



VIRTUAL EVENT

**2ND INTERNATIONAL
CONFERENCE ON
FUTURE OF
PREVENTIVE
MEDICINE AND
PUBLIC HEALTH**

MARCH 24-25, 2022

**FUTURE OF PMPH
2022**

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**FUTURE OF PMPH
2022**

SCIENTIFIC ABSTRACTS

DAY 1



Virtual Event

2nd International Conference on Future of Preventive Medicine and Public Health

March 24-25, 2022

FUTURE OF PMPH 2022



2nd International Conference on Future of Preventive Medicine and Public Health

The impact of COVID-19 on Australasian sonographers

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Australia*

COVID-19 saw a series of lockdowns in Australia and New Zealand, and the temporary suspension on non-urgent elective surgeries. There was a large drop in the number of diagnostic imaging services billed to Medicare in April and May 2020. Sonographers as frontline healthcare workers experienced the impact of COVID-19 in various ways. A qualitative and quantitative online survey of Australian and New Zealand Sonographers was conducted between the 8th of May 2020 and the 14th of June 2020, gathering 444 responses. Changes in work hours and the number and types of ultrasound examinations being performed were seen, with differences between the public and private sector. Many sonographers suffered a reduction in their work hours. Healthcare workers were

required to limit community transmission of the virus as much as possible by limiting patient contact and wearing personal protective equipment (PPE). Adjustments to sonographic examination protocols including their duration and scheduling were seen to protect patients and staff. Cleaning requirements increased and access to PPE was poor with differences again between those working in public hospitals and private practices. Subsequently the wellbeing of sonographers was affected from the ability to cope, to feelings around the level of support from employers. Differences were seen amongst different demographic cohorts and between those working in the public hospital environment and those working in private practices. This talk presents the initial impact of COVID-19 on Australasian Sonographers.

Biography

Jessie is a lecturer in the Postgraduate and Masters of Medical Sonography programs and researcher at the University of South Australia. She has served as the tutor and chief sonographer at multiple private and public practices across Australia. Jessie has a keen interest in research and completed her PhD in ultrasound measurements of the liver in 2016, she continues to work in this field. Jessie is also researching in the areas of ultrasound safety, transvaginal sonography, and reducing the incidence of thrombosis as a result of PICC vein insertions and more recently on the impact of COVID-19 on Australasian sonographers. Jessie is the current chairperson for the Australian Sonographers Association fellowship panel and Associate Editor in Chief of the journal 'Sonography'. In 2014, Jessie was awarded one of Australian Sonography's highest honours, the Pru Pratten Memorial Award for her service to ultrasound, teaching and research.



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New alignment for learning in a digital age

Sarah Prestridge
Griffith University, Australia

In an age of ready access to people, online spaces and information, canonized formal knowledge acquisition is being disrupted. This presentation begins to unlock concepts and ideas associated with connected learning. It draws from research associated with New Alignments for the Digital Age: Insights into Connected Learning. A strong nuance about connected learning is that it is user-driven and self-orientating rather than externally determined, meaning that a quasi environment may be 'created' but the learning connections are individually made. Additionally, underpinning connected learning is the emergence of socially constructed knowledge which has implications for knowledge ownership, knowledge truth, knowledge formation and the merging of

formal with informal processes for knowledge construction. Connected learning can not be considered wholly in the online realm. Rather it is embodied in every sense to an individual's interest, interconnected experiences that transcend temporal, spatial and cultural boundaries. As such our conceptualisation of connected learning needs to deepen to effectively be able to rationalise how people learn in a digital age. In this presentations key concepts will be illustrated through current examples of connected learning both in formal settings, include learning communities and informal learning environments. In this approach the complexities of conceptualised self-driven global learning interactions will be explored.

Biography

Associate Professor Sarah Prestridge is the 2020 top scholarly researcher in Teaching in Teacher Education in Australia. She has also been independently named as the expert in Online Education by the Australian Institute of Teaching and Leadership (AITSL). Conceptualising what is considered effective teaching in a digital world has been a major part of her research. Since the completion of her PhD in 2007, she has investigated the integration of digital technologies through the relationship between epistemological and pedagogical beliefs. She has identified the process involved in shifting instructional practices for effective engagement with digital tools. Throughout her research into professional development she has explored the tension between face-to-face, online and self-generating professional learning, conceptualising how teachers learn online through social networks and developed a validated instrument for assessment of and curriculum development towards improving learner self-regulation. These foundations have led to current research in the areas of online teaching and online learning design with consideration of both the instructor and the active engagement of students.

Prevalence of sarcopenia in multi ethnics adults and the association with cognitive impairment: Findings from West-China health and aging trend study

Xiaolei Liu^{1,2}, Lisha Hou^{1,2}, Xin Xia^{1,2}, Yang Liu^{1,2}, Zhiliang Zuo^{1,2}, Yan Zhang^{1,2}, Wanyu Zhao^{1,2}, Qiukui Hao^{1,2}, Jirong Yue^{1,2} and Birong Dong^{1,2}

¹National Clinical Research Center for Geriatrics, West China Hospital, Sichuan University, China

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Background: Sarcopenia is a condition that is characterized by loss of muscle mass, muscle strength and muscle functional impairment with ageing. It is associated with poor health outcomes, premature death and a significant burden on the global health economy. The prevalence of sarcopenia in China is unknown since most of the studies are lack of uniform standard. The study was undertaken to study the prevalence of sarcopenia and the association with cognitive impairment among multi-ethnic adults aged 50 years old or older in western China.

Methods: We measured gait speed, handgrip strength and muscle mass by using bioelectrical impedance analysis (BIA) for all eligible participants and 4500 participants were eligible for the analysis. We defined sarcopenia using the diagnostic algorithm recommended by the Asian Working Group for Sarcopenia (AWGS). We assessed the participants' cognitive functions using the 10-item Short Portable Mental Status Questionnaire (SPMSQ). Relationships between sarcopenia and cognitive impairment were analyzed using univariate and multivariate analyses.

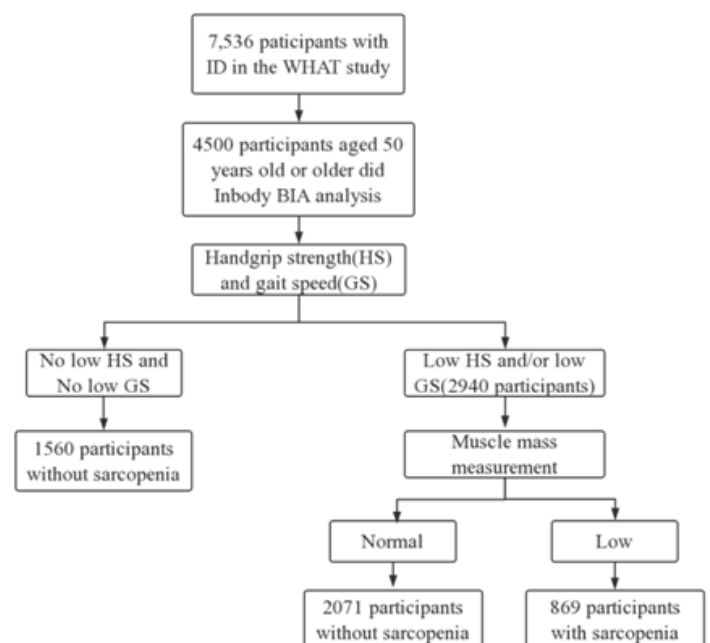


Fig 1. Flow chart of study participants. Initially a total of 7536 community-dwelling multi-ethnics Chinese aged 50 or older were recruited, 4500 participants did bioelectrical impedance analysis (BIA) were analyzed in this study. Among them, 1560 participants without low gait speed and low grip strength, 2071 participants without low ASMI and 869 participants met the AWGS criteria of sarcopenia.

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Results: Of 4500 participants (mean age 62.4 ± 8.3 years), 869 (19.31%) adults were sarcopenia. 446 (9.9%) participants were identified as having mild cognitive impairment, 144 (3.2%) adults were identified as having moderate/severe cognitive impairment. After adjusting for age, gender, ethnics and other potential cofounders, cognitive impairment was found to be independently associated with sarcopenia with a dosage effect (mild cognitive impairment: odds ratio [OR]: 1.41, 95% CI 1.10–1.82; moderate/severe cognitive impairment: OR: 3.05, 95% CI 2.08–4.49). After gender stratification, the association

between mild cognitive impairment with sarcopenia in male is not significant, while is still significant in female. While the association between moderate/severe cognitive impairment is independently associated with sarcopenia in both male and female.

Conclusions: The prevalence rates of sarcopenia, mild cognitive impairment, moderate/severe cognitive impairment among the communities aged 50 or older in western China were 19.31, 9.9 and 3.2%, respectively. Cognitive impairment was significantly associated with sarcopenia with a dosage effect, especially in female.

Table 1: Multiple regression analysis of sarcopenia and the three factors of sarcopenia (grip strength, gait speed, ASMI) with cognitive impairment among multi-ethnics in the west China communities. (N=4500).

Sarcopenia		Model 1, OR(95%CI), p value	Model 2, OR(95%CI), p value	Model 3, OR(95%CI), p value
Cognitive impairment	No	1.0(Ref)	1.0(Ref)	1.0(Ref)
	Mild	1.49(1.16-1.92), .002	1.45(1.12-1.87), .004	1.41(1.10-1.82), .009
	Moderate-severe	3.41(2.34-4.97), < .001	3.27(2.23-4.79), < .001	3.05(2.08-4.49), < .001
Grip strength				
Cognitive impairment	No	1.0(Ref)	1.0(Ref)	1.0(Ref)
	Mild	1.47(1.19-1.82), < .001	1.41(1.14-1.75), .002	1.38(1.11-1.71), .004
	Moderate-severe	2.24(1.51-3.32), < .001	2.11(1.42-3.14), < .001	2.00(1.34-2.97), .001
Gait speed				
Cognitive impairment	No	1.0(Ref)	1.0(Ref)	1.0(Ref)
	Mild	1.50(1.22-1.86), < .001	1.44(1.16-1.78), .001	1.42(1.14-1.76), .001
	Moderate-severe	1.76(1.22-2.56), .003	1.66(1.14-2.42), .008	1.60(1.09-2.33), .016
ASMI				
Cognitive impairment	No	1.0(Ref)	1.0(Ref)	1.0(Ref)
	Mild	1.33(1.05-1.68), .017	1.31(1.04-1.67), .025	1.29(1.02-1.64), .038
	Moderate-severe	2.83(1.96-4.07), < .001	2.74(1.89-3.96), < .001	2.60(1.79-3.77), < .001

Note. Abbreviations: OR, odds ratio; CI, confidence interval; Model 1: adjusted for age, sex and ethnics. Model 2: adjusted for age, sex, ethnics, marriage status, living alone, life styles (smoking, drinking tea), sleep quality, indoor housework and outdoor housework. Model 3: adjusted for age, sex, ethnics, marriage status, living alone, life styles (smoking, drinking tea), sleep quality, indoor housework, outdoor housework, chronic diseases comorbidities and depressive status.

Biography

Xiaolei Liu received her MD degree in eight-year clinical medicine in Xiangya Medical School, Central South University in 2017. Now she is a post-doctor in National Clinical Research Center for Geriatrics, West China Hospital, Sichuan University. The objectives of her research are (i) to understand the mechanism of sarcopenia, (ii) to quantify the impacts of sarcopenia to the elderly and (iii) to explore the options to improve muscle strength and muscle mass in different ways.

Prolonged use of bedaquiline in the treatment for MDR-TB in a child

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MDR-TB patients present the most challenging group of patients with low treatment effectiveness due to resistance to two major TB drugs – isoniazid and rifampin. A novel TB drug, bedaquiline (Bdq), is referred to the most effective drugs and used for the management of MDR-TB. Bdq produces a cardiotoxic effect, and its use is limited to six months. Since 2019 Bdq has been allowed for the use in children aged 6 years or above. WHO has affirmed that they have scarce information about risk–benefit assessment of the use of Bdq in patients aged 6–17 or about the use of Bdq beyond six months.

The objective of our publication is to share the experience of prolonged bedaquiline use in the treatment for MDR-TB with a restricted number of drugs, to which susceptibility was preserved, in a child.

Materials and methods: Case history of a 12-year-old patient with unsuccessfully treated MDR-TB. We carried out expanded drug susceptibility testing (DST). Treatment

effectiveness was assessed based on sputum conversion and cavity closure timing. Monitoring of cardiotoxic effects included ECG with the QT interval measurements every two weeks.

Results: Repeat DST detected preserved susceptibility to 4 drugs: amikacin, cycloserine, linezolid, and bedaquiline (AmCsLzdBdq). Amikacin was withdrawn after three months due to the development of sensorineural hearing loss. The treatment was continued with CsLzdBdq. The total chemotherapy course took 18 months. Sputum conversion was observed after one month, cavity closure – by 18 months of treatment. We did not observe cardiotoxic effects due to prolonged bedaquiline use.

Discussion: The personalized approach to the selection of drugs with the inclusion of bedaquiline and its prolonged administration was preconditioned by the disease severity and the limited choice of TB drugs. Effectiveness and safety of the prolonged administration of bedaquiline in a 12-year-old child was demonstrated.

Biography

Marina F. Gubkina – Doctor of Medical Sciences, Principal Researcher, Central TB Research Institute, Moscow. Professor of Phthysiology Department, N.I. Pirogov Russian National Research Medical University, Moscow. Research interests – diagnosis and chemotherapy of childhood TB. More than 150 scientific publications, 7 patents for invention, Hirsch index – 12.

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TCM'S intervention and effects on COVID-19: Introducing the few most commonly used concoctions during treatment

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The use of Chinese medicine in the treatment of the novel coronavirus (2019-nCoV), also known as Novel Coronavirus Pneumonia (NCP) in China, has been successful, with reduced mortality, increased remissions from severe to moderate and increased number of recoveries. With Chinese medicine playing a key role, clinical observation reported a total effective rate of >90%. A few of the commonly used Chinese medicine formula are selected for discussion. Among them, Lung cleansing & detoxifying decoction (LCDD), a combination of classical prescriptions, is identified as one of the most effective based on its broad-based suitability for light, moderate and severe patients.

The effects of these decoctions are evaluated based on clinical manifestations; Lab findings such as lactate dehydrogenase (LDH), C-reactive protein and erythrocyte sedimentation rate, procalcitonin, D-dimer, lymphocytes and proinflammatory cytokines (TNF- α , IL-1b, IL-

6, IL-8); Pathogenic findings of NCP nucleic acid (using RT-PCR) from lower respiratory tract secretions and blood; Serological findings on NCP virus specific IgM, IgG; Chest imaging particularly focusing on multiple ground glass opacities and infiltration in both lungs.

Network pharmacology-based analysis revealed positive results on active ingredients of Chinese herbal medicine, particularly LCDD, used in NCP. In silico screening of Chinese herbal medicines via ADME filter, top 30 KEGG-enriched pathways were related to regulating viral infection, immune/inflammatory reactions and hypoxia response, indicating that they are potentially effective treatments for viral respiratory infection.

Effects says it all. However, due diligence is recommended to individual agencies/countries when implementing Chinese medicine for reasons such as availability, susceptibility, and acceptance.

Biography

Steven Loh is a registered TCM physician/acupuncturist (Singapore), Registered doctor (Chinese Medicine) in China, Senior Physician at NTU Chinese Medicine Clinic, Nanyang Technological University, Singapore, adjunct doctor at XianCi Chinese Medicine Nephrology Hospital. Dr Loh obtained his Doctorate in Clinical Medicine from Nanjing University of Chinese Medicine. His clinical interest and experience include: Coronary Heart Diseases, Geriatrics, Stroke Recovery and Aftercare, Renal Disorder, Sports Injuries, Pain Management, Hyperhidrosis, Insomnia.

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Phytoestrogens and gynecological diseases: From a murky past to a bright future?

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³Department of Pharmaceutical Biology, Faculty of Pharmacy and Biotechnology, German University in Cairo, Egypt

Phytoestrogens are important secondary metabolites with interesting biological activity mimicking the estrogen hormone. They can be divided into 3 classes including isoflavones that are found in legumes with soybeans and soy products being the major dietary source, lignans that are found in high fiber cereals, unrefined grains and beans with flaxseed containing the largest amount and coumestans that are found in large quantities in Alfalfa and clover sprouts with lesser amounts in split peas, lima beans, and pinto beans. Finding these constituents in their natural sources is a tedious process that requires many assays. In the current work we established a new model for screening estrogen-like substances. The application of the transgenic pER8:GUS Arabidopsis callus in a cross-kingdom assay to evaluate the estrogenic activity of 17 β -estradiol (E2) and natural products is discussed for the first time. The transgenic plants were utilized to produce many calli, which stably expressed transfer genes by asexual reproduction. The optimum formula for calli induction and production

were selected from sixteen solid media and six liquid media, respectively. This study also focused on natural product chemistry and their bioactivities of, *Liriope platyphylla* (Liliaceae) and *Lindernia crustacea* (Scrophulariaceae). Phytochemical investigation of *L. platyphylla* led to the isolation of thirty-eight components, including eight new compounds and thirty known compounds. Those isolates were summarized in twelve skeletons, including phenyl-isocoumarin, benzofuroisocoumarins, benzyl-benzofuran, ethyl butanoate, homoisoflavonoids, chalcone, flavonoids, amides, lignan, fatty acid derivative, indole, and benzenoids. Four isolated compounds exhibited potent estrogenic activity in a dose-dependent manner, rendering those compounds and similar structures as potential candidates for phytoestrogen nutritional supplements. Our results provided the first insight of *L. platyphylla* active components with estrogenic and antiplatelet activities suggesting the potential utilization of this herb and other components in dietary supplements and functional food products.



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Biography

Prof. Mohamed El-Shazly is the Head of Pharmaceutical Biology Department, Faculty of Pharmacy and Biotechnology, the German University in Cairo, Cairo, Egypt. He was graduated from the Faculty of Pharmacy, Ain-Shams University, Cairo, Egypt in 2000. In 2006, he received his master's degree from Jacobs University Bremen, Bremen, Germany in nanomolecular science, and he pursued his Ph.D. focusing on the synthesis of pharmaceutical intermediates and natural products. In 2009, he received his Ph.D. and went back to Egypt to join his home institute. In 2011, he worked at the Graduate Institute of Natural Products, Kaohsiung Medical University, Kaohsiung, Taiwan.



Health and care of an ageing population: Alignment of health and social systems to address the need

Sangay Thinley

Khesar Gyalpo University of Medical Sciences, Bhutan

Population ageing is both an achievement and challenge, an achievement as longevity is the result of successful prevention and control of diseases, decreasing fertility rates and overall socio-economic development. It is at the same time a challenge as the increasing number of older people and the resultant demographic shift are accompanied by the need to adjust and scale up the social and health care systems.

Comprehensive efforts based on country contexts are required in the following areas: (a) older persons and development, (b) health and well-being and (c) enabling and supportive environments to address population ageing needs. This article, however, focuses only on three most crucial issues, that is, livelihood, health care systems and care of the older dependent people. Person-centred care, integration and functional capacity are highlighted. Further, ageing in place or living in one's own home, community or a

place with the closest fit with the person's needs and preferences is considered very important for healthy ageing. In terms of enhancing livelihood, major policy changes and reforms to improve the social security systems and expanding coverage as well as increasing the amounts to minimum subsistence levels are highlighted.

Another area which needs to be strengthened is the tradition of existing family support systems.

The health systems alignment required are reflected for each health system building block, and focuses mainly on (a) developing and ensuring access to services that provide older-person-centred care; (b) shifting the clinical focus from disease to intrinsic capacity; and (c) developing or reorienting the health workforce to provide care as per alignment.

Mechanisms for alignment of long-term care systems best suited to meet the needs of dependent older people are also advocated.

