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Editorial

Highlights from the International Scientific Conference on Mind-Body Medicine

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In this edition, we are pleased to present the abstracts of the conference presenters from the inaugural International Scientific Conference on Mind-Body Medicine (ISC-MBM), held on November 4th and 5th, 2024. This hybrid event took place both in Witten, Germany, and online. Organized by the Institute for Integrative Health Care and Health Promotion at Witten/Herdecke University and the Mind-Body Medicine Research Council (MBMRC) under the leadership of Tobias Esch, the conference aimed to unite researchers and practitioners worldwide to share cutting-edge research, showcase interventions, foster collaborations, and network. The event was generously funded by the Rothenfußer Academy, the Eden Foundation, and the Identity Foundation. These organizations are committed to promoting integrative health approaches, including meditation, nature-based methods, and both traditional and modern lifestyle interventions to enhance well-being.

Event Highlights

The conference welcomed 95 participants, 65 attending on-site and 30 joining online. A total of 30 researchers presented their latest findings, including two keynote speakers: George Stefano, who discussed the role of mitochondria, and Sara Lazar, who explored pain, fear, and the impact of mindfulness. In addition, the program featured 14 oral presentations, 14 poster presentations, and a panel discussion on digital mind-body medicine.

Attendees received certificates of participation, and medical professionals earned continuing education credits. Abstracts from nearly all presenters are included in this issue, alongside a commentary on key topics and the transcript of the panel discussion.

Feedback and Participation

The general feedback during the event was overwhelmingly positive, with many describing the atmosphere as both delightful and thought-provoking. While minor technical challenges arose at the start, the event soon ran smoothly. As this was the first of its kind, the organizing team conducted a feedback survey to understand participants' experiences and expectations for future events.

The survey, accessible via QR code and email, remained open for 21 days following the conference, with a reminder sent four days before closing. A total of 25 participants responded, including 10 on-site attendees, 14 online attendees, and one who participated in both formats. Approximately 75% of respondents had prior experience with hybrid conferences. Almost all rated their expectations as being met in a good, excellent, or ideal manner, with on-site participants

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reporting slightly higher satisfaction (mean: 5.6 on a 7-point Likert scale) compared to online participants (mean: 5.2).

Networking and Future Recommendations

Given one of the conference's goals was fostering collaborations, participants were asked about their networking experiences. While nearly half of the online attendees reported no private interactions, the majority had between 5 and 10 private chats. All but one respondent expressed a desire for the conference to become a regular event. Online attendees favored biannual occurrences, while on-site participants preferred an annual schedule. Three-quarters of respondents supported continuing the hybrid format, and half of the respondents were likely to very likely to recommend the conference to colleagues and peers.

Insights from Open Feedback

Open-ended responses provided valuable insights. Online attendees appreciated the low-cost format, which made participation accessible, and praised the availability of session recordings and poster presentations on a password-protected homepage. On-site participants commended the welcoming atmosphere and helpful staff. Both groups suggested improvements, such as refining the technical components and providing more timely information about the final program and speaker schedules.

Conclusion

The inaugural International Scientific Conference on Mind-Body Medicine was a resounding success, setting a strong foundation for future events. We thank all participants, organizers, and sponsors for their contributions and look forward to building on this momentum to create even more impactful gatherings in the years to come.

Commentary

Viruses May Be Redefined as Self-Replicating Entities: Expanding the Definition of Life

by George B. Stefano[1*], Pascal Büttiker[1], Simon Weissenberger[2], Martin Anders[1], Jiri Raboch[1], Richard M. Kream[1]

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Viruses have traditionally been classified as non-living because they require a host cell for replication (reviewed in (Harris & Hill, 2020; Stefano & Kream, 2022b). However, extensive research has greatly advanced our understanding of how viruses hijack and manipulate host regulatory and metabolic processes to produce infectious progeny. The emergence of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has prompted a reconsideration of viruses as potentially living entities (Harris & Hill, 2020; Stefano & Kream, 2022b). SARS-CoV-2 comprehensively controls cellular processes; this suggests that its linear single-stranded (ss)RNA genome encodes a dynamic informational system that is capable of responding to evolutionary constraints (G. Stefano et al., 2023). While some individuals can host viruses with no noticeable effects, the same virus may trigger an immune and neural responses in others (Zheng & Savitz, 2023; Zheng et al., 2023). We speculate that this variability is based largely on the virus' molecular structure, which can take on different conformations to adapt to a target molecule. These conformations may align well with the host's molecular system and thus result in no or few specific effects; others may induce harmful outcomes. A virus frequently interacts partially with a host and may not influence an entire molecular pathway (G. Stefano et al., 2023; Zheng et al., 2023). This limitation might explain why a virus might only be able to take over a host system when it finds the compatible "fit" needed to achieve the desired outcome,

e.g., reproduction. This process must proceed rapidly and target the genetic processes of the host that are involved in reproduction and energy metabolism (e.g., mitochondria) in order to escape a defensive immune response (Trubetskoy et al., 2022), most notably early in the infection process, thereby facilitating viral targeting and immune neutralization. Additionally, the microenvironment, including thermodynamic influences, may also elicit conformational changes in the virus, thereby facilitating dynamic communication between molecules involved (Bitra et al., 2019; Stefano & Kream, 2022b).

The evolutionary constraints that favor viral host hijacking have shaped the ssRNA genome of SARS-CoV-2 into a three-dimensional structure defined by conserved base-pairing and complex secondary and tertiary configurations (Stefano & Kream, 2022b). Regulatory control of the virus's infectious processes relies heavily on extensive protein-protein interactions that direct conformational matching and shape recognition of viral and host nucleic acids and proteins. The seamless integration of complex replicative processes depends on the precise nature of the complementary nucleotide sequences and their corresponding structural and non-structural viral proteins. Interestingly, the virus's ability to commandeer transcriptional and translational activities within specific cellular domains resembles artificial intelligence strategies, as both are fluid, self-correcting, and adaptive to change (Stefano & Kream, 2022b; Stefano et al., 2024).

Moreover, both intracellular bacterial pathogens and mitochondria, which originated from ancient bacterial species can reproduce in a eukaryotic cell; a virus pathogen is thus not unique in this regard (McClure et al., 2017; Murphy & O'Neill, 2024). Multifaceted mitochondrial disorders have also been associated with human disease (Angrand et al., 2021; Marques et al., 2024). Thus, we sought to examine the sequences of introns, which are currently emerging as biologically important reservoirs of genetic information similar to what has been described for mitochondrial heteroplasmy (Stefano & Kream, 2022a; Stewart & Chinnery, 2015). Though introns do not encode amino acid sequences, they play several critical roles in gene expression and its regulation (Birkholz et al., 2024; Girardini et al., 2023; LaRoche-Johnston et al., 2018; LaRoche-Johnston et al., 2023; Shaul, 2017). As a group, these reports highlight the functional significance of introns based on several of their important properties. Among these, introns contain regulatory elements, including enhancers and silencers, that control the timing, location, and level of gene expression. Introns also facilitate alternative splicing of mRNA and allow different combinations of exons to produce multiple protein variants from a single gene. Overall, this serves to increase protein diversity and facilitate complex regulation of cellular functions. Furthermore, intron splicing is essential for the proper export of mRNA from the nucleus to the cytoplasm, where translation into proteins occurs. Some introns have an impact on mRNA stability and lifespan, thereby altering its availability for translation. Introns also provide evolutionary flexibility by acting as buffers against mutations and allowing new gene functions to evolve without disrupting original protein function. Finally, introns contribute to the genomic organization and have a significant impact on the architecture and accessibility of chromatin (Birkholz et al., 2024; Girardini et al., 2023; LaRoche-Johnston et al., 2018; LaRoche-Johnston et al., 2023; Shaul, 2017).

Introns can be influenced by intracellular pathogens through a variety of mechanisms, including viral integration and excision, which disrupts normal splicing; viral manipulation of splicing machinery to favor its own protein production; horizontal bacterial gene transfer, which facilitates the introduction of new genetic material into introns; modulation of the host's immune response by altering pre-mRNA splicing; bacteria-mediated introduction of insertion sequences or transposons, thereby disrupting splicing; and infection-induced epigenetic changes, such as DNA methylation or histone modification that also affect gene expression and splicing (Birkholz et al., 2024; Birkholz et al., 2023; Kurosawa et al., 2023; LaRoche-Johnston et al., 2018; LaRoche-Johnston et al., 2023). These interactions have a significant impact on host gene expression and cellular function, contribute to the pathogenesis of infection, and promote the evolution of host-pathogen interactions.

