developed. However, it is not possible to describe all elements of the complex system of a healthy organism and its environment with a uniform terminology, and there are also processing and cognitive limitations to ontological description. Thus, a new area of research has emerged on how data mapping methods in the field of health and disease can lead to the most accurate and reliable answers to the complex questions of health decision-making. The research will both investigate the applicability and validity of different methods for different health conditions and pathologies, and experiment with new methodologies using artificial intelligence test applications.

HEADS OF RESEARCH: Dr. LANTOS, Zoltán, Dr. FOGARASI Katalin

CONTACT: Dr. LANTOS, Zoltán, lantos.zoltan@semmelweis.hu

PARTNER INSTITUTION: ESZFK – eHealth Service and Development Centre

EXAMINING HOMEOSTASIS AS A HEALTH SYSTEM

The aim of the research is to explore health in a comprehensive systems approach, as extended to our environment, using the Social Innovation Observatory methodology previously developed by the head of this research and his colleagues, based on the assemblage theory of Deleuze, Guattari and de Landa. The starting point is that there is now so much and such a diversity of data available that the data footprint of reality and the digital twin of individuals are sufficiently accurate replicas to study life phenomena in the multidimensional data space thus created. The resulting methodology acts as a 'macroscopic' observational tool using data science techniques, capable of examining a very large number of complex phenomena, and thus providing an increasingly accurate description of the social and individual decision factors affecting health and their interaction. The research explores phenomena such as the earliest signs of health and disease transitions by analysing data from multiple sources.

HEAD OF RESEARCH: Dr. LANTOS, Zoltán

CONTACT: Dr. LANTOS, Zoltán, lantos.zoltan@semmelweis.hu

PARTNER INSTITUTION: Sopron University, Eötvös Loránd University, Pannon University, Budapest University of Technology and Economics, Hungarian Defence Forces

EXAMINING MEDICAL DECISION-MAKING ACCORDING TO THE PSYCHOLOGICAL CHARACTERISTICS OF MEMORY

According to the psychology of memory, we have two dominant ways of remembering and corresponding ways of making decisions, recalling and familiarity. The first is the basis of explicit knowledge, which can be algorithmised and thus will be robotised in the years to come, while the second leads to tacit knowledge, which is formed after rehearsing a very large number of cases and cannot be algorithmised as far as we know today. Tacit knowledge is a crucial element in medical decision-making, which is why it is necessary to ensure that medical training includes an adequate number and quality of exercises. The human-machine interaction that is emerging in healthcare today requires new ways of using, training and continuously educating of both types of knowledge, which requires significant methodological developments.

This is the aim of the research series, which is a continuation of a fifteen-year research programme. It describes the characteristics of medical explicit and tacit knowledge by speciality and condition, interpreting them in the context of human-machine interaction, with a view to using the results to develop new working methods and healthcare procedures in the field of medicine.

HEAD OF RESEARCH: Dr. LANTOS, Zoltán

CONTACT: Dr. LANTOS, Zoltán, lantos.zoltan@semmelweis.hu

CITIZEN HEALTH RESEARCH AMONG DIGITAL NATIVES

Digital natives see our world in a completely different way, they communicate with different tools, for example they have a poor set of verbal associations but a very rich set of visual ones. Our initial research shows that for high school students who want to do well at school, a healthy lifestyle is a natural part of their lives, and they are increasingly looking to the health benefits of community.

Our participatory research, which supports cutting-edge digital technology and communications innovation, aims to implement a guided series of projects tailored to the skills and knowledge of digitally native high school students, taking them step by step to the level of AI application, enhancement and development that only they can achieve.

The programme will serve as a pilot for a series of student participatory research projects to be introduced.