Biography

Dr Sangay Thinley worked in the Bhutan health services for 25 years at various levels including as the Health and Education Secretary (2000-2003) under the erstwhile Health & Education Ministry and as Health Secretary (2003-2005) after bifurcation of health and education, and with the WHO South-East Asia Regional Office in Delhi from 2006 in various senior level capacities before retiring in 2014.

Currently he pursues keen interest in health system and services and is he/a/an

- i. Chairman of the Board, Bhutan Cancer Society
- ii. Member of the Governing Council of the Khesar Gyalpo University of Medical Sciences, Bhutan
- iii. Chair of the National Committee on Polio Eradication and Measles/Rubella Elimination
- iv. Member of Board of Trustees of the Royal Society for Senior Citizens (Bhutan), and
- v. Adjunct Professor at College of Health Systems Management, Naresuan University (Thailand).



Clinician expertise commentary: Reversing the impact of COVID-19 home confinement on student physical health literacy in physical education

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¹Research Centre in Sports Sciences, Health Sciences and Human Development (CIDESD), Vila Real, Portugal

²Exercise and Rehabilitation Sciences Laboratory, School of Physical Therapy, Faculty of Rehabilitation Sciences, Universidad Andres Bello, Chile

Global health reports indicate declining physical activity levels for children and adolescents, which has coincided with troubling trends in muscular fitness. The COVID-19 pandemic has exacerbated these trends, with Governments implementing health orders that included lockdowns and citizens confined to their homes. These health orders and home confinement reduced children's time for engagement in physical activity and access to supervised, structured physical education (PE) lessons, leading to a further decrease in physical activity and muscular fitness. The effect of physical inactivity and poor muscular fitness on physical health literacy, lifelong pathological processes and associated health care costs have created an increasingly urgent need to identify strategies to reverse these troubling trends. To develop effective strategies to reverse the trend, scholars need to recognise the increasing evidence indicating that muscular fitness is foundational for ongoing participation in active

play, exercise, physical activity and sport, since a prerequisite level of neuromuscular power support is moving proficiently. Therefore, developmentally appropriate interventions targeting neuromuscular deficits are needed for children to engage competently in physical and sport-related activities. Strategies should also recognise the shared importance of strength, skill and aerobic activities rather than focusing solely on aerobic activity. PE provides an opportunity for all students to have regular exposure to developmentally appropriate and inherently enjoyable physical activities early in life, to reverse the contemporary trends in physical inactivity and reduced muscular fitness. The clinician expertise commentary aims to argue for the inclusion of muscular fitness movement activities in physical education to the reverse effect of home confinement and propose pedagogical approaches to develop student muscular fitness.

Biography

Andrew Sortwell, PhD, is a research collaborator with the Research Centre in Sports Sciences, Health Sciences and Human Development (CIDESD), Vila Real, Portugal. He is an emerging researcher and practitioner in health and physical education, pediatric exercise science and has years of experience working with children and adolescents within the school setting. Dr Sortwell also has a prosperous past as a strength and conditioner and swimming coach supporting the development of State and National swimming champions. He currently serves on the editorial board of numerous health, physical education, exercise science journals and is the Associate Editor of the 'International Journal of Kinesiology and Sports'. Broadly, Dr Sortwell is interested in the association between health sciences and education, with a specific interest in the role that learning plays in children's health and quality of life.

Covid-19 and future outbreaks forecast using Block chain and IoT

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¹Aratos Group, Greece

²NewCo S.A., Greece

Preparing for a pandemic is a major challenge due to the many unbalanced factors involved. This task becomes even more difficult especially when another pandemic is already ongoing, and humanity is still struggling to overcome it. It becomes more difficult when the scientific community has to face additional challenges while new threatening variants appear (Delta, Omicron) and citizens in many countries are reluctant to be vaccinated. Although there is an impression that COVID-19 is an event that may occur "once in a century", this is far from the truth. The chances of a new pandemic strike never cease to lurk, and it is extremely difficult to predict the time and place where it will occur. Therefore, humanity must act swiftly to

prepare itself to deal more effectively with a new pandemic threat. This can be achieved primarily by heavily utilizing the precious knowledge that was gained over the last few years but also by taking advantage of modern technologies and the reliable tools they offer. Among the groundbreaking technologies, Internet of Things and Blockchain are two that, both individually but most importantly, combined can guide these preparations and create a credible environment for collaboration between governments, health organizations, and other relevant bodies. This paper presents the aforementioned technologies and the benefits they can bring to stop predict future pandemics as early as possible and intercept them before they spread out.

Biography

Founder and CEO at Aratos Group in Greece. He has a BSc in Mathematics from University of Patras in Greece, MSc in Cybernetics and doctoral with thesis entitled: "Models of anticipatory management in factory financial activity" at Kharkov National Economic University in Ukraine.

Since 1987, he has been President, Managing Director and shareholder of various business entities related to ICT (Blockchain, AI, IoT), Space Technologies, Homeland Security, Education and Training, Management Consulting and Business Development in Greece and many countries abroad.

He has led and managed various projects in the fields of entrepreneurial assistance, homeland security, innovation, information technology, space, training, and regional development in the private and public sectors in Europe with a total budget of projects over

€1 billion. He is also Senior Advisor to European Commission, European Parliament and to several Governments worldwide. He has published 4 books and numerous scientific abstracts in journals and conferences.

Overview of Iraqi experience in management of acute promyelocytic leukemia

Waseem F Al-Tameemi¹ and Zahra'a S. Shakir²

¹Department of Scholarships and Cultural Relations, Ministry of Higher Education and Scientific Research. Department of Medicine, Section of Hematology, College of Medicine, Al-Nahrain University Baghdad, Iraq

²Specialist Hematologist, Baghdad Teaching Hospital, Medical City Complex Hospital, Iraq

Objectives: In Iraq, leukemia is the 4th most common cancer, and acute promyelocytic leukemia contributes to 2.83% and 3.18% of leukemia in Iraqi males and females respectively. The aim of this study is to review the presentation and management outcome of patients with acute promyelocytic leukemia in Iraq.

Methods: A hospital-based cross-sectional study was conducted over the period of 15 months in different hematology centers. A total of 58 patients with acute promyelocytic leukemia were enrolled in this study (53 newly diagnosed and 5 relapsed cases). Diagnosis was based on morphology with or without cytogenetic study.

Results: The mean age was 33.1±13.8 years, with slight female predominance. Most cases presented at winter season (39.7%). Sanz severity scoring classification of patients as (25.9%) with low risk, (53.4%) intermediate

risk, and (20.6%) high risk disease. Induction protocol consist of chemotherapy plus ATRA in (58%), while (36.2%) received only ATRA plus ATO. At the end of induction, (86.2%) of patients had complete remission, while only 13.8% had failure of induction and death. Induction mortality was higher in those who had received chemotherapy-based regimens. At relapse, a second complete remission had been achieved in 4 out of 5 cases (80%).

Conclusion: There is a predilection of acute promyelocytic leukemia to young age group and winter season presentation. The choice of non-chemotherapy regimens, especially for the low and intermediate risk group, showed no drawback in complete remission rate. Disease outcome in Iraq has improved over several years due to increasing experience with using different regimen.

Biography

Name: Waseem Fadhil Mohammed Al-Tameemi

- Iraqi Cultural Counselor –Amman -- Jordan
- **Scholarship and cultural relations directory , ministry of higher education and scientific researches**
 - Professor in internal medicine, clinical hematologist & hemato-oncology.
- **Department of medicine, college of medicine, Al Nahrain University.**
 - Former EXECUTIVE Dean, college of medicine, Al Nahrain University.
 - Former Deputy Dean, college of medicine, Al Nahrain University.



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- Former Head of Department of Medicine , college of medicine, Al Nahrain University
- Consultant Physician in internal medicine
- Consultant hematologist.
- Member of MOHESR for expert professors in teaching for medicine
- Director of internal medicine Training center for candidates of Iraqi Board Committee of medical specialization (internal medicine)
- Director of Clinical Hematology Training center for candidates of Iraqi clinical hematology Board Committee of medical specialization (clinical hematology)
- Supervisor & Trainer in Arab Board committee for medical specialization
- Higher education Committee member of Iraqi clinical hematology board.
- **Al Kadhamyia teaching hospital (Emammmain Kadhumain medical city).**
 - Member of institute board review (IRB) college of medicine, Al Nahrain University
 - Former-Editor-in-chief Iraqi journal of medical sciences
 - Former Member of consultant committee for hematology – MOH
 - Former Member of consultant committee for stem cell – MOH
 - Executive Member of Iraqi society of hematology
- Member of ASH(American society of hematology)
- Member of EHA(European hematology association)
- Member of Arab society of hematology
- Member of Saudi society of hematology
- Member of editorial board of scientific journals

Sero-surveillance of SARS-CoV-2 specific antibody (IgG) among garment workers in Bangladesh

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⁵Medical Centre, Jahangirnagar University, Bangladesh

Background: Since the detection of first corona virus infection in Bangladesh on 8th March, 2020, it has been spread to the whole country quickly. Though there is lack of proper treatment facility, diagnostic facility, lack of awareness, unwillingness of people to follow the social distance guideline and lack of other containment strategies, the prevalence of COVID-19 infection especially severe and symptomatic infection among people of Bangladesh specially among working people like garment workers, people living in slum areas and rural areas are low.

Objectives: The study aimed to investigate the sero-prevalence of SARS-CoV-2 specific antibody (IgG) among garment workers in Bangladesh.

Methods: An observation and cross-sectional study was carried out among 402 garment workers (69.4% female; mean age = 28.9 ± 6.9 years) in Dhaka city. A semi-structured questionnaire including informed consent as well as, socio-demographics and COVID-19 related information, was used to conduct the survey. Likewise, blood samples of all participants were

also collected to measure the SARS-CoV-2 specific antibody (IgG). Serum level of SARS-CoV-2 specific antibody (IgG) will be assessed by Chemiluminescent immunoassay technique as per instruction of manufacturer.

Results: The prevalence of sero-prevalence of SARS-CoV-2 specific antibody (IgG) was 80.8% which was slightly higher among females compared to male but not significant (82.1% vs. 78.0%, $p > 0.05$). It was notable that no significant differences were obtained in other socio-demographic information (e.g., age, education, marital status, residence, and economic status).

Conclusions: The findings reflect that the SARS-CoV-2 specific antibody (IgG) was more prevalent among garment workers in Bangladesh. It may be due to the virus itself, genetic factor of virus, people and presence of preexisting immunity specially COVID-19 specific antibody due to previous cross infections with other corona viruses in Bangladesh



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Biography

Abu Syed Md. Mosaddek is currently serving as Professor & Head of the Department of Pharmacology, Uttara Adhunik Medical College, Dhaka, Bangladesh and have gained extensive experience in teaching to undergraduate medical students. Also working as an examiner of undergraduate and post-graduate medical academic courses. Recently has been appointed as a member of the WHO Snakebite Envenoming Roster of Experts.

Mosaddek obtained his M.B.B.S. degree from Rajshahi Medical College in 1995 and also completed his M. Phil degree from Rajshahi University on Clinical Pharmacology and Therapeutics in 2006.

Mosaddek is actively involved in research on Antimicrobial Resistance, Pharmacovigilance, human genetic, Clinical Trials of drugs on human in Bangladesh. He has total 32 research publications in reputed different journals. He is a member of American Microbiological Society and One Health Bangladesh Secretariat, IEDCR, Dhaka, Bangladesh. Familiar to deliver scientific talk in domestic and international settings. Fluent in English and Bangla.

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The proteasome inhibitor Bortezomib induces head and neck cancer cells death in vitro and interferes with tumor growth of transplanted salivary gland cancer cells in mice

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Background: Head and neck cancer, the seventh most common cancer worldwide, has often an aggressive course with an emerging resistance to conventional chemotherapy. Therefore, the use of new therapeutic agents is being evaluated. Bortezomib is a proteasome inhibitor with potent in vitro and in vivo anticancer activities.

Methods: in vitro antitumoral activity of Bortezomib was evaluated using human pharynx (FaDu), tongue (SCC-15, CAL-27), salivary gland (A-253) cancer cell lines and a murine cell line (SALTO-5) derived from an adenocarcinoma of the salivary gland from BALB-neuT male mice transgenic for the oncogene neu. We also analyzed the in vivo effects of Bortezomib in mice transplanted with murine SALTO-5 cells.

Results: Bortezomib inhibited cells proliferation,

induced apoptosis, modulated the expression and activation of molecules involved in pro-survival signal transduction pathways mediated by ErbB receptors (MAPK) and AKT, and inhibited proteasome activity in vitro. Furthermore, intraperitoneal administration of Bortezomib interfered with tumor growth of SALTO-5 cells transplanted in BALB-neuT mice, prolonged their survival, modulated tumor microenvironment by increasing tumor-infiltrating immune cells (CD4+ and CD8+ T cells, B lymphocytes, macrophages, and Natural Killer cells) and by decreasing vessels density.

Conclusions: Our findings suggest a potential use of Bortezomib for the treatment of head and neck carcinomas alone or in combination with conventional therapies or other biological drugs.

Biography

Dr. Monica Benvenuto received her PhD degree in Molecular Medicine at the University of Rome "Sapienza" in 2012. She was a research fellow at the University of Rome "Tor Vergata" for several years. Currently she is a researcher at "Saint Camillus International University of Health and Medical Sciences", Rome. She is author of several publications in international journals of high scientific quality. Her main research activity is focused on the development of new experimental approaches for the treatment of tumors: cancer immunotherapy and study of the in vitro and in vivo effects of natural compounds, anticancer vaccines and intracellular signaling transduction pathways inhibitors on cancer cells growth.

Investigating a newly developed educational orthopedic application for medical interns in a Quasi-clinical trial study

Mahla Daliri B.O, Hassan M. Majd and Ali Moradi

Orthopedic Research Center, Ghaem hospital, Mashhad University of Medical Sciences, Iran

Background: In COVID 19 era, the literature on e-learning, or particularly mobile-learning (m-learning), has considerably increased focusing on the subject of medical knowledge transfer. Considering the importance of orthopedic knowledge for general practitioners and the inadequacy of the orthopedics internship duration in Mashhad University of Medical Sciences (MUMS), we have developed and investigated a smartphone orthopedic educational application named "Orthobox".

Methods: In a quasi-clinical trial study, we investigated the benefits of Orthobox

application for medical interns attending MUMS orthopedic departments. A total of 120 students (64 and 56 students in control and case groups respectively) were recruited. The application consists of five main parts of medication (Fig. 1A), common order samples (Fig. 1B), common prescriptions (Fig. 1C), cast and splint types (Fig. 1D), and educational movies. Students who passed the course without getting access to the application (control group) and students who were also using application during the course (case group) were defined, and comparison

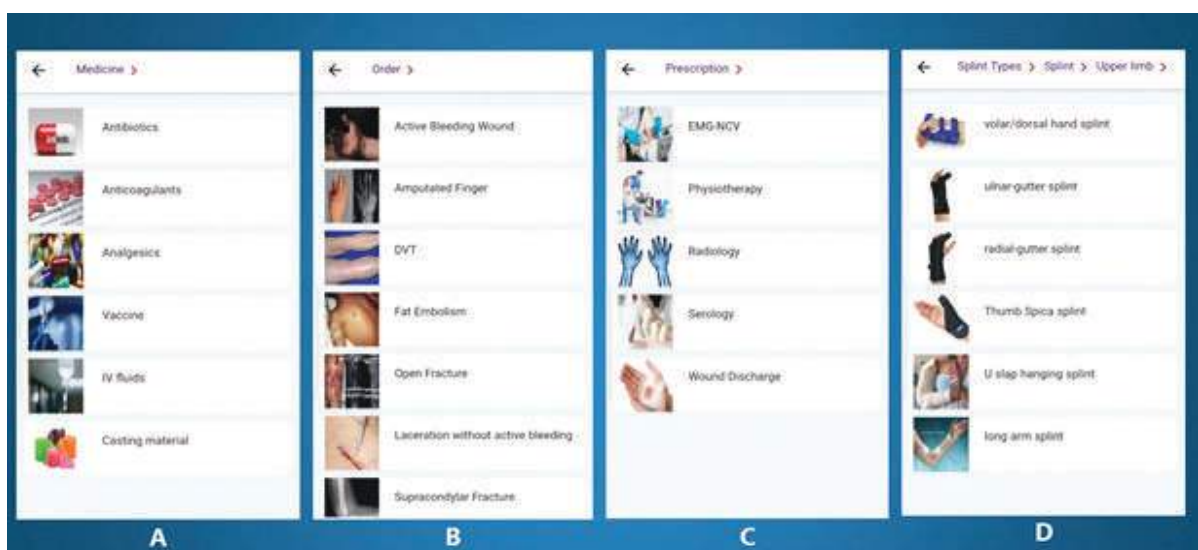


Figure 1. Orthobox Application Pages: the application consists of five parts of Medicine, Order, Prescription, Cast/Splint and educational Movies; A) the Medicine section consists of different drug categories; B) the Order section includes common orders of the orthopedic hospitalized patients; C) the Prescription section includes common prescriptions of the orthopedic ambulatory patients; D) Cast and splint section consists of the different body parts cast and splints descriptions. (Application link: <https://play.google.com/store/apps/details?id=ir.fatap.orthobox>).

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was done between them objectively through final exam score (paper exams' correction guideline is presented in Table 1) comparison and subjectively through Visual Analogue Scale (VAS) questionnaire score comparison. Besides, using case group students' activity report provided by the application panel, correlational analysis was done on their amount of activity on each of the main parts of the application and the corresponding question exam and VAS score separately.

Results: The case group of the study generally achieved higher final exam scores, mainly on Order question score (P value < 0.001). Total VAS scores were also greater in case group (P value $= 0.001$). It has also been identified that there is a notable positive trend between

student's amount of usage of the application and their final exam scores through correlational analysis. This correlation was not significant about students' application visit numbers and VAS scores.

Conclusion: These results suggest that m-learning has got the potential to improve students' medical knowledge and skills by organizing must-to-learn content specified for intern students of orthopedics on one hand, and cause more satisfaction in students about their education on the other hand. Abstract should give clear indication of the objectives, scope, results, methods used, and conclusion of your work. One figure and one table can be included in your results and discussions.

Table 1. Major and minor fault in exam answers		
Definition		
	Major	Minor
Definition	Answers which miss a necessary point or are completely wrong, leading to a complication for patients if happens in real.	Refers to those answers in which the required point is mentioned but they are not the standard answer.
Example		
	Major	Minor
Order	Q: Tibia fracture A: Not ordering for check of the compartment syndrome signs.	Q: Tibia fracture A: Not ordering the ankle and knee joints radiography
Prescription	Q: Wound healing discharge A: adult dosing for a child patient.	Q: Wound healing discharge A: Writing "Tab" instead of "Cap" for Cephalexin
Medication	Q: Heparin A: Wrong dosing	Q: Heparin A: Not writing complete medicine pharmaceutical forms
Procedure	Q: Short leg cast A: Wrong foot angle during casting	Q: Short leg cast A: Wrong but near to correct number of cast layers

Biography

My name is Mahla Daliri B.O, recently graduated from Mashhad University of Medical Sciences (MUMS), Iran, with total GPA of 4/4. Orthopaedics and neurology, as well as medical educational methods, are three of my research interests. This is a special reference to innovation in these fields. As such, I was able to create a partnership with a medical-engineering interdisciplinary research group, where I established a collaboration with the center of advanced rehabilitation and robotics research (FUM CARE) (<http://www.fum-care.com/>) and learnt how to manage my work in a collaborative setting and became acquainted with engineering programming and design tools. As the first author, I've published two papers, registered four national patents, published one U.S. patent entitled "Prosthesis to Replace a Flexor Tendon Pulley", and one PCT patent entitled "Haptic Perception System with Stereognostic and Proprioceptive Senses Induction for an Artificial Limb or a Sensory Disrupted Limb" (International application No. PCT/IB2021/060932).