An examination of the presence and influence of introns may substantiate the concept of life as a simple process of self-replication. Intronic variants that lead to splice alterations have been identified as the underlying factors contributing to dystrophinopathy, neurofibromatosis type I, and inherited retinal diseases (Koczkowska et al., 2023; Kurosawa et al., 2023; Waldrop et al., 2022). These splice-altering variants lead to the formation of pathogenic pseudoexons and the extension of existing exons via disruption of the recognition process via the actions of splicing

factors such as small nuclear ribonucleoproteins and RNA-binding proteins. These splicing alterations result in mRNA destabilization through nonsense-mediated decay or result in functional defects in the encoded proteins (Koczkowska et al., 2023; Kurosawa et al., 2023; Waldrop et al., 2022).

Group II introns are ancient genetic elements that have greatly influenced the development of modern eukaryotic genomes. These are self-splicing ribozymes that share a common ancestor with telomerase, the spliceosome, and many spliceosomal introns and non-long terminal repeat retroelements (LaRoche-Johnston et al., 2018). As a result, over half of the human genome includes elements that are derived from ancient group II introns which play crucial roles in promoting genetic function and diversity. Similarly, group II intron-related elements in bacteria, for example, abortive phage infection retroelements, diversity-generating retroelements, and some CRISPR-Cas systems have evolved to provide significant benefits to their hosts (LaRoche-Johnston et al., 2018).

By contrast, bacterial group II introns are rare, unevenly distributed, and often spread by lateral transfer. Thus, these are viewed mainly as "selfish" genetic elements that provide no benefits to the host (LaRoche-Johnston et al., 2018). However, new research has discovered that these introns can generate genetic diversity in bacteria at the RNA level (LaRoche-Johnston et al., 2018). The results of this study revealed that the Lactococcus lactis Ll.LtrB intron can recognize and insert itself into specific sequences in cellular mRNAs by reverse splicing. This insertion and subsequent circularization collectively induce a novel trans-splicing pathway that creates chimeric RNA molecules. This finding identified new splicing mechanisms in bacteria that, similar to the spliceosome in eukaryotes, increase RNA-level genetic diversity and highlight further connections between group II introns, spliceosomal introns, and the spliceosome (LaRoche-Johnston et al., 2018).

Homing endonucleases, which can facilitate interference, are widely distributed across diverse families of phages, fungi, and archaea (Birkholz et al., 2023). A small subset of these endonucleases that are highly conserved with human glycoprotein gp210 can be found in jumbo phages that infect a wide variety of host cells, including both Gram-negative and Gram-positive bacterial species. Additionally, every mobile intron has the potential to evolve into a weapon given the differences in divergence rates observed between conserved target sites and the surrounding genome. This mechanism is particularly significant when considering the evolution of viruses, which are constantly competing with one another through co-infection and have rapid replication rates that allow even a small selective advantage to be amplified quickly (Birkholz et al., 2023). More broadly, a greater understanding of the fitness advantages provided by weaponized mobile introns could be relevant to any intracellular genetic competition, including those between plasmids, viruses, and their hosts, under the right circumstances.

Specifically, a viruses' ability to infect the brain, as an example of their infectivity, is relevant to their potential to cause neuroinflammation and neurodegeneration. Several viruses, including herpes simplex virus (HSV), varicella-zoster virus (VZV), cytomegalovirus (CMV), and human immunodeficiency virus (HIV), can enter brain tissue and lead to conditions like encephalitis, neurocognitive disorders, and long-term brain damage (see (Buttiker et al., 2022; de Almeida, 2021; Li et al., 2015; Limongi & Baldelli, 2016; Meyding-Lamadé et al., 2019; Tomonaga, 2004; Wongchitrat et al., 2024)). HSV-1 and VZV can reactivate and cause lasting harm, while CMV and HIV are particularly dangerous for immunocompromised individuals. Other viruses, such as rabies, West Nile, Zika, and Epstein-Barr virus (EBV), are linked to both acute and chronic neurological impairments, with some, like EBV, implicated in multiple sclerosis (see (Buttiker et al., 2022; de Almeida, 2021; Li et al., 2015; Limongi & Baldelli, 2016; Meyding-Lamadé et al., 2019; Tomonaga, 2004; Wongchitrat et al., 2024)). In this regard, viral targeting of bacteria, which includes mitochondria given their long evolutionary interaction/relationship, probably is the basis for targeting energy metabolism (Stefano et al.,

2024). Research is ongoing into the role of viral infections in neurodegenerative diseases, including Alzheimer's and Parkinson's.

Furthermore, considering the novel concept that viruses are alive adds to their sphere of influence, including potential novel treatment modalities. Thus, their metabolic pathways, cellular machinery, and autonomous growth could be directly targeted by drugs, making it easier to disrupt their replication and survival. Additionally, their more complex structures would improve immune system recognition, enhancing vaccine effectiveness. Living viruses would also depend on specific environmental conditions, which may be manipulated to control infections. While they might develop resistance mechanisms, these could also be targeted, ultimately making viruses more vulnerable to various treatments, for example, limiting neurodegenerative actions.

Importantly, mitochondria organelles within eukaryotic cells are not classified as independent living entities, as they cannot survive outside the cell (Cutler, 1978; Malina et al., 2018). However, their unique features, such as possessing their own DNA, replicating through binary fission, and their critical role in cellular energy production reflect their evolutionary origins as once free-living prokaryotes. Notably, recent studies have demonstrated that mitochondria can function and exist in extracellular spaces (see(G. B. Stefano et al., 2023; Zhou et al., 2024)). Furthermore, their genetic material can integrate into eukaryotic DNA, in a manner somewhat reminiscent of viral behavior (Wei et al., 2022). Additionally, the first pathogenic inversion in human mtDNA was documented by Musumeci et al., (Musumeci et al., 2000). More recently, Chanin and colleagues highlighted phase variation in bacteria, which is a mechanism enabling rapid genomic changes that enhance adaptability and survival (Chanin et al., 2024). This process, where recombinases flip a genomic region enhancing messaging, is notable because it occurs in bacteria, underscoring mitochondrial functionality as a conserved evolutionary mechanism, potentially unmasking their alive status. This mechanism supports survival through quick adaptation, influenced by microenvironmental factors. Thus, similar to viruses, mitochondria exhibit processes associated with self-replication, which raises questions about whether they too might warrant classification as living entities.

In summary, we propose that, contrary to conventional thinking, viruses are either alive or can become alive when found in an appropriate compatible environment, such as a eukaryotic cell. As with mitochondria, several characteristics of viruses support this conclusion: they can communicate with both prokaryotic and eukaryotic cells due to their shared chemical composition (e.g., nucleic acids), reproduce themselves, alter cellular energy metabolism to enhance their reproductive processes, survive and thrive in life-sustaining environments, and have optimized their replication process by adapting to host mechanisms that match their specific requirements, exhibiting molecular identity and diversity for the past two billion years. We speculate that during the course of evolution, early viral prototypes, similar to environmental DNA (Yang et al., 2022), eventually acquired the ability to self-replicate within a suitable coacervate-like droplet stage in environment (Agrawal et al., 2022; van Swaay et al., 2015), thus emerging as living entities. Additionally, achieving living status was facilitated by the virus's capacity for spontaneous, high-frequency mutations, surpassing those of prokaryotes and eukaryotes. This significantly higher mutation rate likely enabled the development of a streamlined genetic code, allowing these entities to adapt to a wide range of compatible hosts. Therefore, an improved understanding of the self-supporting and self-reproducing behavior of viruses could open new pathways for biomedical research, e. g., neurodegeneration, that encompass both pathological and beneficial potential.

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Abstract

Semaglutide: A Potential Therapeutic for Mitochondria-Associated Disorders

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Semaglutide, a glucagon-like peptide-1 (GLP-1) receptor agonist, was initially approved for improving glycemic control in patients diagnosed with type 2 diabetes and later for cardiovascular indications (Astrup & Finer, 2000; Goldenberg & Steen, 2019; Mahapatra et al., 2022a, 2022b). Interestingly, the mechanisms associated with glucagon- and insulin-like chemical messengers are present and functionally similar in both insects and mammals (Bednářová et al., 2013; Tager et al., 1976). This apparent evolutionary conservation underscores the significance of this pathway in metabolism and mitochondria-associated processes.

Individuals diagnosed with autoimmune and neurodegenerative diseases often experience chronic inflammation and elevated levels of inflammatory cytokines; this can lead to systemic complications, including insulin resistance (Esch & Stefano, 2002) that may be mitigated by anti-inflammatory agents. One such agent is semaglutide, a GLP-1 analog that reduces serum glucose levels and also exhibits anti-inflammatory activity (Zhang et al., 2019). For example, both semaglutide and the GLP-1 receptor agonist liraglutide reverse 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-induced Parkinsonian-type motor impairment (Zhang et al., 2019). These drugs also restore tyrosine hydroxylase levels, reduce α-synuclein accumulation, alleviate chronic brain inflammation, decrease lipid peroxidation, inhibit mitochondrial mitophagy signaling, and increase the expression of the growth factor, glial-cell-line-derived neurotrophic factor, which protects dopaminergic neurons in the substantia nigra and striatum (Zhang et al., 2019). Recent evidence suggests that mitochondria may be a critical semaglutide target, a finding that may substantiate recent hypotheses that link energy metabolism with the impact of stress on inflammation and obesity (Büttiker et al., 2023; Esch & Stefano, 2002; Esch et al., 2002; Esch et al., 2020; Luna-Marco et al., 2023; Tamayo-Trujillo et al., 2024).