HEAD OF RESEARCH: Dr. LANTOS, Zoltán

CONTACT: Dr. LANTOS, Zoltán, lantos.zoltan@semmelweis.hu

PARTNER INSTITUTION: 21 Women for Healthcare Foundation

THE ROLE OF VIRTUAL HEALTH GUIDE APPLICATIONS IN SUPPORTING PATIENTS

We now know that one of the most important factors in maintaining and regaining health is one's own behaviour and daily habits. It is a series of choices and actions that describe the individual health journey that determines a given health status in the short, medium and long term. Because the series of choices that lead to a healthy life requires knowledge, experience and energy, everyone needs decision support, some more, some less. As with traffic navigation systems, the dataset, information technology and methodology is now available to support navigation on an individual health journey, with the Virtual Health Guide as a key component. The research aims to explore the potential of such applications, describe their implementation framework and demonstrate their usefulness, in particular in the area of chronic disease care and health promotion.

HEAD OF RESEARCH: Dr. LANTOS, Zoltán

CONTACT: Dr. LANTOS, Zoltán, lantos.zoltan@semmelweis.hu

PARTNER INSTITUTION: Mallow Flower Foundation

CITIZEN HEALTH RESEARCHES

The widespread use of social media has led to the emergence of a new research methodology in the form of participatory research, a series of "conversations" designed and framed around a topic, in individual and group formats, with the sharing of text and visual content.

Many of the AI applications that are gradually emerging need to be adopted by the general public, especially in the field of health. This will be supported by the use of citizen research based on simulations, which has become a proven methodology and is currently being prepared in our department. The aim of the research is to develop the programme into an innovation base for the modernisation of health services, leading to new solutions, in particular in the fields of health literacy, health co-creation, patient-centred partnerships, care and nursing.

HEAD OF RESEARCH: Dr. LANTOS, Zoltán

CONTACT: Dr. LANTOS, Zoltán, lantos.zoltan@semmelweis.hu

PARTNER INSTITUTION: 21 Women for Healthcare Foundation

USING BLENDED LEARNING METHODOLOGY IN DIGITAL HEALTH EDUCATION

The research programme is justified on the one hand by the emphasis on IT solutions in the digital health toolbox, which can only be achieved with sufficient confidence by practising concrete situations, at the student's own rhythm and mobilising own knowledge context, and on the other hand, for digital natives, the most effective information transfer solution is the use of moving images. Training and assessment that focuses on situational practice and personal experience has also become important because of the increasing availability of text-writing AI applications that can transform information available on the Internet into high-quality answers in seconds.

The research will continuously assess the usability and effectiveness of the teaching materials developed and adapted by the department by comparing students' motivation, their learning habits for specific course material, student satisfaction indicators and the marks achieved.

HEADS OF RESEARCH: Dr. LANTOS, Zoltán, PAPP, József

CONTACT: Dr. LANTOS, Zoltán, lantos.zoltan@semmelweis.hu

HEAD OF DEPARTMENT: DR. LÁSZLÓ TAMÁS UNIVERSITY PROFESSOR

CONTACT: TEL: +36-1-486-4981, E-MAIL: ETK.HBNYT@SEMMELWEIS.HU

POSSIBILITIES OF THE HUNGARIAN AS A FOREIGN LANGUAGE METHODOLOGY IN APHASIA THERAPY

Stroke is a widespread disease in all parts of the world, and the number of cases with residual symptoms of speech and/or language impairment is also on the rise. Unfortunately, aphasia rehabilitation receives little attention in our country, and there are few developed, adapted, evidence-based methods available for the treatment of aphasia.

Our research aims to alleviate these shortcomings. In order for linguistic and cognitive rehabilitation to be successful, i.e. for patients to develop their language modalities, structured treatment tools, systematically structured task collections and therapy packages are needed. The aim of our research is to extend the range of available therapeutic procedures, therefore, after reviewing the methodology of teaching Hungarian as a foreign language, we will create an exercise book as an aphasia therapy tool, based on grammatical, syntactic and semantic principles, the functioning of which will be studied in the treatment of patients with fluent aphasia after a stroke, who are not receiving any other language therapy during this period and spontaneous improvement can be excluded as a possibility.