Catgut-acupuncture embedding therapy as promising treatment for non-alcoholic fatty liver disease

Ali Etemadi Boroujeni

Ajand Medical Complex- Amadegah st, Iran

Objective: To investigate the effect of catgut-acupuncture embedding therapy on non-alcoholic fatty liver disease (NAFLD).

Methods: Twenty-three participants over a 6-month treatment period were subjected to catgut-acupuncture embedding therapy for 3 sessions. The second session was performed one month after the first session and the third session two months after the second session. Three months after the third session of catgut-embedding therapy patients were subjected to fibro scan analysis. In each session 20 points were selected. Selected points for treatment in all patients were fixed at each session but

different at various sessions.

Results: 23 participants, 5 showed significant improvement and 8 showed a moderate improvement as 1 or 2 degree reduction in terms of steatosis stage. The treatment group showed significant improvements in terms of patient score, fat percentage, NAFLD steatosis stage, weight loss and abdominal size reduction after catgut-acupuncture embedding therapy ($P < 0.05$).

Conclusion: The acupuncture embedding therapy method can significantly improve important factors in patients with non-alcoholic fatty liver disease.

Effects of calorie restriction and fasting on health span and insulin resistance

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As the incidence of Chronic Non-Communicable diseases (CNCD) increases, preventive approaches become more crucial. In this narrative review, calorie restriction (CR) and fasting effects on human beings were evaluated, comparing their benefits and risks. Special emphasis on insulin resistance was placed, as it mediates metabolic syndrome and therefore has a great impact on the prevalence of CNCD.

Calorie restriction is a nutritional intervention of reduced energy intake of about 25 to 30 % without lack of essential nutrients. CR is the most robust nutritional intervention known to increase lifespan and health span, with high evidence and known biochemical mechanisms, such as neuroendocrine system adaptations

(figure 1). CR improves cardiometabolic risk parameters, boosts exercise insulin sensitivity response and there may be benefits of implementing moderate CR on healthy young and middle-aged individuals, as shown in the CALERIE 2 study (Kraus et. al).

Fasting is a voluntary abstinence or reduction of some or all foods, drinks, or both, for a varying period of time. There is a variety of fasting protocols (figure 2), such as intermittent fasting (IF), that involves fasting for 12h or longer. Some of the studied effects of intermittent fasting in humans include increased insulin sensitivity, decreased levels of leptin, pro-inflammatory cytokines and oxidative stress markers, healthier blood pressure, improved circadian rhythmicity and cognition, increased autophagy and modulation of microbiota.

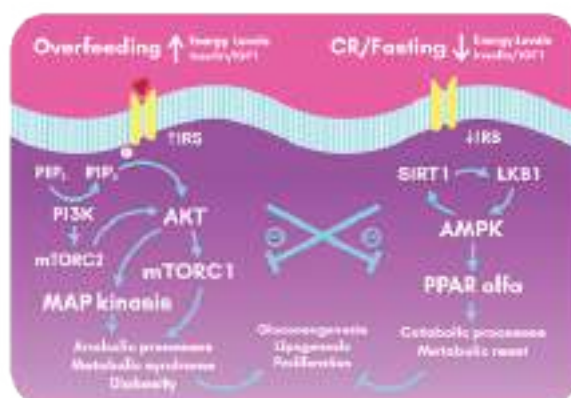


Figure 1. Metabolic pathways activated during overfeeding and calorie restriction/fasting

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Studies in normal and overweight individuals have shown efficacy of IF on weight loss and improvement of insulin resistance and cardiovascular risk factors.

Studies show inconsistent benefits of fasting compared to CR. More studies are required to

evaluate biochemical parameters, reinforce evidence, and seek effective and safe nutritional approaches. Nevertheless, the available data suggests CR and fasting as potential approaches to maintain and increase health span.

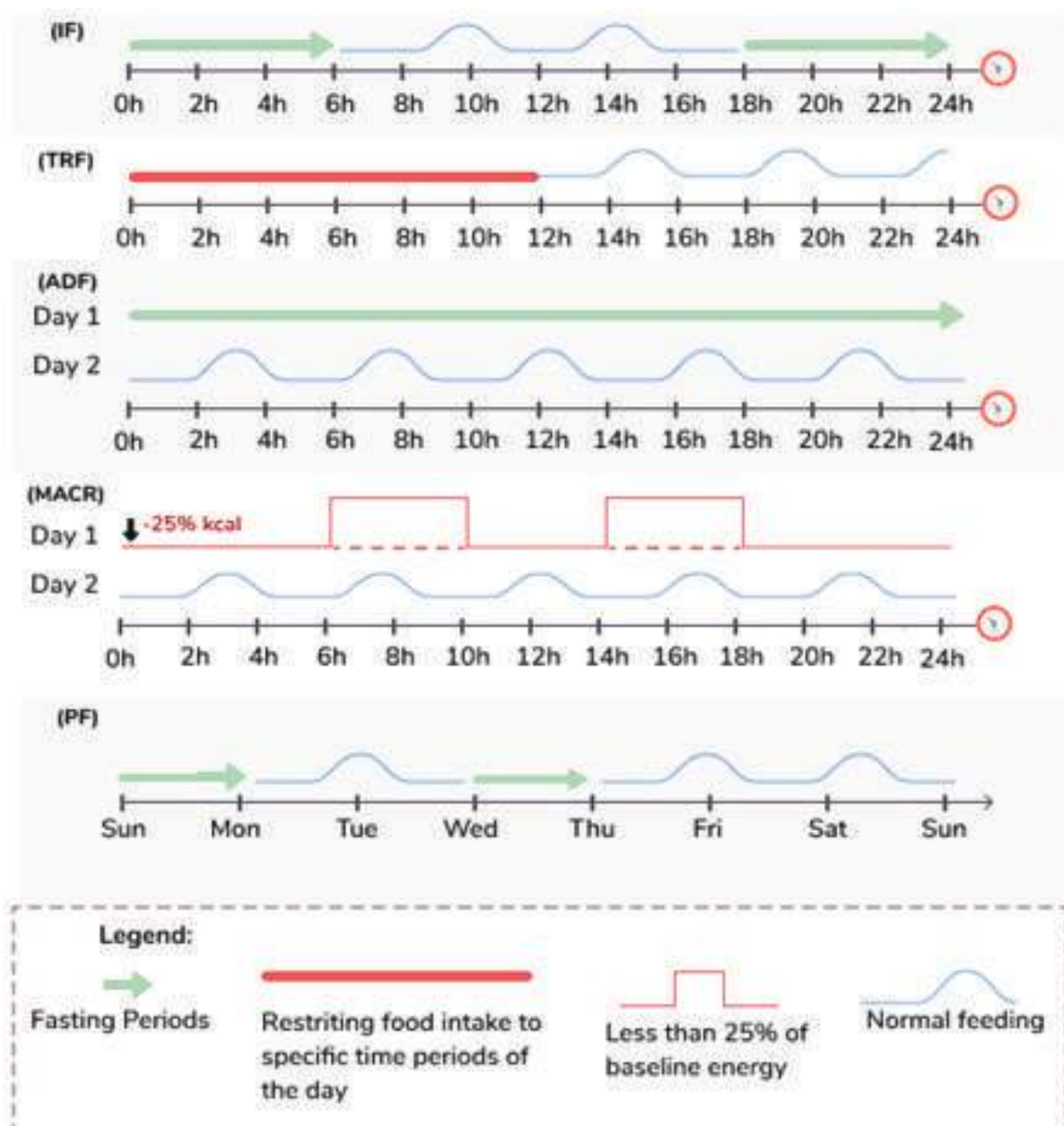


Figure 2. Illustration of the terms used to describe different types of fasting. ADF: Alternate Day Fasting; IF: Intermittent Fasting; ADMF: Alternate Day Modified Fasting; PF: Periodic Fasting; TRF: Time Restricted Feeding.



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Biography

Ana Napoleao is a Medical Student at the University of Lisbon. She is also doing a master's on orthomolecular medicine at the Spanish Society of Precision Health, and recently published about calorie restriction and ketosis inducing diets.

Lívia Fernandes is graduated in nutrition sciences and has a master's in gastronomic sciences from Nova University of Lisbon. She has experience in research along the lines of obesity and eating behavior. Currently works with clinical nutrition.

Cátia Miranda is graduated in nutrition sciences, and has a master's in clinical nutrition, and an advanced course on functional nutrition. She works in functional and integrative nutrition.

Ana Paula is a Medical Doctor with a master's in clinical nutrition. She is an Integrated Clinical Director, leading a multidisciplinary clinical team. Specialist in orthomolecular medicine, functional and integrative medicine, and Lecturer at a higher school of health. Has conducted clinical trials on Low FODMAPs diet

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The catchment areas disaggregation data framework for monitoring leaving no district behind in the universal health care coverage programs of Sudan: Achieving health sustainable development goal 10

Ashraf Mansour

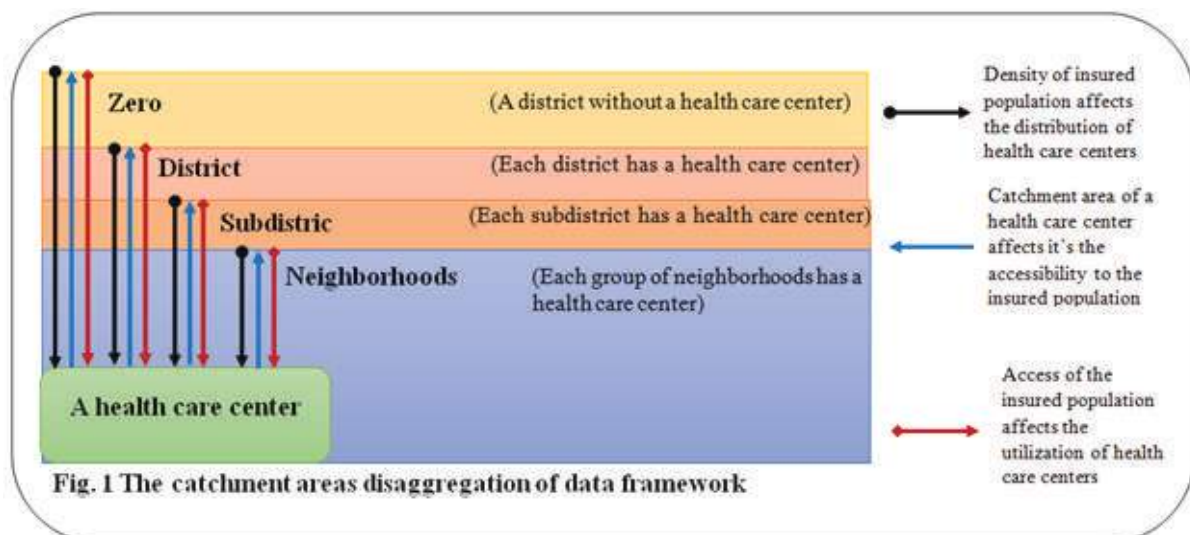
Al Fashir University, Sudan

Background: The aim of this study is to monitor the concept of 'leaving no one behind' in the Sustainable Development Goals (SDGs) to track the implications of the mobilization of health care resources by the universal health insurance coverage program (UHICP) of Sudan.

Methods: A cross-sectional study was used to monitor 'leaving no one behind' in UHICP by analyzing the secondary data of the information system for the year 2016. The study categorized the catchment areas of health care centers (HCCs) according to district administrative divisions, which are neighborhood, subdistrict, district, and zero. The Catchment Areas Disaggregation Data (CADD) framework was developed and investigated with the use of descriptive statistics, maps of Sudan, the Mann-Whitney test, the Kruskal-Wallis test and health equity catchment

indicators. SPSS ver. 18 and EndNote X8 were also used.

Results: The findings show that the UHICP has mobilized HCCs according to coverage of the insured population. This mobilization protected the insured poor in high-coverage insured population districts and left those living in very low-coverage districts behind. The Mann-Whitney test presented a significant median difference in the utilization rate between catchment areas (P value < 0.001). The results showed that the utilization rate of the insured poor who accessed health care centers by neighborhood was higher than that of the insured poor who accessed by more than neighborhood in each state. The Kruskal-Wallis test of the cost of health care services per capita in each catchment area showed a difference (P value < 0.001) in the



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median between neighborhoods. The cost of health care services in low-coverage insured population districts was higher than that in high-coverage insured population districts.

Conclusion: The CADD framework identified the inequitable distribution of health care services in

low-density population districts leaves insured poor behind. Policymakers should restructure the equation of health insurance schemes based on equity and probability of illness, to distribute health care services according to needs and equity, and to remobilize resources towards districts left behind.

Table I Catchment Areas Distribution of General Characteristic Indicator

Variables	Catchment area									
	Neighborhoods		Subdistrict		District		Zero		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%%
Sudanese Population	19,240,308	51.42	10,391,005	27.77	6,884,931	18.40	902,755	2.41	37,418,999	100
Insured population	11,367,127	69.33	3,320,733	20.25	1,518,913	9.26	176,227	1.07	16,396,484	100
Poor insured population	3,054,274	46.77	2,068,346	31.67	1,252,875	19.18	155,003	2.37	6,530,498	100
Rich insured population	3,625,538	70.23	1,249,621	24.21	266,038	5.15	21,224	0.41	5,162,421	100
District	45	23.81	70	37.04	62	32.80	12	6.35	189	100
Health care center	1025	78.07	217	16.53	71	5.41	0	0.00	1313	100



Continues remote monitoring of critically ill COVID 19 patients (C3 study): A Predictor of outcome

Avinash Hanbe Rajanna

Rajiv Gandhi University of Health and Sciences (RGUHS), India

Background: The COVID-19 pandemic has overwhelmed the existing healthcare infrastructure in many parts of the world. Healthcare professionals are not only overburdened but also at a high risk of nosocomial transmission from COVID-19 patients

Remote monitoring of COVID-19 patients with non-serious symptoms can help reduce the burden on healthcare facilities. In this pandemic situation, health monitoring is getting significant consideration in the field of healthcare and as a result, it has emerged as a key area of interest in recent times. Measurement of vital signs in hospitalized patients is necessary to assess the clinical situation of the patient. Early warning scores (EWS), such as the modified early warning score (MEWS), are generally calculated 3 times a

day, but these may not capture early deterioration. Continuous monitoring with wearable devices might detect clinical deterioration at an earlier stage, which allows clinicians to take corrective actions.

Methodology: Ballistocardiography is a non-invasive method based on the measurement of the body motion generated by the ejection of the blood at each cardiac cycle. Dozee Early Warning System (DEWS): DEWS is an overall score for risk assessment of the physiological status of a person. It is a cumulative score of risk levels of physiological parameters like HR, RR and SpO₂, which acts as an early predictor for possible physiological decline.

Result: Total 39 subjects were observed where 24 of the subjects were Male and 15 Female and

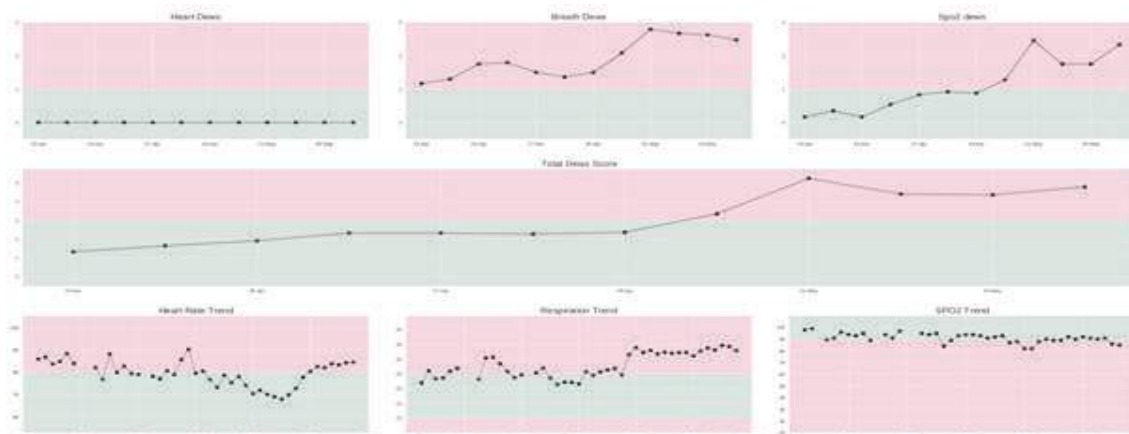


Figure 1 Vitals and DEWS trend of a patient who expired



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the average duration of stay at the hospital was 5 days. The outcome of 10 patients was death and 29 patients were discharged after recovery.

Conclusion: The discharged patients showed a

decrease in the DEWS score, especially Breathing DEWS before they recovered (Figure 1). However, the expired patients showed steady increase or a stagnant high Breathing DEWS until time of death.

Biography

Dr Avinash Hanbe Rajanna has completed his MD internal medicine at the age of 29 years from Rajiv Gandhi university of health and sciences, India. He is the Assistant professor in department of internal medicine, BMCRI, Bangalore. He has published more than 15 papers in reputed journals.

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The role of modern technology for the prevention of job-related stress and the enhancement of coping strategies among nurses

M. Velana and G. Rinkenauer

Department of Ergonomics, Leibniz Research Center for Working Environment and Human Factors (IfADo), Dortmund University of Technology, Germany

Nurses are facing unprecedented amounts of pressure because of the ongoing global health challenges. Improving nurses' resilience to job-related stress and enhancing their strategies to cope effectively with stressors are key issues facing many healthcare institutions during the COVID-19 pandemic. Indeed, interest has been growing in highlighting the effects of interventions on stress management, such as mindfulness, meditation and relaxation techniques. However, in the light of the human contact restrictions it still remains unclear what strategies would be suitable to tackle job-related stress throughout the pandemic crisis and the era after it. A systematic review, following the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)" guidelines, was therefore conducted to explore the advances in stress management interventions and suggest up-to-date directions for future practice. In total, 5,931 records were screened and 27 studies were considered for further analysis, covering only nurses. Our

findings underline the importance of developing and implementing programs that are not only conveniently accessible in the workplace but also, they meet the strict conditions for minimizing human contacts. To this end, evidence-based interventions that may be delivered through digital technology combined with cognitive-behavioral components seem to be a promising solution for combating the detrimental psychological and physiological impact among nurses. For example, the integration of virtual reality (VR) as a tool of stress management into mental health research has the potential to offer a radical transformation of the traditional intervention programs, allowing people in parallel to have access to high-quality and cost-effective interventions irrespective of the surrounding conditions. Therefore, special attention should be paid to advancing technology-assisted interventions that incorporate theory-driven self-help strategies, and examining their long-term effects as compared to conventional preventive programs, such as face-to-face approaches.

Biography

Dr. Maria Velana is psychologist with two master's degrees, namely MSc (Hons) in Applied Public Health and, MA (Hons) in Physical Activity and Health. In July 2019, she completed her doctoral degree in human biology (Hons) at the Medical Faculty of Ulm University, Ulm (Germany). During the PhD program she investigated the influence of emotions on pain experience and physiological responses under experimental pain induction and how these findings can be employed in clinical settings so as to advance treatments for acute pain. Since November 2019, she works as Postdoctoral researcher in the Department of Ergonomics at IfADo. In the frame of project "Digital Angel" Dr. Velana is responsible for the development, implementation and evaluation of preventive interventions that aim to enhance mental healthcare among nurses in German clinics and reduce their job-related stress by increasing psychological well-being, and creating supportive working conditions.