In addition to its potential impact on Parkinsonian symptoms, semaglutide also enhances nerve cell function, reduces inflammation, and improves vascular health, all of which have the potential to slow the progression of Alzheimer's disease. Semaglutide has a positive impact on brain

health, has been associated with a lower risk of cognitive issues, and reduces nicotine dependence (De Giorgi, 2024). Importantly, results from a recent study published by Ma and colleagues (Ma et al., 2024) revealed that semaglutide can also support and preserve mitochondrial structure and function under conditions of chronic stress. GLP-1 receptor agonists may also be effective at reducing neurological complications, cognitive impairment, and peripheral neuropathy (García-Casares et al., 2023). Results from metabolomic analyses reveal that semaglutide reduces mitochondrial damage, lipid accumulation, and ATP deficiency by promoting the entry of pyruvate into the tricarboxylic acid cycle and thus increasing the rate of fatty acid oxidation. Transcriptional analysis shows that semaglutide regulates myocardial energy metabolism via the Creb5/NR4a1 axis of the PI3K/AKT pathway, reducing NR4a1 expression and its translocation to mitochondria. Of note, Ma and colleagues (Ma et al., 2024) also reported that NR4a1 knockdown can reverse mitochondrial dysfunction as well as abnormal glucose and lipid metabolism in the heart.

Collectively, current and emerging research findings suggest that semaglutide's impact on several seemingly unrelated disorders is based on a shared underlying mechanism. Semaglutide's capacity to reduce inflammation may lead to targeted protective outcomes, including cognitive improvement. We hypothesize that this commonality may be represented by semaglutide's positive influence on mitochondrial function, specifically its impact on energy metabolism (Li et al., 2024). Mitochondrial abnormalities have already been linked to a diverse cohort of physiological disorders. The impact of semaglutide on mitochondrial function underscores its critical importance to future medical and biological research and provides important insights into the development of novel targeted pharmaceuticals. We speculate this includes disorders associated with obesity, which also may be associated with attention deficit hyperactivity disorder. In this regard, the role of mitochondria in both normal and abnormal processes suggests an even more provocative role for these organelles within a eukaryotic organism than is currently understood. Functionally intact mitochondria have also been found in the extracellular environment where they may have a role in sensory function and exhibit characteristics of independent cells (Stefano et al., 2023). Taken together, semaglutide-mediated mitochondrial targeting reveals a critical role for these "organelles" in food consumption, overall well-being, and healthy longevity (Stefano & Kream, 2017).

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Abstract

Student Interests, Needs, and Preferences for Trauma-Sensitive Yoga at a Southeastern U.S. University

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Trauma threatens one's life or sense of safety and can lead to debilitating symptoms for college students (American Psychiatric Association, 2022; Shannonhouse et al., 2023). Yoga is an emerging trauma treatment (Bisson et al., 2020) and common form of mind-body medicine used by college students (Nowak et al., 2024). Trauma Center Trauma-Sensitive Yoga (TCTSY; Emerson et al., 2009) is a protocolized yoga intervention for trauma care that focuses on mindfulness, interoception, and empowerment. TCTSY effectively reduces anxiety, depression, and posttraumatic stress (Price et al., 2017; Zaccari et al., 2023) with feasibility in clinical and community settings (Clark et al., 2014; Zaccari et al., 2022). To our knowledge, this was the first study of TCTSY with college students to document needs, interest, and preferences for TCTSY. Quota sampling recruitment occurred March-June 2024 at a southeastern U.S. public university via flyers, email, and Sona. Qualtrics surveys assessed demographics, trauma exposure (LEC-5, Weathers et.al., 2013), trauma symptoms (PC-PTSD-5, Prins et al., 2016), and yoga preferences (Kabiri et al., 2018). Compensation was Sona credit or gift card. From 339 participants (White 77%, female 68%, Christian 69%, undergraduates 77%; M age = 23.7), 68% previously practiced yoga, and 89% never heard of trauma-sensitive yoga. On average, participants reported direct exposure to 2.96 traumatic events (most common = transportation accident (45%), index trauma = other unwanted/uncomfortable sexual experience (18%)) and subthreshold PTSD symptoms (M(SD) =1.66(1.56). Majority (73%) indicated interest in TCTSY programs, from which most common program preferences were 2 (40%) 45-minute sessions (46%) in-person (41%) for groups (69%) open to all trauma survivors (70%) over 4 weeks (19%). Cost was the top participation barrier. Implications for offering campus TCTSY in acceptable ways for the unique needs of college students will be discussed.

Keywords: yoga, trauma-sensitive yoga, college students, program preferences, PTSD, trauma

Abstract

Ways of Knowing and Being: Qualitative Study of Indigenous Perspectives on Trauma-Sensitive Yoga

by Kelsey M. Dietrich[1,2], Ashley Baumann[1], Linda Zheng[1], Valerie Niklas[1], Jill Kessler[3], Lyndsey Ducheneaux[3], Marcia O'Leary[3], Jennifer Turner[4] and Viann Nguyen-Feng[1]

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Indigenous communities endure intergenerational trauma through ongoing oppression, genocide, violence, and colonization with adverse effects on wellbeing and systemic barriers to holistic care. Trauma Center Trauma-Sensitive Yoga (TCTSY) is an empirically-based yoga intervention for posttraumatic stress disorder that promotes practitioner autonomy and trauma healing through choice-based somatic practices. To become a TCTSY-Facilitator, candidates complete a 20-hour training, followed by a 300-hour certification program through the Center for Trauma and Embodiment. The purpose of this community-based research was to document perspectives from the first Indigenous TCTSY training cohort about the usability and feasibility of TCTSY.

Interviewees were 21 participants (women = 19; 13 Tribal Nations) who completed the 20-hour training, from which 10 enrolled in the 300-hour training, and 1 program mentor. Semi-structured interviews (9 questions) at post-20-hour training (May-August 2022; n = 14), mid-300-hour (November 2022-January 2023; n = 5), and post-300-hour training (July 2023; n = 1) were conducted and transcribed by 2 master's level psychology research assistants (RAs) via Zoom. Data analyses were conducted by five master's level psychology RAs and 1 psychology professor using the consensual qualitative research method to emphasize multiple interpretations, share power, and reach consensus. Researchers engaged in ongoing reflexivity practices and Indigenous cultural learnings. Results found most participants reported positive impacts from the training and TCTSY principles aligned with their current healing approaches. Main takeaways were learning about trauma, value of invitational language, and plans to integrate TCTSY with land-based practices and ceremonies. Identified program changes were collaboration with Elders and adding resources about ongoing community trauma and oppression. Implications for culturally tailored mind-body practices will be discussed.

Keywords: yoga, trauma-sensitive yoga, Indigenous, qualitative, community-based research

Abstract

Predictors of the Effectiveness of Immersive VR-based Interventions for Stress Reduction: A Protocol for a Systematic Review with Meta-Analysis

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Background: Over the past years, the prevalence of mental load has been continuously increasing. Persistent stress is associated with poor mental health and various diseases. Stress management techniques enable individuals to cope with these demands and reduce the negative health consequences of stress. While Virtual Reality (VR) has been shown to be an effective treatment for a range of psychiatric conditions, studies also suggest its potential to reduce stress and enhance mental well-being in the general population. However, predictors of the efficacy of different VR interventions for stress reduction remain unknown. This systematic review aims to compare the effectiveness of VR interventions for stress reduction across various application areas.

Methods: MEDLINE, CINAHL, CENTRAL, PsychINFO, and Web of Science will be searched in accordance with PRISMA guidelines to identify randomized controlled trials of immersive VR interventions for stress reduction. Studies will be included if they address the general population without psychological diagnoses and compare a VR intervention with a control group, such as no treatment, placebo, or waitlist control groups. At least one validated measure of perceived psychological stress must be reported. Data extraction will be performed by two reviewers. Pooled standardized mean differences will be calculated for the primary outcome of perceived stress. Meta-regression and subgroup analyses will be conducted to identify predictors of treatment effects and possible differences among subgroups. As secondary outcomes, biological stress markers, anxiety, depression, and health-related quality of life will be analyzed. A comparison of VR interventions with traditional stress management approaches will also be performed.

Discussion: The results will provide a comparative overview of existing research on

VR interventions for stress reduction outside psychiatric applications and will assist in identifying future research agendas.