Part of the research will involve the creation of task sheets, revision and structuring of the exercise sheets according to the results of the research, and testing the effectiveness of the treatment.

HEAD OF RESEARCH: Dr. SZABÓ, Edina

CONTACT: Dr. SZABÓ, Edina – szabo.edina3@semmelweis.hu

PARTNER INSTITUTIONS: Semmelweis University, Department of Neurology, OMINT-OORI, SZTE BTK, Department of Cultural Heritage and Human Information Sciences, Prof. Dr. Klára Sándor, DSc

There are several treatment approaches for acquired reading difficulties, mainly neuropsychological and neurolinguistic. The aim of our research is to construct an individualized, injury-specific, and thus health (neurologically) based reading treatment model with a speech and language therapist attitude, and to investigate its effectiveness in the treatment of reading deficits associated with aphasia due to stroke.

Our research includes the creation of a 12-session treatment plan, a collection of exercises, an investigation of the effect of treatment on reading ability, and an examination of the relationship between reading and quality of life. After studying the localization and extent of lesions and the existing functional impairment, we incorporate into our model the technique of repeated oral rereading, the method of reading sentences aloud (phonological-semantic route to treat text comprehension) and the methods of assisted text comprehension (aphasia-friendly content and form text creation).

Our work aims to bring back the joy of reading for pleasure and the pleasure of the resulting conversation into the everyday lives of people affected by aphasia.

HEAD OF RESEARCH: Dr. SZABÓ, Edina

CONTACT: Dr. SZABÓ, Edina – szabo.edina3@semmelweis.hu

PARTNER INSTITUTIONS: Semmelweis University, Department of Neurology, OMINT-OORI, SZTE BTK, Department of Cultural Heritage and Human Information Sciences, Prof. Dr. Klára Sándor, DSc

HELPING PEOPLE BACK TO A FULL LIFE: DEVELOPING COMMUNICATION SKILLS IN THE THERAPY OF APHASIA

The aim of the research is to complement the usual language competence-based development of aphasia therapy with communication competence-based development, so that the tasks can be completed independently later, in the advanced phase of rehabilitation, without the help of a therapist or support person, and the patient receives feedback on their success. Accordingly, the aim of this research is to develop a collection of exercises that will form the basis of an aphasia rehabilitation application.

Traditionally, the process of aphasia rehabilitation is based on a narrow (structuralist or generative) understanding of language (belonging to the dominant paradigm of the 20th century). Today, more than half a century of empirical linguistic data proves this interpretation to be wrong; in addition to linguistic research, the cognitive science and neuroscience findings of recent decades also support this. To achieve full communication, the rehabilitation process cannot stop at basic grammatical and semantic development, but must go further to relearn the pragmatic aspects in the broad sense, so that the patient can once again communicate fully, using social meanings well, recognising the social context, and choosing between stylistic variations. Patients must be helped to regain their ability to communicate in a realistic way and to become effective and competent participants in social life, and in their immediate and wider environment, i.e. to achieve the fullest possible psycho-social well-being.

In 2020-2021, a two-part exercise booklet (Szabó Edina-Sándor Klára) was completed, which is a starting point for further research and differs significantly from the widely used aphasia rehabilitation exercise books: the focus is on the recovery of full communication. Finding one's way back to the words, the correct use of grammatical elements is not communication in itself, but only its building block. On the other hand, rehabilitation should not be limited to the isolated treatment of a particular language function, but should also help the patient to successfully apply what he has learned in everyday life.

Traditional therapy for adult speech loss is mainly provided in rehabilitation centers. However, experience has shown that this is not enough: there is a great need for patients to be able to practise after therapy sessions, either with a facilitator or, if their condition allows, on their own. This is difficult to achieve with the usual printed exercise sheets, because neither the patient nor the non-professional helper receives feedback on how successful the exercise was. A solution to this problem could be an app that runs on digital devices, providing immediate feedback, logging the patient's progress, suggesting further practice of certain types of exercises, and allowing rehabilitation professionals to check the success of the tasks performed and plan or correct the next stages of therapy in the light of this. The development of the application could be envisaged in partnership with a software development company; the mapping of partners has started.