Reading comprehension, reading context and culture through the lens of the digital generation of Czech pupils of secondary technical schools

Dana Vicherkova

*Department of Pedagogy and Andragogy, University of Ostrava,
Czech Republic*

Adopting appropriate learning and reading strategies is one of the principal goals of primary and lifelong learning. These goals are part of Czech curricular documents, the Framework Educational Programs for Primary and Secondary Schools, and the Strategy 2030+ reflecting current social and educational challenges - globalisation, sustainable development, and advent of industry 4.0. The appeal for developing communication and reading comprehension, digital skills, and transferable competencies for everyday life grows. The reader should apply correct (de) coding of written information as a part of communication in paper and electronic form. An important factor influencing the understanding of the information is the database of sociological, psychological, ethical and media knowledge and skills. We use language that reflects the values of individuals, communities, and society to transfer data and thought processes simultaneously. This study aims to present selected features of reading strategies of secondary technical schools' pupils in the Moravian-Silesian Region, relating

to findings of international survey of 15-year-old pupils (PISA, 2018) reading literacy and Czech School Inspectorate' (2021) survey of pupils' learning strategies that Czech boys reach below-average levels in measured reading strategies but excel in selected digital strategies. Another goal is to identify factors influencing development of reading and (i) literacy of students in working with (e) text, reading comprehension, effectiveness of reading culture and reading comfort. Analysis of 675 pupils from four secondary technical schools showed, similarly to previous research (Vicherková, 2020), that pupils reading for knowledge prefer particular topic and pupils who ask helpful questions, especially while reading (e) text process unfamiliar information to find connections with information read. The interaction between reading comfort and reading context was found. Students also have a problem understanding Roman numerals in history-related (e) text. The effectiveness of reading is apparent not only for school needs but to harmonise everyday life and lifelong learning.

Biography

Dr. Dana Vicherková works as an assistant professor at the Department of Pedagogy and Andragogy at the Faculty of Education, University of Ostrava. She deals with the issues of pedagogical communication, reading literacy of pupils, general didactics, pedagogical diagnostics, pedagogical practice.

Dana Vicherková focuses on the topics of text understanding, reading strategies and communication. She is an executive editor of an international magazine TNER and has more than 10 years of experience working as a teacher of a secondary vocational school.

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Metallacarborane derivatives effective against *Pseudomonas aeruginosa* and *Yersinia enterocolitica*

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Pseudomonas aeruginosa is an opportunistic human pathogen that has become a nosocomial health problem worldwide. The pathogen has multiple drug removal and virulence secretion systems, is resistant to many antibiotics, and there is no commercial vaccine against it. Yersinia pestis is a zoonotic pathogen that is on the Select Agents list. The bacterium is the deadliest pathogen known to humans and antibiotic-resistant strains are appearing naturally. There is no commercial vaccine against the pathogen, either. In the current work, novel compounds based on metallacarborane cage were studied on strains of Pseudomonas aeruginosa and a Yersinia pestis substitute, Yersinia enterocolitica. The representative

compounds had IC₅₀ values below 10 μ M against Y. enterocolitica and values of 20–50 μ M against P. aeruginosa. Artificial generation of compound-resistant Y. enterocolitica suggested a common mechanism for drug resistance, the first reported in the literature, and suggested N-linked metallacarboranes as impervious to cellular mechanisms of resistance generation. SEM analysis of the compound-resistant strains showed that the compounds had a predominantly bacteriostatic effect and blocked bacterial cell division in Y. enterocolitica. The compounds could be a starting point towards novel anti-Yersinia drugs and the strategy presented here proposes a mechanism to bypass any future drug resistance in bacteria.

Biography

Dr. Swietnicki is a scientist working on antibacterial strategies. The work is focused on novel vaccines and therapeutics targeting bacterial virulence systems. Dr. Swietnicki obtained his Ph.D. in Biochemistry and Molecular Biology from the University of Florida, Gainesville, FL, USA, in 1995 for his work on Hepatitis A Virus 3C protease. Later he worked on human prion proteins at CWRU, Cleveland, OH, USA before starting work on Select Agents at USAMRIID, Ft. Detrick, MD, USA, and ECBC, APG, MD, USA. In 2011 he moved to Poland to work on virulence blockers of enteropathogenic E. coli at EIT+ and later on novel vaccines against periodontitis at the Institute of Immunology and Experimental Therapy of PAS in Wrocław, PL.



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Liquid biopsies: A non-invasive diagnostic approach for the practicing clinician

Rani Berry

Division of Gastroenterology and Hepatology, Stanford University, USA

The downstream effects of whole genome sequencing have led to burgeoning fields including DNA based tests for cancer detection as well as non-invasive prenatal testing. Challenges and limitations of solid tumor samples have led researchers to study non-invasive diagnostic modalities including the isolation of circulating tumor DNA, cell-free

DNA, mitochondrial DNA, and fetal DNA. This review will focus on the sampling and analysis of non-solid biological tissues, primarily in the blood. The primary objectives will be to: define the terminology, review the major biomarkers, describe the application of liquid biopsy in clinical care, and review updates in the literature in both Academia and Industry.

Biography

Rani Berry is a post doctorate Gastroenterology fellow at Stanford Health by way of UCLA where she completed her Internal Medicine training with AOA distinction. She has successfully completed over 500 endoscopic procedures, 16 publications and 24 oral presentations/abstracts. Her current research area of interest lies in artificial intelligence-aided colonoscopy where she is applying deep learning techniques to improve quality metrics in endoscopy. Aside from her own research, she is a peer reviewer for 5 medical journals, allowing her to keep up to date with advances in the field. Her hope is that the science behind liquid biopsies will allow clinicians a non-invasive modality to screen, diagnose, prognose and treat patients in the future.



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Burnout, professional fulfillment, Intent-to-Leave and Sleep-related Impairment amongst radiology trainees across the United States (US): A Multi-Site Epidemiologic Study

Mikhail C S S Higgins

Department of Radiology, Boston Medical Center, USA

Objective: To examine the prevalence of burnout among radiology trainees in the United States, and to study the relationships between burnout and professional fulfillment (PF), intent-to-leave (ITL), sleep-related impairment and self-compassion by gender.

Methods: This cross-sectional study was conducted via an anonymous electronic survey sent to 11 large academic medical centers (Physician Wellness Academic Consortium) between January 2017 and September 2018. The survey included the Professional Fulfillment Index (PFI) and an abbreviated form of the PROMIS Sleep-related impairment (SRI) scale. Two-sample t-tests and chi-square exact tests were used for analysis ($p < 0.05$).

Results: 247 radiology residents responded to the survey. 36.2% reported burnout. 37.4% endorsed PF. 64.8% reported sleep-related impairment. 7.6% expressed ITL. There were no significant differences between genders. Burnout was associated with reduced PF, increased sleep-

impairment ($p < 0.001$ for both) and increased ITL ($p = 0.02$). Lower PF, peer support, perceived appreciation for and meaningfulness in work, alignment of organizational and personal values, self-compassion, and higher sleep impairment were associated with burnout ($p < 0.001$ for all). Burnout was associated with perceptions of less support from department leaders ($p = 0.003$), control over schedules ($p = 0.001$) and helpfulness of electronic health record systems ($p = 0.01$). ITL was associated with reduced PF, perceived work appreciation, and leadership support ($p = 0.03$, $p = 0.04$, and $p = 0.007$, respectively).

Discussion: Burnout is prevalent among radiology residents. Many demonstrate sleep-impairment and reduced professional fulfillment, with a lesser fraction desiring to leave their institution. Key factors to burnout included peer and organizational support, electronic health record systems helpfulness, and personal factors like self-compassion and work appreciation.

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Exploration of predictors of depression and cognitive-behavioral transactional process of coping with cancer among cancer survivors in an acupuncture clinic: A mix-methods design

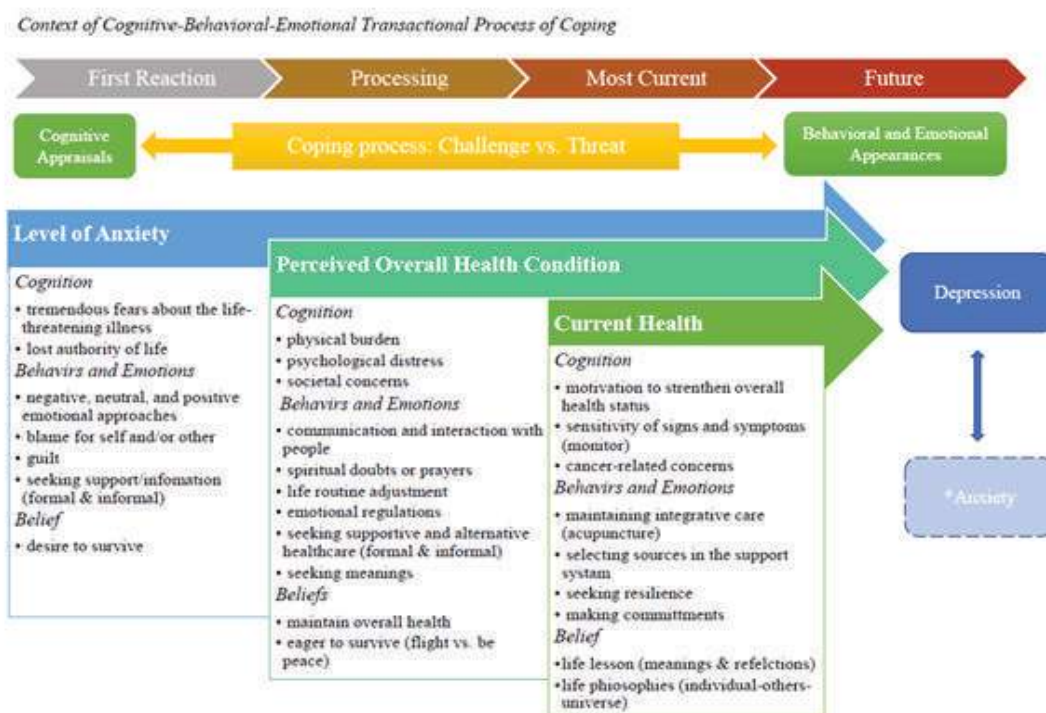
Yu-Ju Huang¹, Patrick Leung¹, McClain Sampson¹ and John-Paul Liang²

¹University of Houston, USA

²American College of Acupuncture & Oriental Medicine, USA

Objectives: This study investigates impacts of physical-psychosocial disequilibrium and coping mechanisms on depression among cancer patients seeking acupuncture. The research goals include: 1) identify predictors of depression among individuals with cancer, 2) explore cognitive-emotional-behavioral transactional process while coping with cancer, and 3) understand the motivation of seeking integrative care linking to cancer-related stress management.

Methods: A mixed-methods study with an explanatory sequential design was applied. The research was conducted at an acupuncture and oriental medicine facility in Greater Houston in the U.S. The quantitative phase identified depression predictors among patients with cancer using data from medical records between 2017 and 2019. A phenomenological approach was applied in the interviews to explore coping experiences with cancer and motivation to seek acupuncture.





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Results: Logistic regression analysis revealed that levels of anxiety, perceived overall health, and current health status were a unique combination to predict depression among individuals with cancer. Coping consisting of cognition-emotion-behavior-belief adjustment was a non-stop process throughout the trajectory. The cognitive appraisal was a personal perception of illness-related stressors, which led to the stress being a challenge or threat. Reflections on lessons learned from the illness and making commitments to human beings decreased the risk of depression. The needs of holistic healthcare motivated individuals to seek acupuncture, which also boosted the function of the coping mechanism.

Implications: Integrative oncology care should apply at the initial stage from a prevention perspective. Community-based integrative cancer care is needed to increase its accessibility. Guidelines for interprofessional cancer care should be developed in curriculums and clinical training. Healthcare insurance should consider embedding integrative care to enlarge benefits to respond to the need for holistic wellbeing. Future research is encouraged to conduct clinical trials collaborating with oriental medicine, neuroscience, and cognitive-behavior science to explore coping mechanism development while using specific acupuncture points to prevent depression.

Biography

Yu-Ju Huang, MSW, Ph.D. is a researcher at the Child and Family Center for Innovative Research at the University of Houston, leading this project. Her social work clinical experiences working with individuals with cancer in medical centers and community accumulated her research concentrations focusing on stress management, coping mechanism development, communication, mental health, and complementary and integrative care among individuals with cancer. In addition, her research is involved in social determinants of health and health disparities/inequities in immigrants and minorities to understand their challenges and advocate healthcare justice for underserved populations.



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National registry for ALS: The Brazilian implementation case study

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Amyotrophic Lateral Sclerosis (ALS) is a nervous system disease considered rare, degenerative, incapacitating and that is irreversible thus far. The worldwide incidence of ALS ranges from 0.6 to 3.8 cases per 100,000 people per year, whereas the prevalence is approximately 4.1 to 8.4 per 100,000. Researchers have seen the need and importance of implementing a clinical database that can provide support for the advancement of research in ALS. Population studies have revealed ALS frequency in different continents and ethnicities. The significance of population registers is being increasingly observed as an essential complement to improve clinical assessment techniques [1, 20, 21]. The REVELA project is a LAIS initiative with

the government and national associations and communities. The implementation of the national ALS registry is one of the project's objectives. The System was fully developed based on the new data protection standards of the Brazilian government. The registry is designed to allow physicians and patients to enter data without duplication. the project is being tested at five university hospitals. It will be open for patients to enter data in a few months. With this study it will be possible to know the incidence and prevalence of patients with ALS in Brazil. In a second phase of this work, we will incorporate the electronic medical record specific for ALS to the register.

Biography

A Mechanical Engineering with Ph.D. in Mechanical Engineering with an emphasis on Bioengineering. Head of Biomedical Engineering Department at Federal University of Rio Grande do Norte - UFRN, head of Assistive Technologies Laboratory at the Laboratory of Technological Innovation in Health - LAIS. Executive coordinator of the revELA project, whose main objective is to develop low-cost equipment and systems for ALS patients.



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Obstructive sleep apnea in older adults: Diagnosis and management

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Adult and Gerontological Primary Care Medicine, USA

The importance of sleep is required in every age range throughout the lifespan. As one ages sleep can be hampered in part by lifestyle choices, sleep hygiene, and aging processes.

Throughout the lifespan, it is important to have meaningful conversations with those who participate in the healthcare team. Identifying vital information that is provided by the patient or patient family can lead to appropriate treatments and the identification of common sleep disorders. In understanding the significance of the conversation and physical examination providers can delineate the information into meaningful assessments. Using processes that are reviewed here which will assist in gathering

a complete history and physical and providing differential diagnosis for the essential factor of sleep that is needed not only for overall health and well-being but to promote in the older adult population a good quality of life while decreasing mortality and fall risk. We will review and discuss the objectives of the examination, routinely screening patients for sleep changes, monitoring age-related changes, and readdress the use of C-PAP machines and concerns for adherence, while also discussing the hurdles of Covid-19 in both diagnosis and treatments. Using diagnostic testing and screening tools to guide the differential diagnosis to the optimal treatment and management of sleep disorders with a focus on obstructive sleep apnea in older adults.

Biography

Nilan Nandish is the founder and president of PRESERVATION, an organization that bridges gaps in public health systems through project-based initiatives. Nilan has been actively serving the geriatric population for the last five years earning him the Presidential Gold Service Award. It is during this time that he recognized the need for further education towards sleep hygiene in order to maintain and maximize mind-body-spirit health. Nilan's research and publication provide useful pearls of wisdom that may be taken into direct patient care.



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Efficacy and cost-feasibility of the Timely Chest Compression Training (T-CCT): A contextualized cardiopulmonary resuscitation training for personal support workers participating during in-hospital cardiac arrests

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Objectives: The Timely Chest Compression Training (T-CCT) was created to promote more frequent training in chest compressions for personal support workers. This study aims to assess the efficacy of the T-CCT on the chest compression performance and to examine costs related to this intervention.

Methods: A prospective single group, before-after study was conducted at a university-affiliated hospital. The T-CCT is adapted for support workers and lasts 20 min during working hours. Guided by peer trainers, live feedback devices and mannikins, the T-CCT targets chest compression training. Using an algorithm, chest compression performance scores were gathered before and after the intervention.

Results: Of 875 employed support workers, 573 were trained in 5 days. Prior to the intervention, the

median performance score was 72%. Participants significantly improved after the intervention ($p < 0.001$) and the median of the differences was 32% (95% CI 28.5–36.0). Support workers in critical care units and those with an active basic life support (BLS) certification performed better at baseline and were less inclined to have large changes in performance scores after the intervention. When compared to basic life support training, the T-CCT is over three times less expensive.

Conclusions: The T-CCT was an effective and low-cost initiative that allowed to train a large group of support workers in a short amount of time. Since they are actively involved in resuscitation efforts in Quebec (Canada), it may promote the delivery of high-quality compressions during in-hospital cardiac arrests. Our inquiry can incite and guide other organizations in the implementation of similar interventions.

Biography

Catalina Sokoloff is an Emergency and Intensive Care Physician working at the CHUM, a tertiary academic hospital in Montreal, Canada. She has completed a 1-year Fellowship program in Clinical Simulation and Medical Education in Sydney, Australia, and is now in charge of the In Situ Simulation Committees of both services at her institution. She shares her clinical practice between the Emergency Room and the Intensive Care Unit, and she fills the rest of her time developing training programs for healthcare workers to improve patient care and cardio-pulmonary resuscitation performance. Her academic and research interests lie in the fields of Crisis Resource Management, teamwork efficiency, and optimal teaching methods.



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Making safety training stickier: A richer model of safety training engagement and transfer

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²Haskayne School of Business, University of Calgary, Canada

³QUT Business School, Queensland University of Technology, Australia

⁴Serco Asia Pacific, Australia

Aim: Compared to other types of occupational training, safety training suffers from several unique challenges that potentially impair the engagement of learners and their subsequent application or “transfer” of knowledge and skills upon returning to the job. However, existing research on safety training tends to focus on specific factors in isolation, such as design features and social support. The aim of this research is to develop an overarching theoretical framework that integrates factors contributing to training engagement and transfer.

Method: We conducted a comprehensive qualitative review of safety training research that was published between 2010 and 2020. We searched Web of Science, Scopus, and Google Scholar, yielding 147 articles, and 38 were included. We content analyzed article summaries to arrive at core themes and combined them with contemporary models of general occupational training to develop a rich model of safety training engagement and transfer.

Results: Organizations should prioritize pre-

training readiness modules to address existing attitudes and beliefs, optimize the safety training transfer climate, and critically reflect on their strategy to design and deliver safety training so that engagement is maximized.

Conclusions: There are practical factors that organizations can use before training (e.g., tailoring training to employees’ characteristics), during training (e.g., ensuring trainer credibility and use of adult learning principles), and after training (e.g., integrating learned concepts into systems).

Practical Applications: For safety training to ‘stick’, workers should be affectively, cognitively, and behaviorally engaged in the learning, which will result in new knowledge and skills, improvements in attitudes, and new safety behaviors in the workplace. To enable engagement, practitioners must apply adult learning principles, make the training relevant, and tailor the training to the job and individual needs. After training, ensure concepts are embedded and aligned with existing systems and routines to promote transfer.



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Biography

Dr Tristan Casey is an expert in safety leadership and organisational culture. With a career in workplace health and safety spanning 12 years, he has consulted nationally and internationally across a diverse range of industries such as law enforcement, local government, utilities (water and power, including renewables), offshore oil and gas, construction, and manufacturing (wood and metals). Dr Casey is an endorsed Organisational Psychologist with two doctoral degrees, including his PhD that involved development and validation of the LEAD model under the mentorship of Prof Mark Griffin. His passion is translating abstract/theoretical concepts into practical tools that have measurable impact. Dr Casey is skilled at forming collaborative and mutually beneficial partnerships between government, industry, and academia. He is also a highly regarded international speaker, having keynoted at more than 15 industry events and presented at over 100 conferences, workshops, and forums.

Barriers and facilitators to promoting evidence uptake in Chinese medicine: A qualitative study in Hong Kong

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Scope and Objectives: In response to the World Health Organization's recommendation, policy makers have been adopting evidence-based healthcare approach to promote the development of traditional, complementary and integrative medicine (TCIM) into Hong Kong's health system. Disseminating synopses of clinical evidence from systematic reviews or randomized trials is regarded as a potentially effective strategy to promote evidence uptake. The study aimed to identify barriers and facilitators to

implementing this strategy among Hong Kong Chinese medicine practitioners (CMPs).