Keywords: effectiveness, stress management, stress, virtual reality, coping, VR intervention, stress reduction, predictors, meta-analysis

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Abstract

Self-care Strategies for Medical Students: an Uncontrolled Mixed-methods Evaluation of a Mind-Body Medicine Group Course

by Raphael Scullion[1], Katja Icke[1], Tatjana Tissen-Diabaté[1], Daniela Adam[1], Miriam Ortiz[1], Claudia M. Witt[1,2], Benno Brinkhaus[1] and Barbara Stöckigt[1]

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Background: The high stress of medical education and its detrimental effects on students' health have been well documented. As a response, a variety of stress reduction and resilience interventions have been created, among these the Mind-Body-Medicine (MBM) course of the Georgetown University, which has been established at the Charite-Universitätsmedizin since 2012. The aim of this exploratory mixed methods evaluation study was to investigate the effects of these MBM student group courses.

Methods: From 2012 to 2019 quantitative and qualitative data were gathered from 10-week MBM courses. Variables were perceived stress (PSS), mindfulness (FFA/MAAS), self-reflection (GRAS), self-efficacy (GSE), empathy (SPF) and health-based quality of life (SF-12), evaluated pre and post course attendance. Qualitative data were gathered in semi-structured interviews of focus groups at the end of each course.

Results: A total of 112 participants from 14 courses between 2012 and 2019 were included. Participants experienced decreases of perceived stress (PSS), increased mindfulness (FFA/MAAS), self-efficacy (GSE), self-reflection (GRAS) and empathy (SPF subscales "perspective taking" and "personal distress"). In focus groups students reported increases in their ability to self-regulate stressful experiences, improved relationships towards themselves and others, as well as new insights on medicine, self- and patient care. Triangulation of both methods ground these effects of MBM practice in the social context in which they were offered as an interdependent dynamic between mindfulness and empathy, and experiences of self and other.

Conclusion: A Charité MBM course has shown beneficial effects to reduce perceived negative stress, increase self-awareness, mindfulness and empathy as well as promote integrative concepts of doctor-patient relationship. Further research including RCT trials are needed to validate the benefits of MBM courses for medical students in a larger study population

Keywords: Mind-Body Medicine, Stress reduction, Mindfulness, Resilience

Abstract

Nutritional Behavior Change in Primary Care: What do you Know and What do you Need? A Qualitative Study

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Background: Nutrition is a key factor in the treatment of non-communicable, lifestyle-related chronic diseases. Despite its importance, many patients struggle to adopt healthier dietary habits. This ongoing study examines patients' dietary behavior, knowledge and beliefs about healthy eating. Further, it explores their (attempted) behavior change as well as the resources they need for successful nutritional behavior change.

Methods: Guided individual interviews with 18 primary care patients were conducted between April and July 2024. A focus group will be held in autumn 2024.

Results: The data were analyzed by means of qualitative content analysis. Results will show at what stage participants are in their behavior change and reveal which factors prevent or enable their achievement of further stages of dietary change.

Conclusion: Based on these findings, a scientifically established and evaluated concept of health promotion (BERN, Esch 2020) will be further developed to promote healthy and sustainable nutrition in primary care.

Keywords: nutrition, healthy diet, dietary behavior, behavior change, resources

Abstract

The Role of Religion in the Legitimization of Political Decision-Making Processes: A Comparative Study of the Socio-Cultural Aspects of Secularization in Germany and Iran

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Secularization is often considered, as a prerequisite for a democratically constituted society. The characterization by the institutional separation of religious beliefs and practices, and their transition from the public to private sphere, profoundly influences the application of mind-body medicine (MBM). The integration of practices such as yoga and mindfulness in various settings, including schools, hospitals, and businesses in the United States and Europe, exemplifies this impact. Through secularization, mindfulness has evolved into a scientifically endorsed tool, decoupled from its religious origins. As a result, it is gaining widespread acceptance and use in medical contexts, such as Mindfulness-Based Stress Reduction (MBSR).

Sociologists have long argued that modernization, individualization, and democratization would lead to religion losing its significance both individually and socially, potentially disappearing altogether. For example, Max Weber linked secularization to the "disenchantment of the world," while Émile Durkheim highlighted the loss of religion's social function. However, recent studies challenge these theories by highlighting the paradoxical resurgence of religious relevance in secular societies like the United States and Germany.

This research project examines the interplay between secularization and culture. By analysing these key terms and the socio-cultural factors that have driven secularization in Germany, the study employs a hermeneutic approach to explore the economic, legal, and political contexts of the 18th and 19th centuries. A comparative analysis of the secularization processes in Germany and Iran further elucidates the complex dynamics shaping the relationship between religion, culture, and politics.

This analysis ultimately aims to clarify the ongoing role of religion in secularized societies and to refine the concept of culture. Understanding the cultural implications of secularization is crucial for enhancing the relevance and applicability of MBM. These findings suggest that MBM could have a transformative impact on healthcare and education systems, further supporting the integration of secularized mindfulness practices into these fields.

Keywords: Secularization – Mind-body-medicine (MBM) – Mindfulness-Based Stress Reduction (MBSR) – Modernization – Religion and culture – power balance - Comparative analysis (Germany and Iran)

Abstract

Effects of Multisensory Virtual Forest Bathing on Stress and Well-Being in Young Adults: Protocol for a Randomised Controlled Trial

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Background: In today's rapidly changing world, individuals are confronted with mounting levels of stress, which contribute to various mental and physical diseases. Forest bathing, called *Shinrin Yoku*, is an effective approach for reducing stress and improving mental and physical well-being. However, physical access to a natural environment is not always feasible, particularly for individuals with movement restrictions. One potential solution is the use of virtual reality (VR) for forest bathing. Previous studies have demonstrated that VR forest bathing has comparable effects on stress levels, vitality, and emotional well-being as real forest bathing. Further investigation is required to evaluate the effects of multisensory stimulation, for example olfactory stimuli during VR forest bathing.

This study aims to evaluate whether VR forest bathing enhanced by olfactory stimulation leads to greater stress reduction of young adults than an immersive VR forest bathing without olfactory stimulation.

Methods: A randomized controlled trial will be conducted to investigate the effects of multisensory VR forest bathing on stress reduction in comparison to VR forest bathing without olfactory stimuli. All participants will receive three different conditions (VR, video, and grey screen) in a randomized order. The study population will consist of 128 participants aged 18-40 years. In addition to stress reduction (measured by PANAS) as the primary outcome, restoration, vitality, sense of presence, and cybersickness will be assessed before and after each condition. Additionally, objective stress measures, such as heart rate variability, respiratory activity, and electrodermal activity, will be monitored.

Outlook: The overarching goal is to test whether olfactory stimulation enhances the stress-reducing effects of VR forest bathing and, if proven effective, to establish this as an easily accessible coping tool for individuals with movement restrictions.

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Abstract

Prana – An Important Link in Mind-Body Connection: Conceptual Analysis on Role of Pranic Healers

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Background: Pranic healing is an ancient science and art of healing that aligns with mind-body practice. This complementary therapy focusses on the balancing prana, or life energy, for hasten the recovery. According to Panchakosha theory in yoga philosophy, pranamaya kosha (sheath of prana) acts as a bridge between the Annamaya kosha (physical sheath) and Manomaya kosha (sheath of mind). In pranic healing, practitioners work to cleanse, energise, and balance this sheath of prana. Clinical trials have found significant improvements in depression symptoms, sleep, quality of life, and exercise capacity. The holistic techniques of pranic healing are learnt and practiced by large numbers in India.

Objectives: This qualitative study aims to understand perception and experiences of Pranic Healing practitioners.

Method: Twelve certified PH practitioners from India participated in an in-depth telephonic interview, and their experiences were recorded, transcribed, and analysed using inductive thematic analysis.

Results: Thematic analysis identified four subthemes including a) energy experiences, b) positive experiences, c) improvement in emotional regulation and self-confidence and d) health benefits. They were categorised under the major themes, 1) Pranic Healing practitioners experiences during healing and 2) Perceived self-transformation.

Conclusion: This study underscores the potential of Pranic Healing, highlighting the energy sensations experienced by healers and their influence during healing sessions, as a holistic practice that contributes to both the well-being and self-development of its practitioners.

Clinical Trail Registry: CTRI/2022/09/045361

Keywords: Prana, Holistic Healing, Biofield, Integrative Healing, Yoga

Abstract

A Pilot Randomised Controlled Trial Assessing the Impact of Sophrology in People Living with Chronic Pain in the UK

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Objectives: Due to chronic pain being difficult to treat, pain medication being often ineffective and associated with side-effects, alternative treatments are frequently used. Sophrology is a structured method to improve wellbeing that combines Western and Eastern practices. Benefits include reduced anxiety and depression and improved sleep quality but its effectiveness on pain management is unknown. This study assessed whether an 8-week Sophrology intervention reduced pain levels and improved quality of life in UK adults with chronic pain.

Design: A Randomised Controlled Trial comparing individuals participating in a 8-week Sophrology intervention with a waitlist control was conducted. Methods: 100 participants, recruited from chronic pain support groups, were randomised into two groups, and completed a baseline and 8-week follow-up assessment online. Scales assessed levels of pain, disability, sleep disturbances, anxiety, depression, life satisfaction, resilience, and pain medication use. Mixed ANOVA were conducted to assess the intervention's effectiveness.