HEADS OF RESEARCH: Dr. SZABÓ, Edina, Prof. Dr. SÁNDOR, Klára DSc

CONTACTS: Dr. SZABÓ, Edina – szabo.edina3@semmelweis.hu

Prof. Dr. SÁNDOR, Klára DSc - sandor.klara@szte.hu

PARTNER INSTITUTIONS: Semmelweis University Neurology Clinic, SZTE Interdisciplinary Research Development and Innovation Centre of Excellence (IKIKK), Competence Centre for ICT and Social Challenges

EXAMINATION OF THE CORRELATION BETWEEN COGNITIVE DISFUNCTIONS AND ASPIRATION RISK IN NEUROGENIC DYSPHAGIA

One third of the population with brain injury is expected to have dysphagia. Inappropriately conducted or delayed dysphagia-management might lead to affecting patients as well as institutions. In the case of patients the appearance of malnutrition, dehydration, sarcopenia or the aspiration pneumonia should be expected, which increase the risk of mortality and decrease the efficiency of rehabilitation. While on an institutional level additional examinations and treatments are needed due to the complications lead to extra costs. In order to maximise prevention and rehabilitation an appropriately conducted dysphagia management based on subjective swallowing profile is needed.

The approach to dysphagia on which our research is based is the one that suggests that besides organic damages several cognitive and emotional factors contribute to the risk of aspiration. Our goal is to map those disfunctions of the patients' attention that increase the risk of aspiration during the process of eating and drinking.

During our research prospective examinations are performed with quantitative methods. The collected data is then analysed by comparative statistical methods. For the prediction of aspiration risk the GUSS multiple consistency swallowing test is performed in our research while in order to map the process of attention the results of neuropsychological diagnostic methods are used.

The goal of our research is to reveal the attention disfunctions that might play a role in creating the subjective swallowing profile of an individual, so that the optimal execution of dysphagia-management can be facilitated in the case of clients with neurogenic dysphagia.

HEAD OF RESEARCH: NÉMETH, Mariann

CONTACT: NÉMETH, Mariann – nemeth.mariann@semmelweis.hu

PARTNER INSTITUTION: OMINT-OORI

HEAD OF DEPARTMENT: DR. TAMÁS PÁNDICS COLLEGE ASSOCIATE PROFESSOR

CONTACT: TEL: +36-1-486-4870, E-MAIL: ETK.KOZEG@SEMMELEIS.HU

THE HEALTH RISKS AND OCCUPATIONAL HEALTH ASPECTS OF THE INDOOR ENVIRONMENT QUALITY IN THE CONTEXT OF PATIENT CARE AND PATIENT SAFETY

The indoor environmental factors in hospitals can be assessed according to a number of criteria. The working conditions of healthcare workers have received international attention in recent years. The WHO designated 2021 as the Year of Health and Care Workers and a number of expert works on the topic have been published in 2022. Safe work environment and optimal performance can also be approached from the perspective of patient safety as factors causing discomfort for the workers may become risk factors for the patients. Around 20% of the non-communicable disease burden in Hungary can be traced to environmental risk factors (mostly climatic factors) and populations increasingly exposed to environmental factors are overrepresented in healthcare settings. Other aspects that show the actuality of the topic is the environmental effect of health services, their significant ecological footprint, and their dependence on environmental factors. There are several chapters on this topic in the recently published WHO report titled: "Climate Change and Health". Among our goals are the comprehensive, national survey and assessment of the environmental health situation of the Hungarian hospital infrastructure and identifying its main issues; investigating the indoor environmental factors on the institutional level from the worker health and patient safety perspectives; and developing a methodology capable of measuring the perceived environmental quality of workers and patients, capable of the complex assessment of the hospital environment, and the quick identification of risks and priority tasks.