Methods: Twenty-five CMPs aged under 45 years and trained in Hong Kong after reunification with China in 1997 were interviewed individually. Four clinical evidence synopses of randomized trials and systematic reviews on Chinese medicine interventions were presented, and CMPs were asked to comment on their applicability in routine practice (Figure). The Consolidated Framework

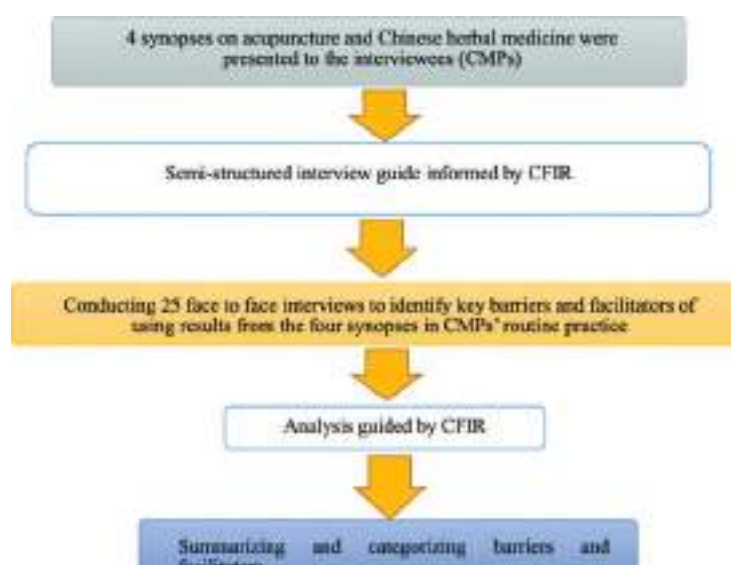


Figure. Flowchart of the study.

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for Implementation Research (CFIR) was applied to guide interview and analysis.

Keys: CFIR, The Consolidated Framework for Implementation Research; CMP(s), Chinese medicine practitioners

Results: The barriers included: i) CMPs' perceived difficulties in applying complex evidence in decision-making and ii) inadequate training and limited consultation time. The facilitators were i) availability of publicly accessible and user-friendly synopses, ii) formation of community of

evidence-based practice among CMPs with input from key opinion leaders, iii) opportunity for interprofessional collaborations with conventional healthcare providers, and iv) patients' demand for evidence-based clinical advice. Besides, i) CMPs' knowledge and beliefs in evidence-based healthcare approach, ii) presentations of evidence-based information in the synopses, and iii) clinical decision making as influenced by quality of evidence reported acted as both barriers and facilitators (Table).

Table. Analysis of the interviews: Consolidated Framework for Implementation Research (CFIR) domains, constructs and description of the constructs

CFIR domains and domain descriptions	CFIR constructs	Descriptions of constructs
I) Characteristics of individuals: It refers to the characteristics of CMPs in Hong Kong who participated in this study.	Knowledge and beliefs about the intervention [F/B] ^a	CMPs' attitudes toward, and values placed on the use of results from synopses in routine practice.
II) Intervention characteristics: It refers to the characteristics of critically appraised evidence-based synopses on CM interventions which were presented to Hong Kong CMPs.	Relative advantage [F/B] ^a	CMPs' perception of the advantage of using results from synopses relative to their routine practice.
	Complexity [B] ^a	CMPs' perceived difficulty of using results from synopses in routine practice.
	Design quality and packaging [F/B] ^a	CMPs' perceived excellence in how synopses are bundled, presented, and assembled.
III) Inner setting: It refers to the political and cultural contexts with the local CM industry, including both private and non-private sectors.	Readiness for implementation - Available resources [B] ^a	The level of resources dedicated for using results from synopses in CMPs' routine practice and its on-going operations. These include training, education and time.
	Readiness for implementation - Access to knowledge and information [F] ^a	CMPs' ease of access to digestible information and knowledge about the use of results from synopses in routine practice.
	Networks and communication [F] ^a	The nature and quality of webs of social networks and the nature and quality of formal and informal communications within the local CM industry on the use of results from synopses in routine practice.
IV) Outer setting: It includes economic, political and social context within the Hong Kong health system.	External policy and incentives [F] ^a	External strategies and incentives for spreading synopses within the Hong Kong health system.
	Patient needs and resources [F] ^a	The extent to which patient needs influence CMPs' use of results from synopses in routine practice, as well as resources devoted to meet those needs.

Key: Consolidated Framework for Implementation Research, CFIR; CM, Chinese medicine; CMPs, Chinese medicine practitioners

^aThe four domains of CFIR presented in this study include intervention characteristics, outer setting, inner setting and characteristics of individuals involved. The constructs of implementation determinants act as barriers [B] or/ and facilitators [F]. [B] are factors that are perceived to inhibit the use of results from synopses in routine practice based on the CMPs' statements, while [F] are factors that are likely to promote the use of results from synopses in CMPs' routine practice. Determinants which act as both facilitators and barriers are labelled as [F/B]

Conclusions: This CFIR-based qualitative study investigated how the World Health Organization recommendation of promoting evidence use in routine practice was perceived by CMPs trained in Hong Kong after reunification with China in 1997. Key barriers and facilitators to applying

evidence were identified. Such results will inform tailoring of implementation strategies for promoting evidence uptake, in the context of a well-developed health system dominated by conventional medicine.



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Biography

Dr. Irene Wu has completed Bachelor in Preventive Medicine, Master in Epidemiology and Health Statistics, and a PhD in clinical epidemiology and evidence-based medicine. She received her post-doctoral training in the Chinese University of Hong Kong, focusing on developing methods for evaluating traditional, complementary and integrative medicine in an evidence-based manner. Dr. Wu received the prestigious award of “High-level Talents Introduction Plan” from Central South University in 2018, and is currently a Professor in the Xiangya School of Public Health, Central South University. As a well-trained epidemiologist and biostatistician with focus on evidence-based healthcare, Dr Wu has a good research track record in evidence based integrative medicine, of which she has published over 60 articles in international peer reviewed journals, including the BMJ, Journal of Clinical Epidemiology, and Obesity Reviews, among others. Dr Wu has received several competitive grants supports from the National Natural Science Foundation of China and National Key R&D Program of China.

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Auricular acupressure for adverse events following immunization related to COVID-19 vaccine injection: A multicentre, blinded, randomized controlled clinical trial

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⁹World Health Organization Collaborating Centre (WHOCC), China

Background: Some adverse events following immunization (AEFI) were observed in potential association with injection of COVID-19 vaccines but without preventive intervention for it. We aimed to investigate efficacy of auricular acupressure (AA) therapy in preventing and (or) relieving AEFI after first dosage of the vaccine.

Methods: We performed a multicentre randomized controlled trial with three arms, including AA group, SAA group, and WL group, carried out in four medical institutions in Chengdu, China, from March 17th to April 23rd, 2021. We involved the recipients with inclusion criteria, who were randomized into AA (AEFI-specific auricular points applied, n=52), sham AA (n=51) or wait-list (WL) (n=44) group. Primary outcomes were percentages of any AEFI and local pain, and secondary outcomes were percentages who reported other AEFI. They were followed at

1, 3, 5, 7, and 14 days with severity evaluated.

Results: 147 participants (73.47% females) were included with an average age of 34.08. One day after the injection, participants in AA group showed significant reduction on percentages of any AEFI [intention-to-treat, difference of percentage (DP) = -20.13, 95%CI: -0.39, -0.02, p = 0.01; per-protocol, DP = -22.21, 95%CI: -0.40, -0.03, P = 0.02] and local pain (intention-to-treat, 95%CI: -0.36, -0.01, DP = 12.24, p = 0.03). The effects were slight at other follow-up days and for other outcomes, but with good safety.

Conclusions: We firstly manifested superiority of AA for preventing and relieving AEFI related to COVID-19 vaccine injection, which is beneficial for the vaccine recipients, but evidence is limited.

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Table: Baseline characteristics of 147 participants included

	AA (n=52)	SAA (n=51)	WL (n=44)	Overall (n=147)
Male	16 (30.77%)	16 (31.37%)	7 (15.91%)	39 (26.53%)
Female	36 (69.23%)	35 (68.63%)	37 (84.09%)	108 (73.47%)
Age, years				
Median (IQR)	31.5 (26, 46.75)	27 (24, 46)	32 (26, 38)	31 (25, 45)
Mean (SD)	35.52±11.56	32.88±11.94	33.77±10.45	34.08±11.36
Smoking				
Habitual	4 (7.69%)	0 (0%)	1 (2.27%)	5 (3.40%)
Opportunistic	0 (0%)	3 (5.88%)	1 (2.27%)	4 (2.72%)
Never	48 (92.31%)	47 (90.38%)	41 (93.19%)	136 (92.52%)
Abstained	0 (0%)	1 (1.96%)	1 (2.27%)	2 (1.36%)
Alcohol				
Habitual	2 (3.85%)	2 (3.92%)	1 (2.27%)	5 (3.40%)
Opportunistic	12 (23.08%)	13 (25.49%)	11 (25.00%)	36 (24.49%)
Never	38 (73.08%)	36 (70.59%)	32 (72.73%)	106 (72.11%)
Abstained	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Education level				
High	41 (78.85%)	38 (74.51%)	34 (77.27%)	113 (76.86%)
Medium	9 (17.31%)	9 (17.65%)	8 (18.18%)	26 (17.69%)
Low	1 (1.92%)	3 (5.88%)	2 (4.55%)	6 (4.08%)
Unknown	1 (1.92%)	1 (1.96%)	0 (0%)	2 (1.37%)
Acknowledgement on possible adverse events of COVID-19 vaccine				
None	25 (48.08%)	26 (50.98%)	28 (63.63%)	79 (53.74%)
Little	9 (17.31%)	9 (17.65%)	10 (22.73%)	28 (19.05%)
Some	13 (25.00%)	11 (21.57%)	6 (13.64%)	30 (20.41%)
Much	4 (7.69%)	4 (7.84%)	0 (0%)	8 (5.44%)
Very much	1 (1.92%)	1 (1.96%)	0 (0%)	2 (1.36%)
Anxiety of possible adverse events of COVID-19 vaccine				
None	34 (65.38%)	36 (70.59%)	28 (63.64%)	98 (66.67%)
Little	10 (19.23%)	7 (13.73%)	11 (25.00%)	28 (19.05%)
Some	7 (13.46%)	5 (9.80%)	5 (11.36%)	17 (11.56%)
Much	1 (1.92%)	3 (5.88%)	0 (0%)	4 (2.72%)
Very much	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Baseline symptoms (occurred in 3 days before the injection), cases*				
Any#	9 (17.31%)	10 (19.61%)	1 (2.27%)	20 (13.61%)
Local pain	1 (1.92%)	3 (5.88%)	0 (0%)	4 (2.72%)
Headache	0 (0%)	3 (5.88%)	0 (0%)	3 (2.04)
Muscle and (or) joint pain	4 (7.69%)	5 (9.80%)	0 (0%)	9 (6.12%)
Fatigue	3 (5.77%)	3 (5.88%)	0 (0%)	6 (4.08%)
Nausea	1 (1.92%)	1 (1.96%)	1 (2.27%)	3 (2.05)
Vomiting	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Diarrhoea	0 (0%)	0 (0%)	0 (0%)	0 (0%)

AA: Auricular acupressure; SAA: Sham auricular acupressure; WL: wait-list; CI: Confidence interval; ITT: Intention-to-treat; Any#: Percentages of the participants who reported any baseline symptoms (occurred in 3 days before the injection).

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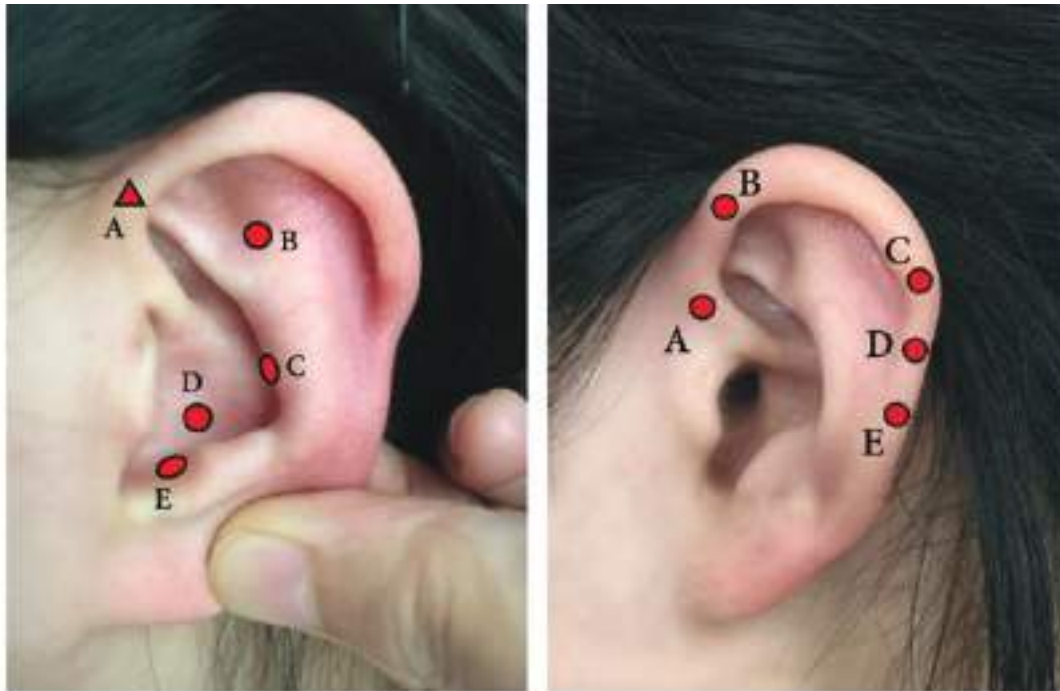


Figure: Auricular acupoints applied for AA and SAA groups

Circular marks indicate the acupoints are located at the outer surface, and triangle mark indicates the acupoint is at inside surface. The left picture is the distribution of auricular acupoints applied for AA group, including A [Ulaogen (sympathetic, AH6a)], B [Shenmen (TF4)], C [Pi (Spleen, CO13)], D [Xin (Heart, CO15)], E [Pizhixia (Subcortex, AT4)]. The picture in the right is the distribution of auricular acupoints applied for SAA group, including A [Neadeao (Urethra, HX3)], B [Ganmen (Anus, HX5)], C [Helix 1 (HX9)], D [Helix 2 (HX10)], E [Helix 3 (HX11)].

Trial registration: chictr.org.cn no. ChiCTR2100043210
(<http://www.chictr.org.cn/showproj.aspx?proj=121519>).

Biography

Dr. Fu graduated from Chengdu University of Traditional Chinese Medicine (CDUTCM) majoring in acupuncture, moxibustion and massage (Chinese tuina) with an Honours Bachelor Degree. Upon graduation he studied for his Master's and Doctor's Degree of TCM in CDUTCM, and have been serving as a resident doctor in Hospital of CDUTCM since August 2020. Dr. Fu devotes himself to combination of clinical practice and scientific research in TCM, and his fields of researches include allergic rhinitis, irritable bowel syndrome, tinnitus, diabetic peripheral neuropathy, and adverse reactions after COVID-19 vaccine injection. Dr. Fu was also the editor-in-chief of an academic journal of CDUTCM, Chinese Medicine & Acupuncture: Research and Exploration, and serves as the reviewer of Evidence-based Complementary and Alternative Medicine. He is special in preventing and treating diseases by acupuncture, Fu's subcutaneous needling, pestle needle, targeted scalp acupuncture, meridian and tendon manipulation, acupoint massage, moxibustion, and herbal medicine, etc.

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Engagement of care for people affected by the Covid-19 pandemic: A research perspective

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The disruption caused by the current Covid-19 pandemic has caused various types of impacts on the multiple dimensions of society and human life. These have required a significant adjustment to normal life. We have now settled into a "new normal life" which includes social distancing, wearing face masks, changes to working and learning lifestyles to maintain a stable and safe existence during this highly disruptive period.

Although the government or administration of each country is working diligently to cope with huge challenges in the context of the ongoing health crisis, they are facing serious limitations and difficulties. As a result, many people are frustrated, suffering, and feel unsettled in their uncertain and unpredictable lives. They are not fully engaging in or enjoying their life. Indeed, there is a great deal of variability among people's optimal lifestyles. Some of their concerns and fundamental differences include cultural and beliefs, educational backgrounds, physical health conditions, differences in psychological states,

marginalized groups of people, social and financial support, environmental, and technology.

The ongoing effects of Covid-19 have affected the lifestyles of people who now live a new normal life. Healthcare teams have created a new culture of care. The number of protocols or interventions provided for patients by healthcare institutes and communities has promoted knowledge about healthy lifestyles, psychological responses, and suffering, etc. Even though healthcare professionals and researchers have tried to create innovative care systems during Covid-19, some people are limited by applications, processes, or care platforms.

The critical factor that may interrupt client engagement is their perception of roles and responses. Healthcare professionals and researchers have provided effective care programs appropriate for clients and their social conditions during each phase of the Covid-19 crisis. It is essential to consider and deeply understand that programs account for their ability to engage people's needs.

Biography

My responsibility is to work as a lecturer for the undergraduate and graduate programs of M.N.S. (Nursing Administration), School of Nursing, Sukhothai Thammathirat Open University (STOU). STOU mainly provides a distance learning system for adult learning. I have the unique responsibility of joining the community's multidisciplinary team as a teaching volunteer in elderly schools in Nonthaburi province, Thailand. Moreover, I am working as an examiner of caregivers for the elderly by the Thailand Professional Qualification Institute. Research interest; elderly care and caregiver, orthopaedic nursing, Psychometric development (nursing), Distance learning, Nursing management.



Emotion coaching parenting program for Chinese parents of preschoolers: A randomized controlled trial

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Background: Preschoolers' emotional development typically hinges on the family emotional climate and their interactions with caregivers. Tuning in to Kids (TIK) is a parenting program that focuses on emotion coaching and is evidenced to be effective in Western populations. The program encourages parents to reexamine their own parenting beliefs and to develop supportive and emotionally responsive parenting skills. This study used a randomized controlled trial to examine the intervention effects of TIK on Chinese parents of low to middle socioeconomic status in Hong Kong.

Method: One hundred four parents (99 mothers and 5 fathers; mean age in years = 37.92) of preschoolers aged 3–6 years were randomly assigned to the experimental (n = 54) or waitlist control group (n = 50). Parent and child outcomes were assessed at baseline (Time 1), immediately after the 6-week intervention (Time 2), and 6 weeks postintervention (Time 3), using the Alabama Parenting Questionnaire,

Coping with Children's Negative Emotions Scale, Parenting Stress Index-Short Form, and Emotion Regulation Checklist.

Results: The experimental group reported significant reductions in punitive parenting and parenting stress at Time 2, and these effects were maintained at Time 3. Delayed improvements in parents' use of expressive encouragement and children's emotion lability/negativity were observed at Time 3 in the experimental group. The immediate intervention effects were replicated in the waitlist control group at Time 3 after they attended the training.

Conclusion: The current study added to the scant repertoire of research on emotion coaching parenting interventions among non-Western parents, and represented probably one of the few randomized controlled trials of the TIK program conducted in Asian countries. Our results corroborated the findings of prior studies of TIK and provided preliminary support for its effectiveness across different cultural contexts.

Biography

Dr. Kathy Shum graduated from the University of Toronto with an Honours Bachelor Degree in Human Biology and Master Degree in Physiology. She pursued a career in education after obtaining her Postgraduate Certificate in Education from the University of Hong Kong. After several years of teaching at a secondary school, she started anew in the field of psychology and completed her doctoral degree in Educational Psychology at the University of Hong Kong. She is currently the Director of the Master of Social Sciences Programme in Educational Psychology at the University of Hong Kong. Her research interests include parenting, early childhood intervention, socioemotional development, autism spectrum disorder (ASD), and attention deficit/ hyperactivity disorder (ADHD).