Results: 17 participants completed the intervention and follow-up questionnaire compared to 26 in the control group. Compared to the control, the intervention group had significant reductions in pain levels, pain medication use, rumination, magnification, disability levels, sleep disturbances, depression, and anxiety, and a significant increase in treatment satisfaction. There was no significant difference in life satisfaction and resilience.

Conclusions: Results show that Sophrology is effective in improving pain levels and quality of life. This has positive implications for patients and practitioners regarding chronic pain management. Replicating this study on a larger scale and using a longitudinal design would be useful to assess Sophrology's long-term benefits.

Keywords: Chronic pain, Sophrology, Mind-Body Therapy

Abstract

The ConnectingLink® Coaching Method

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We carry within us a multitude of emotionally unresolved experiences from our early lives or the lives of our ancestors. Therefore, our nervous system has stored numerous hindering emotions, beliefs and behavioural patterns.

Instead of living a life of serenity and joy, we are at the mercy of our reflexive emotional and physical reactions. Consequently, we are confronted with recurring stress in our minds and bodies. Our relationships, work and physical health are affected. Even if we want to, our willpower is not strong enough to change the patterns stored in the unconscious.

The ConnectingLink® coaching method directly addresses the coachees' nervous system and subconsciousness. With the help of muscle tests, it uncovers connections between problems in the here and now and the - often unconscious - cause in the past. With the help of rapid eye movements (REM phase) past experiences are processed retrospectively.

As a result, the coachees experience a new relaxation on a mental and physical level and can now react more calmly and centred in situations that previously stressed them and prevented them from finding favourable solutions and taking good decisions.

This has positive effects on the physical systems that are affected by stress, such as the digestive, hormonal and immune systems.

As ConnectingLink® coaches, we would like to present the method to the participants of the conference using many successful practical case studies. Based on practical exercises we will illustrate the often astonishing connections between problem and cause that have come to light.

Keywords: ConnectingLink® Coaching, subconscious, autonomic nervous system, stress, stimulus-response programme

Abstract

Can Participants´ Self-efficacy be Changed Through a Community-based Lifestyle Intervention? Results of the Healthy Lifestyle Community Program (HLCP)

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Background: The implementation of healthy behaviors, especially a healthy and varied diet, can make a significant contribution to the prevention of chronic diseases and their risk

factors. A high self-efficacy (SE) can be a relevant resource for putting planned behaviors into practice.

Methods: A 24-month controlled, non-randomized intervention study (Healthy Lifestyle Community Program, cohort 2 [HLCP-2]) was conducted, which included a 10-week intensive lifestyle intervention aiming to improve NCD risk profile and a 22-month less intensive alumni phase. The control group (CG) received no intervention. At six measurement time points over two years, the action, maintenance and recovery SE regarding a healthy diet, based on the HAPA model (Health Action Process Approach), were assessed using questionnaires. Inter- and intra-group comparisons were conducted.

Results: A total of 186 participants (intervention group [IG]: n = 111; CG: n = 75) were analyzed. Participation in the HLCP-2 led to a significant increase of action SE, maintenance SE and recovery SE in the IG at all measurement time points compared to the control group and baseline. For all three parameters, the effect was highest after the intensive phase (10 weeks) (inter- and intra-group comparison: $p \leq 0.001$).

Conclusion: The HLCP-2 is effective in increasing participants' SE over the study period. The reason for this could have been the participatory and interactive design of the lifestyle intervention program, in which participants were encouraged to find their own way to a healthy lifestyle. It is now interesting to see to what extent a high SE is related to an actual change in health behavior.

Keywords: lifestyle medicine, nutrition, physical activity, stress management, behavior change, community-based participatory research

Abstract

Improving Spiritual Well-Being in Adolescents: A Pre-Post Study of a Multimodal Stress Management Training

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Background: Adolescence is a period characterized by elevated stress levels with identifiable consequences for well-being. Challenges include post-pandemic anxiety disorders or test anxiety. A spirituality-centered conceptual framework that includes multidimensional life satisfaction, compassion, awe, gratitude, and anxiety suggests the importance of self-compassion and gratitude as important factors in enhancing wellbeing and reducing anxiety.

Aim: This ongoing study examines the effects of a multimodal stress management training on adolescent well-being, focusing specifically on dimensions of spirituality. To date, 44 out of 120 students between the ages of 17 and 20 have voluntarily enrolled in this in-school program.

Methods: This 10-week intervention study follows a post hoc design with three distinct measurement points (t0, t1, t2). The intervention program includes yoga, meditation, experiential learning, and relaxation techniques. Data will be collected using standardized questionnaires addressing perceived stress, life satisfaction, mindfulness, compassion, awe/gratitude, and test anxiety.

Results: Students expressed motivation and commitment to the program, driven by their enjoyment of the various elements that helped manage self-imposed stress. Our study enriches

the landscape of interventions tailored for adolescents by adopting a multifaceted approach that addresses stress management and includes techniques that focus on aspects of a grateful life with an emphasis on non-religious spirituality. The program aims to enhance adolescents' resources, empower them to cope with their school-related stressors, and thereby help them develop as responsible and caring individuals.

Conclusions: This research seeks to provide a nuanced perspective on the efficacy of our intervention program compared to interventions such as mono-interventions (i.e., yoga or sports activities). We seek to uncover the unique benefits of a multimodal stress management program that incorporates non-religious forms of spirituality within the educational setting for adolescents.

Keywords: spirituality, adolescents, well-being, gratitude, awe, compassion

Abstract

Improving Patient Comprehension: A Delphi Technique-Driven Approach to Visualizing Self-Reported Patient Data

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doi: 10.61936/themind/2024121216

Background: Reviewing one's personal health data can increase patients' self-efficacy; however, data should be conveyed in a way that is comprehensible and meaningful to the end user. Visually synthesizing raw and/or complex data can help improve patients' understanding and information retention, and maximize subsequent benefits. Patients' preferences for visualization of self-reported data should be considered prior to implementing visualization tools in primary care settings.

Methods: We will use the Delphi technique to select a method for visualizing the self-reported pre- and post-intervention results of patients participating in an 8-week mind-body-medicine-based intervention focusing on behavior, exercise, relaxation, and nutrition (BERN course). Ten course completers will be recruited as experts. First, we will use open-ended questions to assess initial preferences and suggestions for data visualizations; qualitative analyses will be used to identify common themes. Second, findings will inform a questionnaire; patients will rate the proposed data visualization options based on clarity, ease of comprehension, and effectiveness using Likert scales. Third, the summarized findings will be re-evaluated; we will aim for consensus among the experts.

Results: Reaching consensus among experts with direct experience with the intervention for which a visual tool is to be created will lead to the selection of the data visualization tool deemed most relevant, comprehensible and helpful when presented to future BERN course participants.

Discussion: Selecting a visual tool found helpful by BERN course completers will allow us to synthesize complex self-reported data in a way that is meaningful and comprehensible to future course participants. Visualization of BERN course participants' self-reported changes in health behavior may boost their goal setting ability, motivation to initiate and maintain positive health behaviors, and self-efficacy.

Keywords: Delphi technique, data visualization, patient comprehension

Abstract

Yoga with/in Gym Atmospheres: Exploring Healthism, Sensory Engagements, and Power in University Settings

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The Okanagan Charter aims to embed health equity in universities by emphasizing the connections between people and their environments. With an increased focus on student and staff wellbeing, many universities offer yoga classes in their group fitness programs as a holistic wellbeing resource. Yet, practicing yoga in gym-like spaces promotes a discursive delivery of yoga entangled with healthist prerogatives. Environments full of exercise equipment and advertisements for strong bodies minimize the spiritual prerogatives of the practice in favor of a Western aesthetic of health. In this project, I draw upon pratyahara (withdrawal of the senses) to understand the complex interplay of sensory stimuli, moving bodies, and social justice in a university gym setting. While withdrawal of the senses promotes an inward focus away from healthy body discourse, so doing may rely on replicating culturally appropriative, hegemonic re-imaginations of yoga through sensory-material elements. To understand this dynamic, I draw upon diffractive auto/ethnography to explore my practices and privileges as a yoga teacher in my university recreation centre. Through a creative method of self-inquiry, I literally and figuratively weave together observations, materials, images, and reflections from 250 site visits. These elements come together into three narratives that provide a framework for drawing upon pratyahara as a conceptual tool for reflexive practice. This creative project moves at the intersection of critical theory and yoga studies, highlighting the challenges for accessible, inclusive, and culturally sensitive health promotion through yoga.