HEADS OF RESEARCH: Dr. PÁNDICS, Tamás, KÁDÁR, László

CONTACT: KÁDÁR, László – kadar.laszlo1@semmelweis.hu

INVESTIGATING THE HEALTH RISKS OF NEW ENVIRONMENTAL POLLUTANTS (NANOMATERIALS, PHARMACEUTICAL RESIDUES, ENDOCRINE DISRUPTING SUBSTANCES)

The use of certain materials created through industrial processes that are either new or produced in larger quantities than before is getting wide-spread due to the beneficial properties of these materials. However, they have also been proven to have negative effects on both the environment and human health. The health risks of these materials are not yet fully understood. One of these types of materials are nanomaterials. The lack of data on their effects makes the systematization of their adverse effects difficult. Therefore, it is of great importance to compile and organize the currently available data for the environmental health risk analysis of nanomaterials, to perform the missing research, or to replace the missing research through model calculations. It is necessary to study the behaviour of nanomaterial products in biological-toxicological test systems and the environment and assessing the exposure. If, due to the significant data gaps, a complete risk assessment is problematic, then semi-quantitative nanomaterial risk assessment models could aid the quick assessment of the risks, but their scope of application must be explored. Since nanomaterials are known to have different properties even within the nano size-range investigating the size-effect-dose relationship is vital. The models can serve as guidelines for the development of the unique data requirements of legislation and risk analysis, for the adaptation of the required research guidelines, and for data collection. Until then, however, the expected risk has to be determined on a case-by-case basis. The final goal is to perform a comprehensive, qualitative risk assessment based on the results, without which the responsible usage of nanomaterials is impossible. There is also a data gap involving the health risk assessment of endocrine disruptors, where significant progress is needed for the planning of health safety tasks. A lot of data are available in the case of pharmaceutical residues and microplastics, but putting the data in context and performing quantitative risk assessment are still significant tasks to be completed.

HEAD OF RESEARCH: Dr. PÁNDICS, Tamás

CONTACT: Dr. PÁNDICS, Tamás - pandics.tamas@semmelweis.hu

PUBLICATION:

Ge, C., Peters, S., Olsson, A., Portengen, L., Schüz, J., Almansa, J., Ahrens, W., Bencko, V., Benhamou, S., Boffetta, P., Bueno-de-Mesquita, B., Caporaso, N., Consonni, D., Demers, P., Fabiánová, E., Fernández-Tardón, G., Field, J., Forastiere, F., Foretova, L., Guénel, P., Gustavsson, P., Janout, V., Jöckel, K.H., Karrasch, S., Teresa Landi, M., Lissowska, J., Luce, D., Mates, D., McLaughlin, J., Merletti, F., Mirabelli, D., Pándics, T., Parent, M.É., Plato, N., Pohlabeln, H., Richiardi, L., Siemiatycki, J., Świątkowska, B., Tardón, A., Wichmann, H.E., Zaridze, D., Straif, K., Kromhout, H., Vermeulen, R. Diesel Engine Exhaust Exposure, Smoking, and Lung Cancer Subtype Risks. A Pooled Exposure-Response Analysis of 14 Case-Control Studies. *American Journal of Respiratory Critical Care Medicine*. 2020 Aug 1;202(3),402-411. <https://doi.org/10.1164/rccm.201911-2101OC>. PMID: 32330395

The significant health impact of environmental pollution implies that not only the risk assessment of the professionals but the risk awareness of the public should also receive attention. Risk awareness is primarily a subjective assessment process. Rational risk awareness has high impact on the risk itself and the means of risk management, thus influencing the probability and extent of adverse health effect.