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Barriers to the prevention of heat-related illnesses among small-scale farmers in Vietnam

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²The University of Queensland, Australia

Introduction: Accounted for one-third of the country's workforce, Vietnamese rice farmers are at a high risk of heat-related illnesses (HRI) due to a high level of heat exposure without sufficient preventive measures.

Objective: To explore barriers in heat prevention practices among Vietnamese rice farmers in order to develop an HRI prevention program.

Method: A semi-structured survey with a convenience sample of 379 rice farmers was conducted in Hatinh Province, Vietnam. The study used descriptive analyses to identify the health effects of heat on farmers and a theme analysis to identify barriers to applying heat prevention measures.

Results: Participants were all self-employed and small-scale farmers cultivating less than 0.5 hectares of land. 83.4% of farmers experienced at least one HRI symptom during the last summer harvest season (August to September 2021), and 60.4% were concerned about adverse long-term health effects of heat exposure. Heat prevention practice was

hampered by policy and social support barriers. Heat prevention programs have not been applied to farmers because they were considered a part of the informal economy and were not protected by occupational safety regulations. No one reported attending training/community meetings related to HRI prevention and HRI first aid procedures, nor receiving guidelines on appropriate clothing for hot weather (e.g., material, colour, coverage). Moreover, there were no public toilets, shade structures, and electrical outlets in the fields, which affected farmers' drinking and resting behaviours. One-third of female participants did not drink sufficient water when working in the fields for fear of not being able to go to the restroom, and 55% of farmers took a break at places without shades and electric fans.

Conclusion: Vietnamese farmers face many social support and policy barriers that put them at a high risk of HRI. The findings suggest a need to provide safety training, public toilets, shades, and cool-down resting places to prevent HRI among farmers.

Biography

Nu Quy Linh Tran completed her master's in public health from Queensland University of Technology, Australia (2017) and currently studying her PhD in Public Health at Griffith University, Australia. She has worked in the field of preventive medicine for over ten years as senior staff at the Centre for disease control and prevention in Ha Tinh province, Vietnam. Her areas of research interest are climate change, occupational health, communicable diseases, health risk assessment.



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SecureRx: A block chain-based framework for an electronic prescription system with Opioids tracking

May Alnafrani¹ and Subrata Acharya²

¹Institute of Public Administration, Saudi Arabia

²Towson University, USA

Objectives: The proposed research aims at attaining several objectives. To start with, it assesses the limitations associated with the current electronic prescription systems. Accordingly, it proposes a proactive method for providing real-time monitoring to prevent overdose prescriptions. The proposed approach should ensure that health providers have access to a comprehensive dataset without state or geographical limitations. More importantly, the research aims to improve drug monitoring to enhance accountability and trust, which are central to promoting drug legitimacy.

Methods: A blockchain-based framework for secure, interoperable, and efficient access to prescription records. The proposed solution, SecureRx, is a web-based application developed on the Ethereum blockchain and RxCheck hub.

Results: Based on the evaluation results, SecureRx is functional as it allows health

providers to verify patient history and make informed decisions regarding whether to prescribe opioids. The proposed solution exhibits adequate scalability and handles transactions quickly when the number of nodes is reduced. It is also robust and secure, supports HIPAA compliance, and requires minimal operational expenses.

Conclusions: The safe utilization of medications, especially opioids, continues to be a major problem in the United States and around the world. Part of the reason for this is the inability of health providers to access health databases for patients. Current drug prescription systems are limited in terms of tracking the usage of prescription drugs. The SecureRx framework has highlighted the potential of the record-keeping technology to nurture effective and efficient sharing of information about prescriptions while ensuring the safety and privacy of the original sources of the data.

Biography

Currently, Dr. May Alnafrani is an Assistant Professor in the Information Technology at the Institute of Public Administration, Saudi Arabia. Dr. Alnafrani earned a Doctoral degree in Information Technology from Towson University, a Master of Science degree in Digital Forensics and Cyber Analysis, a Master degree in Cybersecurity from the George Washington University, and a Bachelor of Science degree in Information Technology from King Saud University.

Meatal-sparing dorsal onlay vaginal graft urethroplasty

Gunjan Bahuguna, Ankur Mittal, Indira Sarin, Tushar Aditya Narain, Vikas Kumar Panwar and Gurpremjit Singh

All India Institute of Medical Science, India

Objectives: A case of meatal-sparing dorsal onlay vaginal graft urethroplasty as a variation of the conventional dorsal onlay urethroplasty is described as a definitive treatment of female urethral stricture with favourable results.

Scope: Urethral stricture in females is a rare entity presenting with voiding lower urinary tract symptoms caused by urethral trauma or infection. It is diagnosed by urethral calibration as less than 14 F along with features of bladder outlet obstruction on urodynamics and a narrowed urethra as seen on urethroscopy or VCUG. Conservative options include urethral dilation whereas urethral reconstructive approaches can be by the dorsal or the ventral route with the use of various grafts (buccal/ lingual/ vaginal).

Methods: A surgical video presents a step-wise procedure of meatal-sparing dorsal onlay vaginal

graft urethroplasty.

Results: The urethra is dissected in the dorsal plane by a suprimeatal inverted-U shaped incision and a dorsal urethrotomy made over the strictured segment, sparing the meatus. Not including the meatus here avoids a widened neo-meatus and possible spraying of the urinary stream. Meticulous dissection and staying close to the strictured fibrous urethra preserves sexual function and limits blood loss from the clitoral neurovascular bundle which is in close proximity; adding to the advantages associated with the dorsal conventional approach.

Conclusion: Meatal-sparing dorsal onlay vaginal graft urethroplasty can be performed as a slight variation of the standard dorsal urethroplasty in mid and proximal urethral strictures with excellent results.





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Biography

Dr Gunjan Bahuguna is currently working as a Consultant in a rural hospital in the hills of Uttarakhand (India) where she is passionately serving poor and underprivileged women. She laid the stepping stone by starting surgeries in obstetrics and gynaecology here so that people don't have to travel to far-flung cities for the same. After obtaining her master's degree in Obstetrics and Gynaecology from Grant Medical College Mumbai she undertook a post-doctoral certificate course in Female Pelvic Surgery and Reconstruction from All India Institute of Medical Science, Rishikesh. Her special interests include high-risk pregnancy, benign gynaecology and uro-gynaecology. She is a member of the Royal College of Obstetricians and Gynaecology, London and also a Fellow of the American College of Obstetricians and Gynaecology. She actively involves herself in teaching and training junior doctors and nursing staff and is a regular speaker/ delegate at various national and international conferences and seminars.



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Childhood trauma and mental health in the Cape Town adolescent antiretroviral cohort

Tatum Sevenoaks¹, Jean-Paul Fouche^{1,2}, Nicole Phillips^{1,2}, Sarah Heany^{1,2}, Landon Myer³, Heather J Zar^{4,5}, Dan J Stein^{1,2,6} and Jacqueline Hoare^{1,2}

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Purpose: This study aimed to assess the association of childhood trauma, stressful life events and HIV stigma with mental health in South African adolescents from the Cape Town Adolescent Antiretroviral Cohort.

Method: The Childhood Trauma Questionnaire, Life Events Questionnaire and the HIV Stigma Scale for South African Adolescents Living with HIV was used to assess childhood trauma, stressful life events and stigma in adolescents living with perinatally acquired HIV and healthy controls enrolled in the CTAAC. These measures were associated with mental health outcomes including the Beck-Youth Inventories, Child Behaviour Checklist, Colombian Impairment Scale, Children's Motivation Scale, Conners Scale for Attention Deficit Hyperactivity Disorder using Pearson correlations and self-reported alcohol use, using Spearman-rank correlation.

Results: 63.7% of adolescents reported at least one childhood trauma on the CTQ. Significant

associations were reported between CTQ measures and Beck-Youth Inventories. Emotional abuse was associated with anxiety, anger, depression and disruptive behaviour. Emotional neglect was associated with poor self-concept and disruptive behaviour. LEQ total score was significantly associated with Beck-Youth Inventories including anxiety, depression, anger and disruptive behaviour scales. HIV stigma was significantly associated with Beck-Youth Inventories including depression, anger and disruptive behaviour.

Conclusion: Childhood trauma, stressful life events and HIV stigma in South African adolescents are associated with anxiety, depression, anger, disruptive-behaviour and poor self-concept. This study highlights the importance of enquiring about exposure to a variety of traumas, particularly those commonly experienced by South African adolescents. In addition, it is important to understand the impact of trauma exposure on each individual's mental health and functioning.



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Biography

My name is Tatum Sevenoaks. I am research assistant in the Department of Psychiatry and Mental Health at The University of Cape Town, South Africa. I completed a BSc Honours in Pharmacology at Newcastle University in the UK and a MSc in Neuroscience at The University of Cape Town. As a research assistant I have worked alongside Prof Jacqueline Hoare, the principal investigator of the Cape Town Adolescent Antiretroviral Cohort study. The CTAAC study aims to investigate markers of chronic disease progression in perinatally HIV-infected adolescents by assessing neurocognitive function, mental health and neuroimaging longitudinally over a 3 year period.



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Healthcare inflation and expenditures in South Africa: Some implications for economic policy

Logan Rangasamy

Wits Business School, University of Witwatersrand, South Africa

Healthcare systems around the world are facing great challenges. This has included rising healthcare prices and its impact on healthcare expenditures and the concomitant effects on access to healthcare, particularly in emerging and developing countries. This study focuses on health care price developments and health expenditures in South Africa. The study identifies four major results. Firstly, South Africa's healthcare expenditures compare quite favorably with countries at similar levels of development. However, the efficiency of these expenditures lag those in comparable countries. Secondly, it was found that South Africa's healthcare price rises

have exceeded those in advanced countries even though healthcare demand and expenditures in these countries are much higher than is the case in South Africa. Thirdly, healthcare rises exceed those in other sectors of the South African economy. Finally, healthcare price changes adversely impact healthcare expenditures in South Africa. The policy implications of these findings are explored in the paper. The results indicate that price considerations are critical to improving healthcare access in South Africa. The paper also highlights some non-price determinants of healthcare access that warrant attention by policymakers in South Africa.

Biography

Logan Rangasamy is currently the Academic Director at the Wits Business School at the University of Witwatersrand, Johannesburg, South Africa. Prior to joining the University of Witwatersrand in January 2021, he was Head of the International Department (2014 to 2020) and Deputy Head of the Research Department (2001 to 2013) at the South African reserve bank. Logan represented South Africa at various technical working groups and international policy forums during his employment at the SARB. He has published widely on macro-economic policy issues.



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Children's physical well-being and health policies in Morocco

K. Loudghiri

The National Institute of Statistics and Applied Economics, Morocco

The primary healthcare facilities (ESSP) constitute the basic element in the Moroccan national healthcare system and the primary access site to healthcare in a well-structured supply network. The primary healthcare facilities provide basic healthcare, both preventive (family planning, child immunization, prenatal consultations and childbirth assistance, etc.) and curative. Its PHC services have an impact on fertility, in particular through family planning and information, education and communication (IEC) services for women. In addition, through maternal and child health programs, the ESSPs can affect women's health and survival by making prenatal pregnancy monitoring and delivery in a

health care setting accessible and available. After birth, these primary healthcare facilities provide child immunizations and curative care services. All of these services, in addition to many others, contribute to saving the lives of children who are naturally exposed to life-threatening infections (measles, whooping cough, tetanus, diphtheria, pneumonia, etc.) and to improving their physical well-being.

This paper examines the relationship between the level of physical well-being of children in Morocco and the supply of basic healthcare facilities. A multilevel analysis will be used to verify these links on the basis of the micro-data derived from the Demographic Health Survey (ENPS-2011).

Biography

Graduate of the National Institute of Statistics and Applied Economics in 1993 (engineering degree in statistics and demography).

Public employee at the Ministry of Health of Morocco and in charge of all aspects of survey and data analysis (DHS, population and family health, etc.) from 1993 to 2015 (May).

Teacher at the Higher Institute of Nursing Professions and Health Techniques, Rabat, Morocco since 2015.

PhD student at the National Institute of Statistics and Applied Economics, GES3D Laboratory, Rabat, Morocco since 2017.



Lexicon for sentiment analysis based on ensemble deep learning

M. Rokaya

Taif University, Saudi Arabia

Tanta University, Egypt

In this work, lexicon developing will be presented as an optimization problem. The proposed solution will depend on the concept of ensemble learning. Most of current learning methods tends to be ensemble in nature. In this work, a new joining method will be defined, namely, gradually joining method. Gradually here means passing the output lexicon of the current model as an initial data for the next model. All the used models will be a kind of a deep net of the same type with different hyper parameters that will optimized based on the results of the previous model. Since LSTM is the most proper deep net for sequences processing, all models will be a variation of LSTM nets. A feature will be added to represent the corresponding values of each term in the lexicon. For the next generations of the model, if the resulting accuracy is less than

the previous one the lexicon will be modified according to the classification results. Also, the hyper parameters will be modified based on internal optimization protocol to achieve a better model. Then the training is repeated, and the adjusting process continue till reaching a termination condition. A shortcut will be adopted to slightly modify the structure of the training model and a random modification of the current lexicon will be done to avoid local optimization trap. This manner will be imposed when a non-improvement in the accuracy is noticed especially during early training generations. Since the process proceed to produce a better model as well as an optimized lexicon, it is expected to achieve accuracy values that compete the current art of state values for the resulting model and the output lexicon.

Biography

MAHMOUD B. ROKAYA was born in Tanta city, Egypt in 1971. He received the B. S and M.S. degrees in mathematics from Tanta University, Egypt in 2003 and the Doctor of Engineering in information science From Tokushima University, Japan in 2009. From 1997 to 2003, he was assistant of teaching in department of mathematics, Tanta University, Egypt. From 2003 to 2009, he was a researcher in the advanced engineering institute, Tokushima University, Japan. Since 2009-2020, he was assistant professor in information technology, Taif University, KSA. Currently, currently, he works as associate professor in informatics, Taif University. His research interests related to AI, information retrieval, natural language processing and data science.



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Impact on kayakalp scores after undertaking of a PHC by Community Medicine dept. of a Medical College of J&K

Sonika Sangra and Sujata Gupta

GMC Kathua, India

Objective: To assess the level of cleanliness, hygiene and infection control practices in the health care facility after undertaking by department of community medicine of a medical college.

Methodology: A retrospective comparative observation study was conducted at RHTC in Kathua district of J&K state. We compare the level of cleanliness, hygiene and infection control practices using Kayakalp scoring tool before and after taking over by the department of community medicine of a medical college. The scoring for various areas of concern is based on a checklist for quality assessment which include

Facility Upkeep, Sanitation and hygiene, Waste Management and Infection control

Results: The total scores varies before and after undertaking of PHC by Community Medicine Department of new medical college of J&K. overall scores varies from the baseline score of 56% before to 84% now after 2 years of undertaking.

Conclusion: The standardized approach of the evaluation of public health facilities through Kayakalp tool would help in judging their performance on a uniform pedestal. So, public health expert plays a crucial role in the upliftment of the Kayakalp scores.

Biography

- Name- Dr. Sonika Sangra
- Assistant Professor, GMC Kathua, J&K, INDIA
- 6 Years Post PG teaching as well as research experience.
- Awarded twice with KAYAKALP award.
- Worked as coordinator in Rotavirus vaccine trial in collaboration with Serum Institute of India.
- Worked as coordinator in Subnational TB certification for NTEP in collaboration with WHO for TB free India.
- Worked as District Trainer (Covid).
- Worked as Nodal Officer of MR vaccine Campaign in rural areas.
- Many National as well as International Research Papers.
- Oral as well as Poster Presentations.



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Reflective interventions: Enactivism and phenomenology on ways of bringing the body into intellectual engagement

Iris Laner

Department of Fine Arts, Art and Craft Education, University Mozarteum, Austria

When it comes to the body, the professional pedagogical field shows a paradoxical attitude: With regard to sense-oriented school subjects, educational policies tend to underline a close relatedness of body and mind. However, where learning is primarily connected with mental activities and intellectual engagement, the body is rarely assigned an integral role. Discussing the grounding ideologies of this paradox, I will consult phenomenological

and enactivist perspectives in order to develop an approach to embodied learning which takes into account both sense-oriented as well as intellectual domains. I will argue that considering the interdependence of body and mind including their situatedness does not only benefit the cultivation of the body and the senses, but also opens up further perspectives for intellectual engagement.

Biography

Iris Laner is a full professor of Art Education at the Department of Fine Arts, Art and Craft Education at the University Mozarteum in Salzburg, Austria. She has a background in philosophy and fine arts and takes interest in issues that address the relation of theory and practice. In her research she focuses on phenomenological, deconstructive and poststructuralist perspectives on aesthetics, education, body and gender.

Novel missense mutations in the Head Motor Domain of β -MYH7 gene in Indian cardiomyopathies

Deepa Selvi Rani and K. Thangaraj

CSIR-Centre for Cellular and Molecular Biology, India

Background: Heart failure is a hallmark of severe hypertrophic (HCM) and dilated (DCM) cardiomyopathies. Several mutations in the β -MYH7 gene lead to HCM. Recently, causative mutations in the β -MYH7 gene have also been detected in DCM from different populations.

Methods: We sequenced the β -MYH7 gene in 137 Indian DCM patients and 167 ethnically matched healthy controls to detect the frequency of mutations and their association.

Results: Our study revealed 27 variations, of which seven mutations (8.0%) were detected exclusively in Indian DCM patients for the first time. These included four missense mutations: Arg723His, Phe510Leu, His358Leu, and Ser384Tyr (2.9%), a frameshift mutation: Asn676_Tdel (1.5%), and two splice-site mutations (IVS17+2T) T>G & (IVS19- 1G) G>A (3.6%). Remarkably, all four missense mutations altered evolutionarily conserved amino acids. All four missense mutations were predicted pathogenic by Polymorphism phenotyping v2 (Polyphen-2) and Sorting Intolerant From Tolerant (SIFT), two bioinformatics tools. In addition, the four

p. Leu358, p.Tyr384, p.Leu510, and p.His723 homology models of β -MYH7 displayed root-mean-square deviation (RMSD) of $\sim 2.55\text{\AA}$, $\sim 1.24\text{\AA}$, $\sim 3.36\text{\AA}$, and $\sim 3.86\text{\AA}$, respectively.

Conclusion: In the present study, we detected numerous novel, unique, and rare mutations in the β -MYH7 gene exclusively in Indian DCM patients (8.0%). Here, we demonstrate how each mutant (missense) uniquely disrupts a critical network of non-bonding interactions at the mutation site (molecular level) and may contribute to dilated cardiomyopathy (DCM). Therefore, our findings may provide insight to understand the molecular bases of disease, diagnosis and promote novel therapeutic strategies (personalized medicine).

genes" "HCM", "DCM".