Keywords: healthism, pratyahara, health promotion, diffractive methodologies

Abstract

Effects of an Integrative Day Care Clinic Program with a Focus on Nature Therapy in a Hospital Park Setting on Quality of Life in Oncological Patients-A Non-Randomized Controlled Study

by Michael Jeitler[1,2], Christian S. Kessler[1,2], Farid I Kandil[1], Christel von Scheidt[2], Meline Meinköhn[1], Barbara Koch[2], Manfred Wischnewsky[3], Andreas Michalsen[1,2] and Lisa Kuballa[1]

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Cancer often causes long-term physical and psychological impairments. Lifestyle modification and nature-based interventions (NBIs) can have a positive impact on patients' quality of life (QOL). This participants-blinded, non-randomized controlled study assessed parameters at weeks 0, 12, and 24, including, as a primary endpoint, QOL in cancer patients on the Functional Assessment of Cancer Therapy-General (FACT-G) at week 12. QOL in breast cancer patients, fatigue, well-being, stress, anxiety/depression, socio-psychological well-being, benefits of nature interaction, insomnia, self-efficacy, mindfulness, and self-compassion were assessed as secondary endpoints. N = 107 cancer patients (96.3% women; 52.5 ± 9.3 years, 80.4% breast cancer) were assigned to either a 12-week nature-based (NDC; n = 56) or conventional (DC; n = 51) oncology day care clinic program, whereby the assignment group was not known to the participants. There was no significant group difference for the primary endpoint. At week 24, QOL, fatigue, mindfulness and self-compassion scores were significantly higher, and at weeks 12 and 24, the insomnia score was significantly lower in NDC compared to DC. In conclusion, this study indicates positive and clinically relevant effects of the program on QOL, fatigue, and psychological parameters. NBIs seem to have a more pronounced effect.

Keywords: MICOM; Mind–body Medicine; cancer; day care; integrative medicine; lifestyle; meditation; mindfulness; nature; oncology

Abstract

Sudarshan Kriya Yoga Breathing and a Meditation Program for Burnout Among Physicians - A Randomized Clinical Trial

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Physicians are exposed to high levels of stress that results in burnout, which affects them, their families, their patients, and the entire health care system. Sudarshan Kriya Yoga (SKY) is a comprehensive yoga breathing and meditation-based program that is a potential approach to mitigate physician burnout. This randomized clinical trial assessed the potential efficacy of SKY compared with a stress management education (SME) training as control in actively practicing physicians (n=129; SME=63, SKY=66) (Korkmaz et al., 2024). Both the SKY and the SME control groups received 1.5 hours of training for 3 consecutive days via a group video conference call.

After the 3-day instruction period, the participants in the SKY group practiced for approximately 30 minutes per day on their own and the SME group applied the notes from the training in their daily lives. Both groups participated in a weekly 1-hour, group-based online follow-up practice for 8 weeks. At baseline, right after and 8 weeks after the instruction, we measured stress, anxiety and depression (by the 42-item Depression, Anxiety, and Stress Scale [DASS-42]), insomnia (by the Regensburg Insomnia Scale [RIS]). optimism (by the Life Orientation Test-Revised [LOT-R]), professional fulfillment, work exhaustion, interpersonal disengagement, and overall burnout (by the Professional Fulfillment Index [PFI]).

Compared with the SME group, participants in the SKY group had significantly decreased stress, depression and anxiety. The SKY group also showed significantly increased

professional fulfillment as well as significant decreases in work exhaustion, interpersonal disengagement, and burnout. In addition, there was a significant decrease in insomnia from baseline to postintervention in the SKY group. These data suggest that SKY may be an effective, practical, and safe strategy to increase wellness and mitigate stress and burnout in physicians as well as in other vulnerable professions.

Keywords: stress, anxiety, depression, burnout, work satisfaction, physicians

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Abstract

How Does Attending Vipassana Retreats Affect the Self- and World-relationship of Healthcare Professionals

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Studies on the effects of meditation often posit a one-dimensional causal relationship between intervention (e.g., meditation courses) and outcome (e.g., increased equanimity or compassion). However, these studies frequently overlook the fact that the impact of meditation depends on how practitioners interpret the teachings and their experiences. Following Merleau-Ponty's phenomenology, we assert that the effectiveness of meditation is contingent on the individual's self-relationship.

Methods: This qualitative reconstructive study examined the impact of a 10-day Vipassana retreat on the professional attitudes and stress management of doctors and nurses. Interviews were reanalyzed using Interpretative Phenomenological Analysis (IPA) to reconstruct the self- and world-relationship of practitioners in detail. To validate results and identify criteria for healthy and unhealthy uses of meditation, findings were correlated with the DFG-funded study "Buddhism in the West", involving in-depth interviews with over a hundred Buddhist meditation practitioners.

Results: Findings showed meditation experiences are utilized in diverse ways, sometimes beneficial and sometimes detrimental. The study revealed a typology of three different forms of reception: the *self-regulation type*, the *experience seeking type* and the *compassionate type*. The effects of meditation cannot be universally answered but must consider how practitioners integrate their specific self- and world-relationship with meditation. In terms of the findings of the DFG study, we found that a profound confrontation with one's suffering often marks a turning point. Initially, many students enjoy their practice, feeling empowered by the growing concentration and spiritual experiences of peace, bliss, and love. These early experiences support the self-regulation type— "I can control this"—while the experience-seeking type indulge in what Chögyam Trungpa called "Spiritual Materialism". However, the

transition to deep (self-) compassion in the face of people's painful circumstances – the ultimate goal of Buddhist practice – is a difficult one.

Discussion: Since Mind-Body Medicine aims to reconnect people with their living body, we inevitably need to address how to handle suffering. We should ask ourselves if we are ready to manage potential challenges, such as encountering profound suffering. Yet, these experiences are not always negative; in many cases, facing the "dark night of the soul" is what paves the way to deeper healing.

Keywords: Vipassana meditation, Health Care Professionals, Interpretative Phenomenological Analysis, Merleau-Ponty

References

Vogd, A. & J. Harth (2019). Relational Phenomenology: Individual Experience and Social Meaning in Buddhist Meditation. Journal of Consciousness Studies, 26 (7-8) 238-267.

Abstract

Integrating Pranic Healing for Sleep Improvement Among Subjects with Lower Urinary Tract Symptoms: A Randomized Controlled Trial

by Roopa Nanjundaswamy[1], Narendra J B[2], Vinu V[1], Srikanth N Jois[1] and Nagendra Prasad[1]

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Background: Sleep disturbances, such as difficulty falling asleep, staying asleep, or experiencing restorative sleep, are frequently observed in men experiencing Lower Urinary Tract Symptoms (LUTS). These disruptions often result in a reduction in overall sleep quality. Pranic healing is an ancient technique that balances the body's energy centres for better physical and mental health.

Aim: This study aims to assess the effect of Pranic Healing (PH) as complementary therapy on sleep quality in LUTS subjects.

Method: An open label, randomised controlled trial enrolled 76 men aged 64.11±8.15, diagnosed with LUTS, were randomised into two groups: Medication-only (MED) (N=38) and Medication-plus-Pranic Healing (MEDPH) (N=38). The Pittsburgh Sleep Quality Index (PSQI) was assessed pre- and post-intervention. The modified Biofield Assessment Form (BAF) was used to evaluate the chakras in MEDPH group. An experienced Pranic healer provided PH sessions twice weekly for five weeks to the MEDPH group, along with conventional treatment.

Results: The results were analysed for the MEDPH group (N=36) and the MED group (N=30). The study found that the MEDPH group had a significant improvement in sleep quality (McNemar=.013), while the MED group did not show any significant change (McNemar=.146). The BAF assessment by Pranic Healers showed, Solar Plexus (Manipura Chakra), Sex (Swadhishtana), and Basic (Mooladhara) were effectively normalized in the MEDPH group.

Conclusion: Pranic Healing was found to be effective as a complementary therapy to improve sleep quality and physical health in LUTS patients.

Clinical trial registry: CTRI/2023/01/049004

Keywords: biofield, chakra, mind body medicine, integrative therapy, quality of life

Abstract

Spirituality and Contemplative States Through Yoga Practices: The Scientific Rationale and Preliminary Evidence

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Background And Aims: Yoga is an ancient contemplative behavioral mind-body practice that allows for the development and enhancement of mind body skills and behavioral factors including physical functioning, awareness/mindfulness, self-regulation of internal physiological and psychological states, and life meaning and purpose. This is achieved through yogic physical exercises/postures, breath regulation, relaxation, and meditative practices. The ultimate historical goal of traditional yoga has been the achievement of contemplative states and spirituality, specifically the unitive state of consciousness called Samadhi. The aim of this presentation is to describe the scientific rationale for how yoga practices can lead to such states and review some of the more important research studies providing supportive evidence for increases in spirituality with yoga practices.

Methods: Published hypothesis papers on yoga for spirituality and contemplative states and published research studies on yoga practitioners and spirituality were acquired through searches on PubMed and PsychInfo databases.