The assessment of the risk awareness of the public requires the analysis of the relationship of the environment and health, the prevalence of potentially environment-related diseases, and the public knowledge of environmental questions. The results of the analysis indicate the applicability and the potential limitations of the psychometric paradigm developed for risk awareness and the cultural theory in the Hungarian context. The outcomes facilitate the more efficient risk communication through rational risk awareness, the prevention and recognition of environmental diseases and subsequently improve the efficiency of health protection.

HEAD OF RESEARCH: Dr. PÁNDICS, Tamás

CONTACT: Dr. PÁNDICS, Tamás - pandics.tamas@semmelweis.hu

PUBLICATION:

Feczák, L.D., Nagy, Z., Vargha, M., Sebestyén, Á., Pándics, T. (2022). A lakosság csapvíz minőséggel kapcsolatos ismereteinek és gyakori tévhiteinek felmérése. *Egészségtudomány* 66 (1). 21-28.

HEALTH RISK ASSESSMENT OF ENVIRONMENTAL DISEASES

Natural and built environment both have significant impact on human health. The environmental burden of disease in Hungary is 16 % according to the estimate of the World Health Organization (WHO), which is a heavy toll on both the healthcare system and the society. Efficient reduction of the environmental burden of disease requires mapping the most significant and prevalent risks. Environmental health risk assessment is the most objective tool for the identification of the adverse health effects from the exposure to different environmental pollutants.

The health impact of the indoor environment is exceptionally important, since we spend almost 90 % of the day indoors. The chemical and biological air quality, the quality of construction materials and the condition of the plumbing system are all relevant to our health.

The analysis of these factors through risk assessment and the development of risk management interventions will contribute to the improvement of human health.

HEADS OF RESEARCH: Dr. PÁNDICS, Tamás, KÁDÁR, László

CONTACT: Dr. PÁNDICS, Tamás - pandics.tamas@semmelweis.hu

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INVESTIGATING THE MONITORING POSSIBILITIES OF NOSOCOMIAL INFECTIONS IN CONNECTION WITH THE USE OF MEDICAL INSTRUMENTS IN NON-INTENSIVE INPATIENT CARE SETTINGS

Nosocomial infections pose a significant epidemiological challenge worldwide in the curative-preventive health services. One problem area with regard to these infections is infections from medical instruments used in healthcare services. We have little information globally on the frequency of these infections and on the extent of the harm they cause as targeted data-collection on these types of infections is mainly limited to intensive care units despite the fact that instrument-associated-infections are also significant in non-intensive inpatient care. The goal of this research is to develop an infection monitoring system and protocol that allows the targeted surveillance of these infection types, problem-pathogens and/or problem-infections in non-intensive inpatient care units. A further goal of this research and methodological development is to provide the possibility of targeted surveillance for non-intensive and/or non-surgical care units.

HEAD OF RESEARCH: CSIMA, Zoltán

CONTACT: CSIMA, Zoltán – csima.zoltan@semmelweis.hu

THE COMPLEX, SYSTEM-LEVEL INVESTIGATION OF THE PREVENTION OF NOSOCOMIAL INFECTIONS

Organizing the systematic and complex effort against nosocomial infections and the routine planning and categorization of these practices is an integral part of modern patient care and safety. An important area of this research is the examination and improvement of hand sanitization in order to develop the right preventive approach for laymen and future experts alike. Another important area is the testing of the routine application of those rapid diagnostic tests that are meant to reduce the role reusable medical equipment play in transmitting infections by controlling point-of-care-testing of the appropriate equipment hygiene. By comparing the available methods and their costs there can be guidelines developed that can be included in the infection control program of an institution in a cost-effective way. The third main area of this research is the investigation of the potential food hygiene and food safety risks of patient care institutions and their regulation, as well as measuring and assessing their application. The main goal of this third research area is to develop special food safety guidelines for infection control that can further increase patient safety.

HEAD OF RESEARCH: CSIMA, Zoltán

CONTACT: CSIMA, Zoltán – csima.zoltan@semmelweis.hu