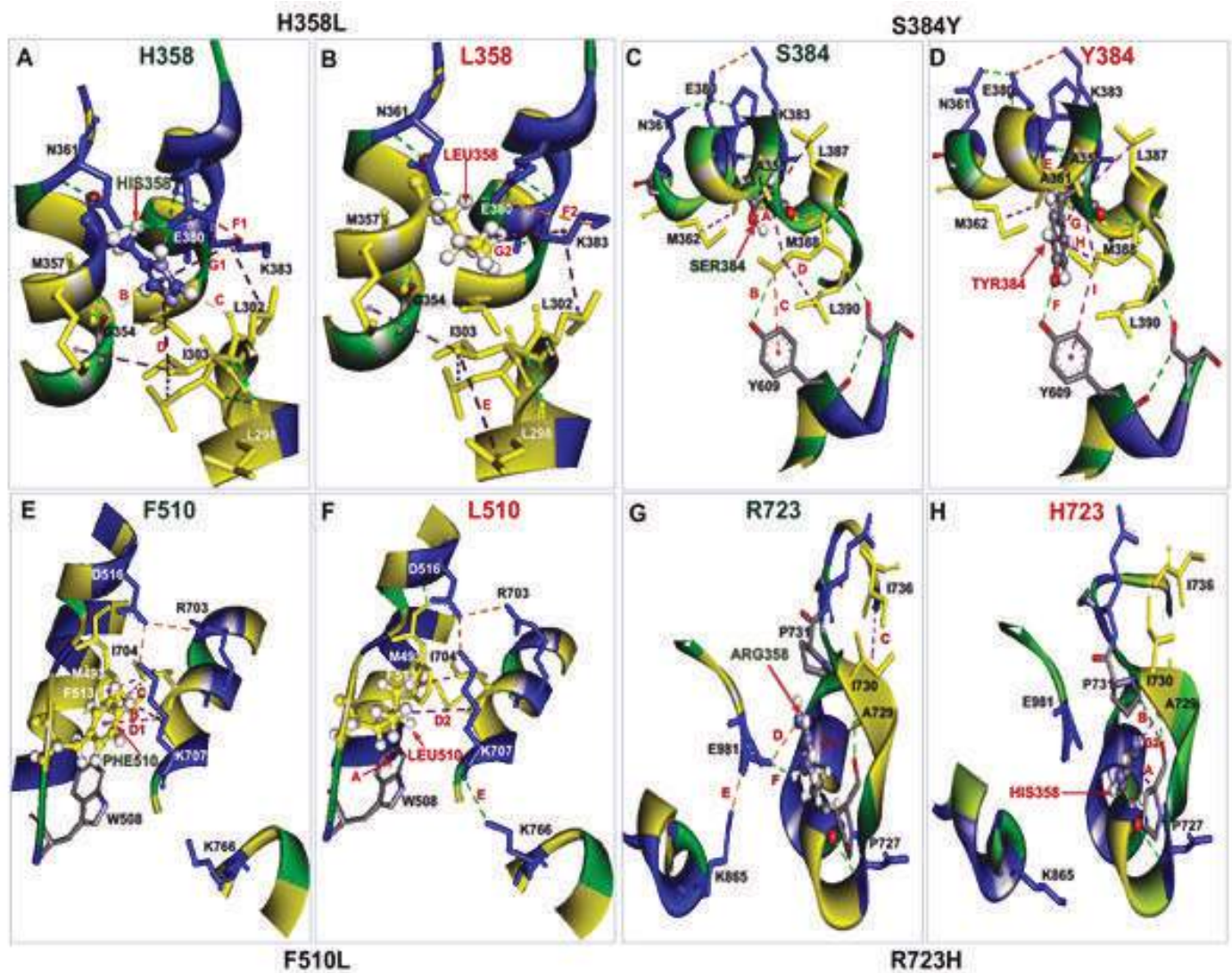
SNP--single nucleotide polymorphism, SS#.No--Submitted SNP number, rs#.No--Reference SNP number, PolyPhen-2--Pheno-typing v2, SIFT--Sorting Intolerant from Tolerant, CON--controls, DCM--Dilated cardiomyopathy, Missense mutations; 4/137= 2.9%; Splice site mutations: 5/137= 3.6%; Frame shift mutations: 2/137= 1.5%; Total mutations in DCM=8.0%

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S.NO	Chromosome Positions	SNP_SSN No	Major> Minor Alleles	Locations	SNP_rs# No	Amino Acids, Net charges	Poly-Phen2	SIFT	Predictions	CON	DCM	Novel/ Reported
1	1423801723	1505811302	C>G	Intron 5	rs606231313	-	-	-	-	0	1	Novel
2	1423801719	1505811269	C>T	Intron 5	rs376022200	-	-	-	-	0	1	Reported
3	1423800838	1505811271	G>T	Intron 7	rs369187721	-	-	-	-	0	1	Reported
4	1423800794	974488077	C>T	Exon 8	rs2069542	F244F	-	-	-	3	7	Reported
5	1423899060	974488074	C>T	Exon 12	rs735712	G354G	-	-	-	0	6	Reported
6	1423899048	1505811307	A>T	Exon 12	rs808231316	H358L (-1)	Damaging	Damaging	Pathogenic	0	1	Novel
7	1423898994	974488072	C>T	Exon 12	rs2231126	D376D	-	-	-	0	2	Reported
8	1423898544	1505811310	C>A	Exon 13	rs606231319	S384Y (0)	Damaging	Damaging	Pathogenic	0	1	Novel
9	1423897757	1505811314	C>A	Exon 15	rs606231323	F510L (0)	Damaging	Damaging	Pathogenic	0	1	Novel
10	1423896543	1505811318	T>A	Intron 16	rs606231327	-	-	-	-	0	2	Novel
11	1423896447	1505811320	T>G (IVS17+2T)	Intron 17	rs606231329	SD	-	-	Pathogenic	0	1	Novel
12	1423896337	1505811287	G>A	Intron 17	rs483352953	-	-	-	-	0	2	Reported
13	1423896325	1505811322	G>A	Intron 17	rs606231330	-	-	-	-	0	0	Novel
14	1423896092	1505811323	T del	Exon 18	rs606231331	N676 (fs)	Damaging	Damaging	Pathogenic	0	2	Novel
15	1423896082	342383804	T>C	Exon 18	rs145564868	N676N	-	-	-	0	4	Reported
16	1423895289	4041783	G>C	Exon 19	rs1126421	G482G	-	-	-	6	9	Reported
17	1423895038	1505811328	G>A, (IVS19-10)	Intron 19	rs808231334	SA	-	-	Pathogenic	0	4	Novel
18	1423895022	1505811293	G>A	Exon 20	rs397518135	R723H (+2)	Damaging	Damaging	Pathogenic	0	1	Novel
19	1423895089	1505811329	A>G	Exon 20	rs606231336	P727P	-	-	-	0	2	Novel
20	1423895083	Reported	C>A	Exon 20	CM057344	A729A	-	-	-	0	2	Reported
21	1423894188	1505811331	G>T	Exon 22	rs606231338	G823G	-	-	-	0	4	Novel
22	1423894161	1505811332	C>T	Exon 22	rs606231339	L832L	-	-	-	0	4	Novel
23	1423894132	1505811299	G>A	Exon 22	rs387516154	E875E	-	-	-	0	3	Reported
24	1423893287	4041788	C>T	Exon 23	rs1041957	A917A	-	-	-	5	7	Reported
25	1423892888	974488065	T>C	Exon 24	rs7157716	I989I	-	-	-	0	4	Reported
26	1423892619	990827921	C>T	Exon 24	rs145379951	A1012A	-	-	-	0	2	Reported
27	1423891240	1505811301	C>G	Intron 25	rs483352965	-	-	-	-	0	2	Reported

Table 2. Variations detected in β -myosin heavy chain gene (β -MYH7) in Indian DCM patients

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Biography

Dr. Deepa Selvi Rani is from CCMB-CSIR, India. She is interested in understanding the Genetic basis of Cardiovascular Diseases, Male infertility, Mitochondrial disorders, and the Origin of Modern Humans. She has two master's degrees, M.Sc. in Biochemistry and M.Sc. in Biotechnology. Her Ph.D. work was on "Molecular Studies in Cardiomyopathies and Noonan Syndrome." She identified several mutations in sarcomere protein genes causing cardiomyopathies and sudden cardiac arrest. To understand the disease specifically, she studied their molecular mechanisms, which are relevant to pharmacogenomic studies and personalized medicine. Dr. Rani is an enthusiastic, dedicated, outstanding researcher and published 50 papers in peer-reviewed International Journals. She has a 22 h-index with a total of 1602 citations. https://scholar.google.co.in/citations?hl=en&user=qUgZf-kAAAAJ&view_op=list_works&sortby=pubdate. WIN CARS has recently awarded her "Servier Women Researchers Award" in 2019.



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Noma: A neglected oro-facial disease

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²Department of Periodontology and Oral Medicine, Faculty of Health Sciences, University of the Witwatersrand, South Africa

³School of Oral Health Sciences, Faculty of Health Sciences, University of the Witwatersrand, South Africa.

Noma is a non-communicable, destructive necrotizing orofacial disease affecting chronically malnourished children living in poverty-stricken communities in sub-Saharan Africa, and rarely in Latin America and Asia. In Southern Africa (South Africa and Zimbabwe), even though rare, noma affects immunosuppressed HIV-seropositive subjects.

Noma is initiated by complex interactions between anaerobic microorganisms within dentogingival plaques in a background of severe malnutrition, impaired immunity, viral infections or states of debilitation. Noma starts in the mouth as necrotizing gingivitis, a simple bacterially-induced infection that progresses to necrotizing periodontitis and then to necrotizing stomatitis. In the presence of predisposing factors, the intra-oral necrotizing process spreads quickly

and aggressively causing gross destruction and disfigurement. If diagnosed in the early stages of necrotizing gingivitis, the devastating progression to noma can be avoided by simple and inexpensive antibiotics and toothbrushing.

The World Health Organisation (WHO) has classified noma into five sequential stages: stage 1 – acute necrotizing ulcerative gingivitis; stage 2 – oedema; stage 3 – gangrene; stage 4 – scarring; stage 5 – sequela. In the opinion of the authors, this WHO classification requires fundamental re-appraisal. The purpose of this is to highlight the weaknesses of this classification, and to propose a simpler, more logical and practical evidence-based staging of noma, which if used should improve the quality and value of future epidemiological data about noma



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Biography

Professor Razia AG Khammissa is the Head of Department of Periodontics and Oral Medicine at the School of Dentistry, University of Pretoria. She obtained an MDent degree in Periodontics and Oral Medicine at the University of Limpopo in 2012. She has been in academia since 2008 and has lectured and held various management positions at the University of Limpopo, Sefako Makgatho University and the University of Pretoria. Her research focuses on exploring the biological mechanisms underlying oral medical conditions/diseases, with a view of obtaining a better understanding of these disease mechanisms that ultimately may benefit treatment outcomes. Some of her accolades include winning several research excellence awards. Prominent among them are the award for 'Best female researcher in the University of Limpopo', and the 'Best upcoming researcher in the Faculty of Health Sciences', which was received in 2012. She is currently the Chair of the Research Committee at the School of Dentistry and has published almost 100 articles in peer reviewed local and international journals.



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Attitudes on personal utility and personal sharing preferences. Results of a comparative survey (n=192)

**Sabine Wohlke^{1,6}, Manuel Schaper¹, Serena Oliveri^{2,3},
Ilaria Cutica^{2,3}, Francesca Spinella⁴, Gabriella
Pravettoni^{2,3}, Daniela Steinberger⁵ and Silke Schicktanz¹**

¹Department of Medical Ethics and History of Medicine, University Medical Center Gottingen, Germany

²Department of Oncology and Hematology Oncology, Faculty of Medicine and Surgery, University of Milan, Italy

³Applied Research Division for Cognitive and Psychological Science, European Institute of Oncology, Italy

⁴Laboratory GENOMA, Italy

⁵Bio.logis Genetic Information Management GmbH, Germany

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Genetic information is increasingly provided outside of the traditional clinical setting, allowing users to access it directly via specialized online platforms. This development is possibly resulting in changing ethical and social challenges for users of predictive genetic tests. Little is known about the attitudes and experiences of users of web-accessed genetic information. This survey analyzes data from two European countries with regard to the utility of genetic information, the users' ways

of making use of and dealing with information, and their sharing behavior. Particular focus is given to ethical and social questions regarding the motivation to share personal genetic results with others. Social factors tested for are national background, gender, and marital, parental, and educational status. This study will contribute to public discourse and offer ethical recommendations. The study will also serve to validate the developed questionnaire for use in population representative surveys.

Biography

Sabine Wohlke is Professor for Health Science and Ethics at the Hamburg University of Applied Sciences. Her background focuses on anthropological, cultural and ethical applied sciences. Her main interests are ethical and cultural aspects of organ transplantation, digital health literacy and nursing ethics. She has great experience in qualitative social-empirical research in the field of patient-centered communication and shared decision making. She is member of the clinical ethics committee of the University Medical Center Göttingen and a member of the Ethical, Legal and Psychosocial Aspects of Transplantation (ELPAT), a division of the European Society for Organ Transplantation (ESOT), where she participates in the working group on "Public Issues".

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Firefighters exposure to airborne polycyclic aromatic hydrocarbons during structural fires

J. Teixeira, C. Delerue-Matos, S. Morais and M. Oliveira

REQUIMTE-LAQV-Instituto Superior de Engenharia, Instituto Politécnico do Porto, Portugal

Firefighting is an occupational activity classified as possible carcinogen to human by the International Agency for Research on Cancer (IARC). Firefighters are regularly exposed to health-relevant substances such as carbon monoxide, particulate matter, volatile and semivolatile organic compounds during firefighting. Polycyclic aromatic hydrocarbons (PAHs) are formed during the incomplete combustion of organic materials being among the most studied class of pollutants at firefighting scenarios. PAHs have toxic, mutagenic and carcinogenic properties and regular exposure promotes reproductive, developmental, cardiorespiratory, and immune toxic effects in humans. This work presents an overview of firefighters' exposure to airborne PAHs during structural fires. Scientific literature was searched in Science Direct, Scopus, PubMed, and Google Scholar databases and a total of 21 studies was selected. Information emerges from studies performed on the USA, Australia, Canada, Sweden, The Netherlands, and Denmark. Evidence demonstrates the presence of 16 PAHs included in the United States Environmental Protection Agency priority pollutant list in the ambient and personal air of firefighters.

Moreover, the presence of PAHs inside the structural ensemble of firefighters was also reported but at lower levels than the ones found in the respective ambient air. PAHs classified as known (benzo(a)pyrene) and probable/possible (naphthalene, benz(a)anthracene, benzo(a)fluoranthene derivatives, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene) carcinogens to human by IARC were found in the breathable air of firefighters inside structural ensembles. Further studies are needed to better characterize the emissions of structural fires and their contribution to firefighters' total exposure to PAHs and the associated potential health risks.

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Biography

Joana Teixeira graduated with a Master's in Chemical Engineering with a specialization in Biotechnology in 2017 from the Faculty of Engineering of University of Porto, Portugal. She pursued her studies at the University of Porto obtaining another Master's degree in Pharmaceutical Chemistry in 2019. She has been conducting research activities in organic chemistry, analytical chemistry, and biotechnology. Joana Teixeira holds a researcher's grant under the scientific project PCIF/SSO/0090/2019. She has been participating in various national and international scientific conferences.



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Age activation between self-empowerment and social pressure: Key results from a qualitative interview study about older women being active in fitness gyms (a comparison between Germany and the USA)



Sebastian Leipert and Gabriele Sobiech

Department of Sociology, University of Education, Germany

In the course of demographic change, the idea of age(ing) as something unavoidable has changed into something more adaptable. Through a healthy lifestyle, which aims at the self-responsible management of physical risks through fitness and discipline, individuals may expand their independence in later life. However, physical ageing and age-related health risks, including life expectancy, depend significantly on a person's social position. In addition, the shift in health ideology towards the individual and the trend towards active ageing may lead to social pressure for some individuals.

This presentation aims to shed more light on the field of tension described above. The results try to demonstrate how older women who are active in fitness gyms benefit from their active lifestyle and how they perceive differences in the underlying health care systems. Furthermore, it is examined whether

the trend towards age activation leads to social pressure for self-discipline and self-regulation.

In order to highlight the subjective perspective of older adults, several 60 to 80-year-old women who had been active in fitness gyms for at least two years were interviewed: 26 interviews were conducted in Germany and 14 in the USA. The evaluation of the interviews was based on qualitative content analysis and was carried out with technical support (MAXQDA).

The interviews reveal that for the respondents of both samples creating a fit body primarily results in self-empowerment gains. At the same time, submissions to Western body and fitness norms are also evident. Furthermore, it is indicated that inequalities in health opportunities exist in both countries and that a lack of resources in form of cultural and economic capital prevents successful age(ing).

Biography

Sebastian Leipert is Master's student and academic associate in the field of sociology of sports at the University of Education Freiburg in Germany. Research and teaching focus: Sociology of space; health and fitness.

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Empowering digital transformation: A human biomonitoring (HBM) global registry framework

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National Institute for Public Health and the Environment (RIVM), The Netherlands

Data generated by the rapidly evolving human biomonitoring (HBM) programmes are providing invaluable opportunities to support and advance regulatory risk assessment and management of chemicals in occupational and environmental health domains as well as supporting One Health policy needs. One Health is an umbrella concept that involves the evaluation and monitoring of the impact of environmental hazards on public health. However, heterogeneity across studies, in terms of design, terminology, biomarker nomenclature, and data formats, limits our capacity to compare and integrate data sets retrospectively (reuse). Registration of HBM studies is common for clinical trials; however, the study designs and resulting data collections cannot be traced easily. We are learning that it is not enough to deepen our knowledge of each individual scientific domain in ever increasing detail, we must also be able to bring these research topics together during public health and life sciences research! We argue that an HBM Global Registry Framework (HBM GRF) could be the solution to several of challenges hampering the (re)use of HBM (meta) data. The aim is to develop a global, host-independent HBM registry framework based on the use of harmonised open-access protocol templates from designing, undertaking of an HBM study, data generation and collection to information dissemination for

decision-making.

This framework should apply FAIR (Findable, Accessible, Interoperable and Reusable) principles as a core data management strategy to enable the (re)use of HBM (meta) data to its full potential through the data value chain. The HBM GRF would encompass internationally harmonised and agreed open access templates for HBM study protocols, structured web-based functionalities to deposit, find, and access harmonised protocols of HBM studies. Registration of HBM studies using the HBM GRF is anticipated to increase FAIRness of the resulting (meta)data. As a consequence, data wrangling activities to make data ready for analysis will be minimised. In addition, this framework would enable the HBM (inter)national community to trace new HBM studies already in the planning phase and their results once finalised. The HBM GRF could also serve as a platform enhancing communication between scientists, risk assessors, and risk managers/policy makers. Moreover, we believe that implementation of FAIR principles is a fundamental enabler for digital transformation within environmental health that support and acknowledge the shift from big data to smart data highlighting the importance of making full use of the potential of data, technology and digitalisation across the coming decade.

Biography

I am supporting science to policy strategies boosting transition towards a climate-neutral economy to enhance public health. As an scientific officer, my scientific research focuses on human health risk assessment and management of chemicals with a strong emphasis on integrating epidemiology and high-quality exposure information.



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Effects of screenings in reducing colorectal cancer incidence and mortality differ by polygenic risk scores

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Introduction: Colorectal cancer (CRC) screening reduces CRC incidence and mortality. However, it is unclear whether the reduction in CRC risk may differ by genetic susceptibility.

Methods: We evaluated this question in a cohort of 304,740 participants of European descent aged ≥ 50 years. Genetic susceptibility was measured using a polygenic risk score (PRS) constructed with risk variants identified in genome-wide association studies. Cox models were used to estimate hazard ratios (HRs) and 95% confidence intervals (CI) of CRC risk.

Results: Over a median follow-up of 7.0 years, 2,261 incident CRC cases and 528 CRC deaths were identified. CRC screening was associated with a significantly reduced CRC incidence among individuals with a high (HR, 0.80; 95% CI, 0.71-0.92) and intermediate PRS (0.84, 0.71-0.98) but not among those

with a low PRS (1.03, 0.86-1.25; Pinteraction, 0.005). A similar but more evident difference was observed for mortality (Pinteraction, 0.046), with more than 30% reduced mortality observed in the high PRS group (0.69, 0.52-0.91). Among the younger group (age 50-60 years), CRC screenings were associated with a slightly (but non-significantly) elevated incidence and mortality in the low PRS group but a reduced risk in the high PRS group (Pinteraction, 0.043 [incidence]; 0.092 [mortality]). No significant interaction was observed in the older group (age > 60 years).

Conclusion: Individuals with a higher genetic risk benefited more substantially from CRC screenings than those with a lower risk. Our findings suggest that PRS may be used to develop personalized CRC screening to maximize its effect on CRC prevention.