Results: Basic research has supported the efficacy of yoga in developing and enhancing mind body skills and behavioral factors including physical functioning, awareness/mindfulness, self-regulation of internal physiological and psychological states especially of stress and emotion, and the enhancement of regulation of thought processes, and the development of metacognition that are consistent with the neurophysiology and mental state associated with spirituality and contemplative states. A number of survey studies of long-term yoga practitioners have shown improvements in spirituality with longer term practice.

Conclusions: Regular longer-term practice of yoga appears to be associated with increases in spirituality and contemplative states.

Keywords: yoga, spirituality, contemplative states

Abstract

The Physician as a Success Determining Factor in CT-guided Pain Therapy

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doi: 10.61936/themind/2024121223

Background: Back pain significantly affects quality of life and imposes substantial healthcare costs. CT-guided pain therapy is a controlled treatment method for morphologically proven back pain. However, outcomes can vary, with the physician being a potential influencing factor.

Methods: This study included 67 patients with specific back pain undergoing 244 CT-guided treatments by five physicians of varying ages and experience levels. A psychologist observed treatments using a standardized protocol, focusing on verbal and non-verbal interactions. Treatment success was measured using the visual analogue pain scale.

Results: Patient outcomes improved significantly when patients perceived their physician as competent and felt understood. Positive affirmation from the physician also correlated with better outcomes. Conversely, patients expressing pain during intervention experienced less improvement.

Conclusion: The physician's behavior and communication play a crucial role in the success of CT-guided pain therapy. Empathy, positive reinforcement, and a supportive atmosphere significantly enhance treatment outcomes. These results emphasize the importance of communication skills training in medical education.

Future Research: Future studies should explore the interaction between central reward systems and pain modulation. Investigating the limbic system through functional MRI (fMRI) could provide insights into how emotional and psychological factors influence pain perception and treatment efficacy. Understanding these mechanisms may lead to improved therapeutic strategies and personalized pain management approaches.

Keynotes: CT-guided therapy, back pain, periradicular therapy, psychological cofactors, expectation effects, physician-patient relationship, limbic system, fMRI

Abstract

Development of an Interdisciplinary, Mind-Body Medicine Self-help Group Program for Post-COVID-19 Syndrome: Intervention Design and Feasibility of the NASH Randomized Controlled Trial

by Heidemarie Haller[1], Christiane Pithan[1,2], Thuy Thi Nhi Cao[1], Jessica Wittek[1,2], Thomas Rampp[1,2], Anna Paul[2], Gustav Dobos[1]

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Background: Patients suffering from post-COVID-19 syndrome often struggle to find effective treatments for persisting or newly developed symptoms after their acute infection. This is complicated by a still unknown and highly individual, multi-factorial pathogenesis. In such cases, extending pathogenic approaches by salutogenic ones may be promising. Thus, we designed a mind-body-medicine group program and tested it for feasibility.

Methods: Based on the established MICOM program, we developed a 10-week group concept combining elements of mind-body-medicine, Self-Help strategies from NAturopathy (NASH) and Traditional European Medicine as well as ear-acupuncture. The program lasted 6 hours/week and included medical group visits, behavioral chance processes and complementary self-help units. We tested this program in addition to treatment

as usual against treatment as usual alone within a randomized controlled trial.

Results: The NASH-study started in April 2023. With currently N=83 randomized of initially 86 calculated patients (age: 50.9 ± 12.9, 20.5% male), recruitment was feasible. The overall high attendance of 7.5 ± 3.3 days of N=52 patients who finished the study yet also ensure the execution of the intervention according to protocol. With regular breaks, patients were very well able to complete all treatment modules and stay for the full 6-hour day. Dropout rates (N=4 versus N=3) as well as reasons for drop-out were comparable between groups and not associated with the respective study intervention. Beside the social support within a group of equally affected people, effective treatment mechanisms reported by the study patients included: pacing, mindful stress regulation, hydrotherapy, plant-based nutrition, and ear acupuncture.

Conclusion: In patients suffering from post-COVID-19, the NASH protocol is feasible and well accepted. Final data of the randomized trial will reveal, whether the intervention will be effective in reducing post-COVID-19 symptom burden.

Keywords: MICOM, Mind-Body-Medicine, Post-COVID, Traditional European Medicine, self-help strategies, self-efficacy

Abstract

Examining Neural Oscillatory Changes and Challenges During Breath-Based Intervention in Novice Meditators

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Breath-based meditation techniques generally utilize rhythmic breathing to aid practitioners in achieving a profoundly meditative, calm mental state (Carter & Carter III, 2016). The study assessed EEG spectral dynamics among Indian novice adult students (N=89) over three stages of a breath awareness meditation paradigm: resting state (RS), breath counting (BC), and breath focus (BF). EEG data were collected using 64 electrodes; subsequently, preprocessing was executed using the ASR-ICA pipeline (Artefact Subspace Reconstruction - Independent Component Analysis) (Plechawska-Wójcik et al., 2023). Fourier analysis was applied, yielding spectral powers across the stages. A '3x3x5' repeated measures factorial design was used to analyze neural oscillations across three brain regions (Midline-Default Mode Network [DMN], Prefrontal Cortex [PFC], Occipital Cortex [OCC]), three stages (RS, BC, BF), and five oscillation bands (delta, theta, alpha, beta, gamma). Significant differences were observed across oscillation bands ($F(1.77)=77.69$, $p<0.001$, $\eta_G^2=0.277$). Alpha power was notably higher, given the resting-type nature of the stages, validating the effectiveness of the intervention. Main effect for 'brain regions' ($F(1.36)=41.31$, $p<0.001$, $\eta_G^2=0.013$), and interaction effect for 'regions x power bands' ($F(3.07)=28.43$, $p<0.001$, $\eta_G^2=0.018$) were also significant. Post-hoc analyses for the former revealed that PFC depicted the peak brain activity, followed by DMN and OCC; the latter revealed greater delta

and theta power in PFC, ensuingly DMN and OCC.

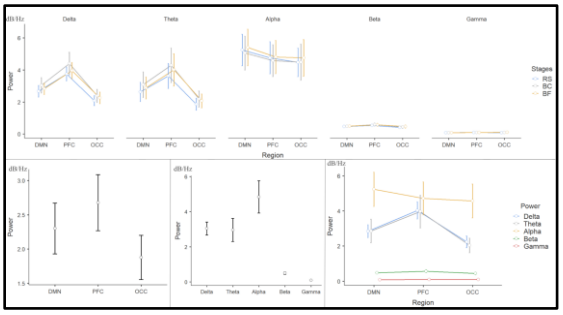

Fig. 1. EEG Spectral Analysis Marginal Means Plot

This indicates a heightened engagement of DMN and especially the PFC during the BC-BF stages owing to working memory and memory retrieval processes (Cavanagh et al., 2012; Huijbers et al., 2011). No significant differences were found across the 'stages' or in their respective interactions, indicating that novice meditators did not exhibit substantial modulation of brain activity across the distinct stages. The results underscore the role of memory processes during breath-focused meditation while highlighting challenges novice meditators encounter across different stages of the intervention.

Keywords: Novice Mindfulness, Breath-Attention, Electroencephalography, Neural Oscillations, Resting State

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Abstract

Mindfulness for Individual and Planetary Health

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While effects of mindfulness-based interventions (MBIs) on the health and well-being of individuals are well-established, it is an open question whether MBIs can also improve

planetary health, defined as the interplay between human health and the health of natural systems. We outline how MBIs might contribute to both individual and planetary health theoretically, and provide practical examples by introducing the Mindful Students Program (MSP) and the Mindful Teachers Program (MTP). Designed by the last author, the programs include various practices known from mindfulness-based stress reduction (MBSR), mindfulness-based compassionate living (MBCL), and deep ecology. We present results from two studies, in which MSP and MTP were taught to students at Leipzig University (Study 1), and teachers from across Saxony, Germany (Study 2). The interventions spanned 12-13 sessions (1,5hrs each), with one additional half-day long retreat. At the beginning (T1) and at the end of the course (T2) various questionnaires were administered. In Study 1, students who took part in the MSP were contrasted with students from two control groups (N = 505; 78% female). Multilevel models revealed that, compared to both control groups, MSP participants' stress levels significantly decreased across the semester, and their mindfulness and their pro-environmental behavior increased. In our ongoing pilot study, Study 2, teachers from thirty schools take part in the MTP. Preliminary results suggest that the teachers profit from the MBI in similar ways as the students at the university. So far, participants in both studies were very satisfied with the MBI and reported very little adverse effects. The results of the studies shed light on the opportunities and challenges of MBIs in increasing both individual and planetary health.

Keywords: mindfulness-based intervention, planetary health, well-being

Abstract

Emotional Regulation Competencies for People With Type 1 Diabetes Mellitus (T1D) – A Multimodal Training Program (Current State)

by Bettina Berger[1], Christian Scheffer[2], Ekkehart Jenetzky[2,3] and David Martin[1]

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Background: Around 0,4 % of German people are suffering on type 1 diabetes (T1D), an autoimmune disease, which forces to substitute insulin daily. Treatment is focused on blood sugar regulation, but psychoneuroimmunology suggests, that autoimmune diseases might be stress related. Missing stress concepts might cause several long-term effects, may be as result of missing regulation competencies.

Aim of the study: To explore and improve emotional and stress regulation competencies in people with t1d. The exploration will take place together with the participants to dicover connections between emotional and stress levels using tools from psycho-neuro-immunology, stress research, the Zurich resource model (ZRM) and Somatic Experiencing according to Peter Levine to develop self-help techniques. Steps are accompanied by mindfulness exercises and music. The program goes through 7 phases: 1. Pattern Recognition, 2. Immersion into the intrinsic field, 3. Social validation, 4. Defining a central crisis, 5. Appreciation and release, 6. Identifying resources and needs, 7. Being different. The curriculum was based on personal experiences using introspection.

Design: Hypothetical pilot study, with 8-12 participants with T1D and the following

Aims: 1. Feasibility of the intervention; 2. correlation between intervention and

psychometric (WHO5, PAID-short; FEW 16, HSRI; MAIA) and physiological parameters, (Variance of the BG values, HBA1c values).

Examination procedure: Acquisition via the Patient and Citizens' Associations and Diabetes online networks. The target parameters are recorded at 3 survey points: Before (day 0 = patient enrollment), after 9 months (end of the intervention phase) and after 12 months at the follow-up meeting. (Follow-up phase). Intervention: program with 7 weekends, each including 15 hours of attendance at intervals of 4-weeks and in between an online meeting of two hours.

Results: Will be expected in the End of 2024

Keywords: type 1 diabetes; stress related autoimmune disease; emotional regulation competencies, stress management

Abstract

Evaluation of Mindfulness Training on 333 Medical Students

by Klaus Kramer[1], Oliver Keis[2], Johanna Thiele[1] and Evelin Kramer[3]

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Background: “It is not without reason that the burnout risks and turnover rates and intentions of physicians and nurses are among the most frequently reported challenges and studied outcomes in healthcare and hospital settings. Both stress reactions, burnout and leaving the organisation or profession, pose major challenges to the healthcare system.” (Hämming et al., BMC Health Serv Res 2018)

Objective: To evaluate the quality of mindfulness training (MBSR) in medical students

Methods: Based on the teaching quality evaluation at the medical faculty of the University of Ulm, the results of according questionnaires - respecting 5 dimensions, addressing 21 further differentiated questions as well as additional prosaic quality feedback - were analysed.

Results: Out of 627 medical students - a total who were trained in integrative medicine within 12 semester (52,25 medical students/Semester) - 333 medical students (15,1 participants / course) were trained at the University Hospital of Ulm (Germany) based on the curriculum of Mindfulness-Based-Stress-reduction-(MBSR)- according to Jon Kabat-Zinn.

Respecting a maximum of 60 reachable points, the quality of teaching evaluation (QTE) showed a mean and median (m / M) regarding scope and context (m=55 / M=54.5), organization and structure (m=56,2 / M=57), teaching engagement (m=57,8 / M=56,5), teaching goals and contents (m=56,1 / M=56,5), didactical implementation (m=57.9 / M=57), of participating medical student further differentiated on additional 21 subscales. The participants judgement on the whole course respecting school marks (1 = very good and 6 = failed) showed up as very good (m = 1.22 and M = 1.32).

Thus, the mean and median feedback of 333 participating medical student on the mindfulness training was excellent. Quality feedback based on individual prosaic statements regarding the training of mindfulness was experienced enormous essential, as stress reducing, and supported the experience of “being accepted as I am.

Keywords: mindfulness, training, medical students, MBSR

Abstract

Tai Chi Movement Analysis Towards Depression Treatment Development: A Traditional Chinese Medicine and Biomechanical Approach

by Jacqueline C. Shin[1], Heather Abbott[2], Hwa-Jin Lee[3], Hee-Joon Park[4], Jong-Woo Kim[4], Seok-In Yoon[5] and Hyo-Won Seo[5]

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Tai Chi, an ancient Chinese martial art and health exercise, has received much attention from the biomedical community as a promising therapy for mental health issues, such as depression and anxiety, as well as a wide range of chronic illnesses, including cardiovascular disease, pulmonary disease, diabetes, arthritis, cancer, and chronic pain. Tai chi also facilitates neuroplasticity and holds substantial treatment potential related to dementia and neurodegenerative diseases, such as Parkinson's disease and Alzheimer's disease. Despite the generally positive clinical results and psychoneuroimmunological benefits of Tai Chi, developing Tai Chi into medical treatment regimens remains challenging due to a) the high variability in the health outcomes of Tai Chi, b) the lack of standards for effective Tai Chi practice, and c) the complexity of Tai chi movements and the consequent difficulty for learning and execution. Thus, it would be imperative to elucidate mechanisms of the mind-body activities characterizing effective Tai Chi practice for developing simplified Tai Chi routines tailored to specific clinical populations with maximal health benefit.

Towards these goals, we closely examined Tai Chi movements and practice methods based on Traditional Chinese Medicine (TCM) and Daoist principles—foundations that have driven the creation and development of Tai chi for hundreds of years. In the work that we presented here, specific Tai Chi movements were analyzed in terms of their contribution to the stimulation of the Twelve Regular Meridians, each of which are postulated in TCM as major pathways through which vital energy, known as Qi, flows and supports organ system functions. Importantly, this work was based on biomechanical analysis. In addition to the methods and outcomes of this analysis, the potential for this work in developing specific treatments for depression were discussed.

Keywords: Tai Chi, movement analysis, Traditional Chinese Medicine, meridians, biomechanics

Abstract

Body, Breath, and Mind: An Internet Intervention for Depressive Symptoms Combining Qi Gong and Behavioral Activation

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Research has consistently shown that the motor system and emotional processes are interrelated in non-clinical as well as in clinical populations. Therefore, the body might be a promising target for the treatment of depression. Based on these notions, we developed Body, Breath and Mind (BBM), a minimally monitored online intervention combining body orientated Qi Gong practice with elements of behavioral activation. In this talk we will present the background of BBM and will give an overview of its structure and the Qi Gong exercises used. Results of an uncontrolled pilot study with 110 participants with at least moderate levels of depression has documented the feasibility of BBM (e.g. large reductions in depressive symptoms, d = –1.82). Moreover, results of a randomized controlled trial (RCT) study with 303 participants will be presented. In this RCT BBM is compared to moodgym (the most often used online program for depression worldwide) and a waiting list control group.

Keywords: Qi Gong, behavioral activation, depression

Mind-Body Exercise Corner

Progressive Muscle Relaxation (PMR)

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Developed by Edmund Jacobson, PMR is a simple yet effective method of stress reduction. It is based on the systematic contraction and relaxation of various muscle groups, aiming to consciously guide the body into a state of deep relaxation. The principle is straightforward: a relaxed body fosters a relaxed mind (Bernstein & Borkovec, 2007).

Instructions

Preparation: Choose a quiet place free of distractions. Make yourself comfortable, either sitting or lying down, and wear loose, comfortable clothing. Set aside 10 to 15 minutes for the exercise.

Getting started: Close your eyes and take a few deep breaths. Feel your chest rise and fall as you breathe. Allow yourself to relax and fully arrive in the present moment.

Targeted muscle work: Progress systematically through the following muscle groups, maintaining a rhythm of tension (five to ten seconds) and releasing (twenty seconds). It´s natural for your thoughts to wander during relaxation. Simply acknowledge them without judgement, let them go and bring your focus back to the exercise.

Hands: Clench your fist, hold the tension and then consciously release.

Arms: Tense your forearms and upper arms, hold and relax.

Face: Raise your eyebrows, squeeze your eyes shut, press your lips together and then release the tension.

Shoulders: Pull your shoulders towards your ears, hold and let go.

Back: Pull your shoulder blades together to tense your upper back and relax.

Abdomen: Pull the abdomen in and release the tension.

Legs: Tense the thighs and calves, hold briefly and relax.

After each release, take a moment to notice the sensations that emerge.

Closing the exercise:

Spend a few moments resting in this relaxed state. Take one final deep breath before gently opening your eyes and returning to your day.

Efficacy:

PMR has been shown in numerous studies to be effective significantly reducing stress, anxiety and depression (Bernstein & Borkovec, 2007; Syazwina et al., 2024). It promotes better sleep and is beneficial for reducing physical tension and hypertension (Bernstein & Borkovec, 2007; Ubaidillah et al., 2023; Gopichandran et al., 2024). Regular practice enhances body awareness, helping you recognize and address stress signals early. To increase efficacy, you can also combine PMR with other exercises like deep breathing exercises (Gopichandran et al., 2024). Since PMR can also be done while sitting, it is also ideal for short breaks during a busy day. For time efficiency you can focus on specific muscle groups in just a few minutes.

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