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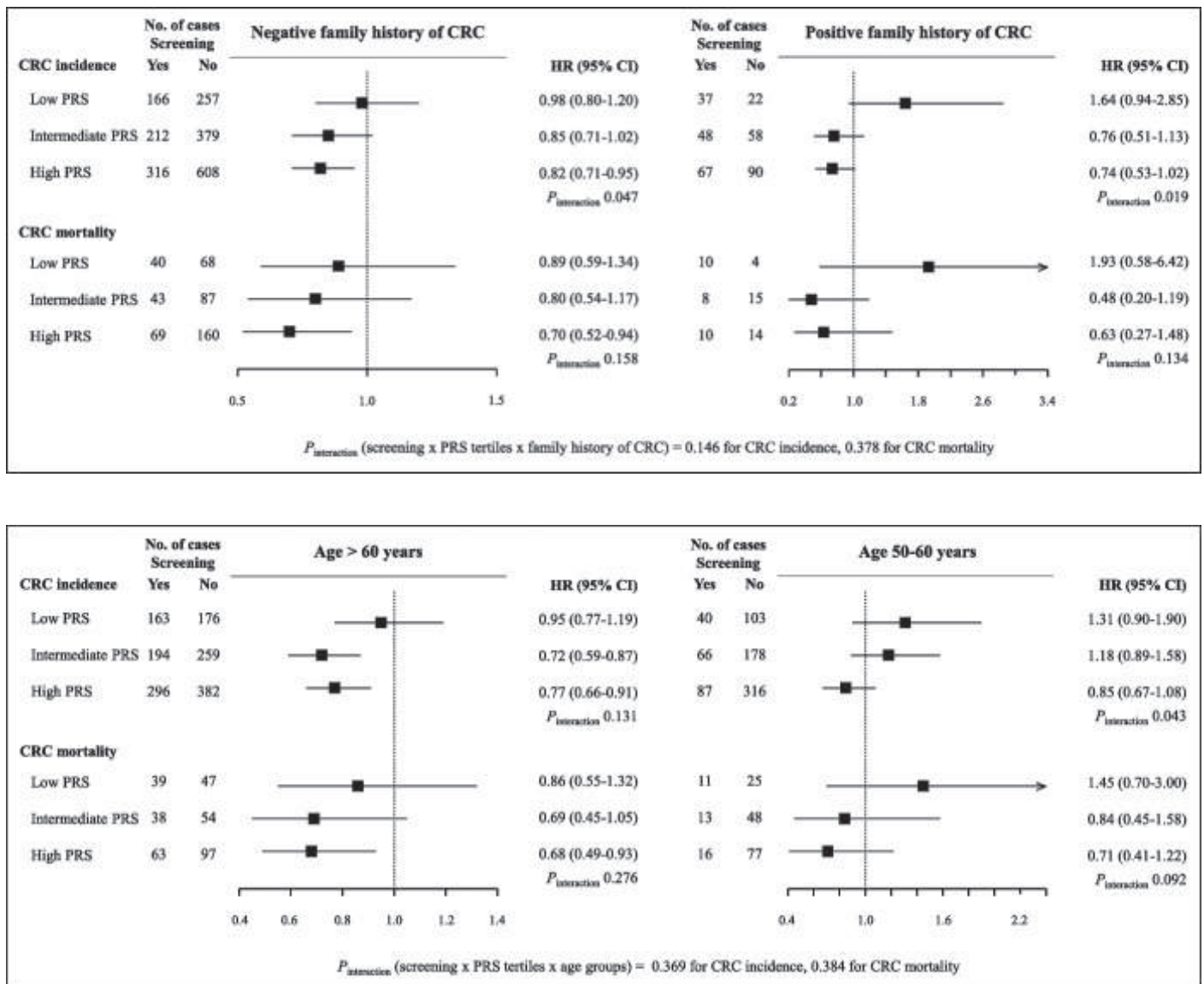


Figure 1. Hazard ratios for the associations of colorectal cancer incidence and mortality with screenings, according to polygenic risk score group and (A) family history of colorectal cancer and (B) age group.

Biography

Dr. Jungyoon Choi (MD, PhD: Korea University) is currently working as a clinical assistant professor at Korea University Hospital. Her doctoral thesis investigated the genomic profiles of colorectal cancer. From 2019-2021, she joined Dr. Wei Zheng's laboratory as a postdoctoral fellow at the Vanderbilt University Medical Center, where her research encompassed big data, bioinformatics, cancer genetics/genomics, and cancer epidemiology. Her research interests include the use of bioinformatics to understand the epidemiology and etiology of cancer, with a focus on the role of genetics and genomics to identify prognostic and predictive biomarkers. A medical oncologist, Dr. Choi also has clinical experience in treating patients with various types of cancer (especially colorectal, stomach, esophageal, hepatobiliary, and pancreatic cancers). She is eager to bridge the gap between genome research and clinical practice.



Effect of *Salvia hispanica* L (chia) seed on hemostasis and thrombosis in an experimental model of metabolic syndrome

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National University of Litoral. Argentina

Introduction: The metabolic syndrome is a clinical entity represented by the co-occurrence of abdominal fat, dyslipidemia, hypertension, insulin resistance, glucose intolerance, low-grade chronic inflammation state, endothelial dysfunction, prothrombotic state, among others. A procoagulant and hypofibrinolytic state has been identified; mainly associated of the inflammatory state and dyslipidemia. *Salvia hispanica* L. (chia) seed is one of the richest botanical sources of α -linolenic acid (ALA, 18:3 n-3) and it has generated considerable research interest in recent years and its effects on these disorders are very little known.

Objective: To study the effect of the chronic administration of a sucrose rich diet (SRD) on hemostasis and thrombosis in normal rats. To evaluate the effects of *Salvia hispanica* L. seed as dietary manipulation.

Methods: Male Wistar rats were fed a SRD for 3 months. Half of the animals continued with the SRD until month 6, the other half was fed a SRD in which the fat source, corn oil, was replaced by chia seed from month 3

to 6 (SRD+chia). Another group consumed a reference diet all the time. We analyzed: Hemogram: red blood cells, white blood cells, hemoglobin concentration, hematocrit and platelets were determined in hematological counter (SYSMEX KX-21). Clotting time (CT), Prothrombin time (PT), activated partial thromboplastin time (APTT), thrombin time (TT), fibrinogen and lipids plasma levels were assessed by commercial kits. Blood pressure was measured using CODA TM Monitor of tail-cuff non-invasive system.

Results: The study showed that chia seed administered to SRD-fed rats: a- increase platelet levels ($P < 0.05$), and the CT, PT, APTT, TT, which are significantly lower in SRD-fed animals, b- reduce plasma fibrinogen levels ($P < 0.05$), reaching reference values. This was accompanied by a normalization of dyslipidemia and blood pressure.

Conclusion: Our findings suggest that chia seed has beneficial effects on the hypercoagulability and hypofibrinolysis present in SRD-fed animals.

Biography

María Eugenia Oliva. PhD in Biological Sciences. Researcher of National Council for Scientific and Technical Research (CONICET) and Associate Professor of Biological Chemistry cathedra. Faculty of Biochemistry and Biological Sciences, National University of Litoral. Santa Fe, Argentina.



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Association between operational positive depression symptom screen scores on hospital admission and 30- day readmissions

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Background: Positive scores on inpatient depression symptom screens have been found to be associated with readmissions, yet most studies have used depression screens collected as part of research studies.

Objective: We evaluated whether the relationship between depression severity and readmission persisted when depression screening data was obtained for operational purposes.

Design: Retrospective analysis studying prospective use of PHQ data.

Setting: Large academic medical center.

Intervention: Ward nurses obtained depression screens from patients soon after admission. Patients who answered 'yes' to at least one Patient Health Questionnaire (PHQ)-2 question were screened using the PHQ-9.

Main Outcomes And Measures: We examined the association between depression severity and 30-day readmissions using logistic regression, adjusting for known predictors of hospital

readmission.

Results: From July 2014-June 2016, 18,792 discharged adult medicine inpatients received an initial depression screen (PHQ-2) and 1,105 patients (5.90%) had at least one positive response. Of this group, 3,163 patients (6.32%) were readmitted within 30 days. 1,128 patients received the PHQ-9. Compared to patients with no depression, patients with moderately-severe depression had 3.03 higher odds (95%CI: 1.44-6.38) and patients with severe depression had 1.63 higher odds (95%CI: 0.70-3.78) of being readmitted, after adjusting for known predictors of hospital admission. Adding PHQ-9 results did not significantly improve the predictive power of a readmissions model.

Conclusions: Our mixed results call into question whether PHQ data obtained for operational purposes may differ compared to data obtained for research purposes. Differences in training of screening staff or patient discomfort with discussing depression in the hospital could explain our findings.

Biography

Dr. Danny Lee, MD has a strong passion in serving individuals who struggle with a mental illness. He has conducted multiple cross-sectional studies in the past studying stigma behind mental illness. His most recent study looked at how hospital PHQ data can impact hospital readmissions. He has volunteered extensively in the past with the Didi Hirsch Suicide Prevention Center, providing crisis counseling to the people of Los Angeles County. Now as a family practice physician, he hopes to help the most vulnerable people in the community navigate our complicated health care and mental health care system.

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Interprofessional digital case scenarios for training Future healthcare professionals to speak up for patient safety

Lise McCoy

College of Osteopathic Medicine, New York Institute of Technology, USA

While working in clinical settings, health professions students do not always feel empowered to raise patient safety concerns. In order to work more effectively within teams, they need practice to confidently, effectively and politely communicate with colleagues about potential risks. To address this training gap, faculty from A.T. Still University's School of Osteopathic Medicine in Arizona developed four digital patient safety case scenarios for second-year medical students. These scenarios were designed to help students decide the best course of action in preventing a given a patient safety issue.

Methods: In fall 2018, 97 second-year medical students working in dyad or triad teams, completed a set of four digital scenarios, completing 11 assessment questions with instant feedback, and participating in debrief

discussions. Next, individual students completed a 12-item post-test to assess learning. Descriptive statistics were reviewed for the assessment questions, and case critical thinking discussion answers were reviewed to evaluate student comprehension.

Results: The mean score for the module was 95.5% (SD= 6.36%, range = 75%-100%). Seventy-eight students completed the post-test, which had a mean score of 96.5% (SD = 6.51%, range = 66.7%-100%). Student written responses to the four case critical thinking discussion prompts indicated a high level of comprehension.

Conclusion: Our results demonstrated that these digital case studies provided a technology-enhanced method for introducing key patient safety concepts and role playing interprofessional communication.

Patient Safety Scenarios, Learning to Speak Up

Learning to Speak Up is a suite of gamified clinic scenarios, emphasizing principles of collaboration and patient safety in the domains of ethics, values, and communication. These scenarios also infuse the sub-theme of patient safety. Patient safety is an important goal associated with collaborative practice. Skilled collaboration facilitates quality healthcare and patient safety. Modern healthcare trainees need to communicate within the team and learn how to efficiently and respectfully speak up in situations that could lead to errors related to patient safety. Scenarios reference concepts from AHRQ TeamSTEPPs.



Case 1: Drug-to-Drug Interaction



Case 2: Effective Handoffs



Case 3: Human Factors Errors



Case 4: Conflict with Supervising Resident



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Biography

Lise McCoy, EdD is Director of Faculty Development at New York Institute of Technology, College of Osteopathic Medicine, and Assistant Professor, Adjunct. A mixed methods researcher with more than 35 years of education experience, Dr. McCoy's specializations are medical education innovation, virtual patient simulation, active learning, and interprofessional teamwork. A graduate of Arizona State University's Education Leadership and Innovation doctoral program, she has taught master's and doctoral level courses in contemporary teaching and learning concepts, and education research. An experienced researcher, she has been the principle investigator on many grant projects and served on several national committees.



LPM2DA: A lattice-based privacy-preserving multi-functional and multi-dimensional data aggregation scheme for smart grid

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¹University of South Florida, USA

^{2,3}K. N. Toosi University of Technology, Iran

With the improvement of information technologies and the introduction of so many inexpensive devices with powerful communication capabilities, the revolution of the Internet of Things (IoT) has gained enormous popularity in the past decade. Regarding the improvement of communication systems and the fact that every “thing” is going to be connected to the internet, the advent of a smart electrical grid as an application of IoT was inevitable. In spite of all the IoT advantages and applications like IoT-enabled smart grid, IoMT (the internet of medical things), and e-health systems, it is prone to numerous cyber-attacks and it also brings multiple vulnerabilities, privacy disclosure, and security menaces to the world. In the case of smart grid which provides efficient two-way transmission of energy and data, energy theft, fraud, impersonation, and learning personal patterns are the most common privacy and security threats that could affect people’s life intensely. Regarding security concerns

such as privacy, integrity, and authentication; utilization of cryptographic techniques is the most practical approach toward addressing these problems. Since the frequent gathering of users’ consumption data discloses users’ privacy, plenty of data aggregation schemes have been introduced to preserve the privacy of users’ private information. Unfortunately, with the advent of quantum machines, most of these schemes will be rendered vulnerable and insecure. Hence, to preserve privacy and provide other security services like integrity and authentication in smart grid, we attempt to introduce a secure scheme based on lattice-based cryptography named LPM2DA: a lattice-based privacy-preserving multi-functional and multi-dimensional data aggregation scheme. The proposed scheme enables the control center to acquire temporal and spatial aggregation of multi-dimensional data in a privacy-preserving manner. Eventually, through analytical evaluation, we illustrate the efficiency of the proposed scheme.

Biography

Saleh Darzi received his B.Sc. and M.Sc. in Electrical Engineering from Islamic Azad University of Central Tehran Branch, Tehran, Iran, and K. N. Toosi University of Technology, in 2017, and 2021, respectively. He is currently a Ph.D. student of Computer Science at the University of South Florida, USA. His main research interests include applied and post-quantum cryptography, blockchains, privacy, and security.



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Assessing baseline conditions – A collaborative effort to advance landscape performance research

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The Landscape Performance Series (LPS), initiated by the Landscape Architecture Foundation in 2010, measures a built landscape design project's environmental, economic, and social performance and uses it to determine whether design solutions, individually and collectively, achieve the project's goals (Canfield et al., 2018). However, when evaluating landscape performance, many research teams encounter a challenge: the lack of baseline data, against which the post-occupancy performance can be compared. Baseline is defined as "a standard measurement or fact against which other measurements or facts are compared" (Pearson Longman, n.d.). The lack of baseline implies additional assumptions and undermines the rigor of landscape performance research (De Almeida & Lopresto, 2019).

In this study, we discuss the value of baseline and share the experience and lessons

learned from an academic-practice research partnership formed before construction to document baseline condition of a site. We had participated in LPS multiple times and discovered that baseline data collection is often missing from the conventional design process. Many design firms have no experience with landscape performance methodology and have no measurement tools. In addition, most clients do not support in-depth research of site conditions as part of a typical project's scope, schedule, and fee. Therefore, a funded academic-practice partnership at a project's early stage is an alternative to documenting existing conditions. Regarding when to collect baseline, we found that baseline and site inventory cannot always be combined despite similarities. What to assess mainly depends on the project goals, while programming is not always completed before site inventory. Thus, the baseline is to be collected after design and before construction.

Biography

Dr. Yi Luo is an Assistant Professor in the Department of Landscape Architecture at the University of Florida. She is a licensed landscape architect in Utah and has a mixed background, including architecture, landscape architecture, and planning. Her research interests include landscape performance, sustainability assessment, and evaluation metrics and methods.

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Through the lens of Michel Foucault: Reflections on health promotion practices in primary care

**Fernanda Carlise Mattioni and Cristianne
Maria Famer Rocha**

Universidade Federal do Rio Grande do Sul, Brazil

Health Promotion is one of the pillars of support and operation of the Unified Health System (SUS). As they are inserted in people's life territories, the services that make up Primary Health Care (PHC) are privileged spaces for carrying out Health Promotion practices. Nursing is one of the professional categories that integrate the team of Family Health Strategy, which has been fundamental for the organization of PHC in Brazil. Thus, in partnership with other professional centers, Nursing is responsible for taking the lead in Health Promotion practices in the areas where the PHC operates. The objective of this Thesis was to analyze the practices of Health Promotion in Primary Health Care, based on Foucault's theories. To achieve the intended purpose, I carried out a field research, descriptive, qualitative, with genealogical inspiration. The collection of empirical data was carried out through 23 semi-structured interviews, carried out with PHC workers. The data analysis gave rise to four articles, which systematize the research results that, in general terms, can be described as follows: a heterogeneous field of Health Promotion practices was identified, which is constituted through the circulation of different knowledge and powers; practices are permeated by discursivities that align with neoliberal governmentality and practices that stand as a counter-conduct to such discursivities; the analysis of the emergencies and provenances of Health Promotion practices in PHC presents how Health Promotion practices were constituted and modified, according to historical

possibilities. The main effect of Health Promotion practices in PHC is associated with the decrease in medicalization and the adoption of elements from the Extended Clinic. The main difficulties stem from the precariousness of public policies, arising from the fiscal austerity measures adopted in recent years. The following are described as possibilities to be explored to enhance Health Promotion in PHC: the strengthening of training activities within the health units; the problematization of the Social Determinants of Health and the methods to encourage participation; the collectivization of health demands; the appreciation and reinforcement of achievements and collective actions; the recovery of local community culture and habits; and advocacy for Health Promotion. It points to the possibility of building subjectivities, capable of constituting resistance and counter-conducts to neoliberal governmentality, in the micropolitics of the work carried out by the teams. Based on the results presented, I support the following thesis: Health Promotion is polysemic, influenced by different epistemological strands and built from conditions of historical possibilities. The different types of knowledge that constitute it are placed in an arena of power relations, which translate and, at the same time, produce health practices. Although there are hegemonic practices that represent contemporary truth regimes, resistances and counter-conducts to neoliberal governmentality can also be identified and have the power to produce other practices and different modes of (re)existence in PHC.

Biography

Nursing PHD. Professor at Public Health School of Rio Grande do Sul. Nursing at Community Health Service.



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The impact of strabismus on psychosocial health and quality of life

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Roski Eye Institute, USA

University of Southern California, Keck School of Medicine, USA

Introduction: Strabismus or ocular misalignment is derived from the Greek word strabismos, "to squint or look obliquely." Common causes of strabismus include abnormalities of binocular vision and anomalies of neuromuscular control of ocular motility. Strabismus disrupts visual development, negatively affects overall health, and often results in psychological distress.

Objectives: This systematic review evaluates the impact strabismus has on health and quality of life in children and adults. The review also examines challenges encountered by parents of children with strabismus.

Scope: Strabismus is a public health concern. It frequently causes irreversible vision loss in children and increases injury risk in mature adults. This study reports misconceptions towards individuals with strabismus and the impact strabismus has on overall health, psychosocial health, and quality of life.

Methods: A systematic literature search was completed using the major terms strabismus, psychosocial health, quality of life, negative attitudes and misconceptions, strabismus treatment, prematurity, children, and adults with varying combinations, medical subject

headings (MeSH), and Booleans. The electronic databases searched were Embase, Medline (Ovid) from 1946 to present, PsycINFO (from 1806 to present), PubMed (from inception to present), and Scopus. No date or language restrictions were applied.

Results: One hundred fifty-seven articles were included. Strabismus related health problems hinder daily function and negatively impact well-being. Persistent negative attitudes towards those with strabismus contribute to difficulties with self-image. Adults with strabismus often experience financial difficulties. Misinformation regarding available treatment options limit access to care. Improved education of health care providers can increase appropriate referrals and initiation of treatment. Treatment of strabismus has the potential to improve overall health, psychosocial health, and quality of life for children and adults with and without diplopia.

Conclusions: Strabismus surgery should be considered reconstructive, not cosmetic. Strabismus treatment has the potential to improve multiple aspects of an affected individual's life.



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Biography

Angela N. Buffenn, MD, MPH is an Assistant Professor of Clinical Ophthalmology, Director of the Orbit and Eye Movement Institute, and Director of the Fellowship in Pediatric Ophthalmology and Strabismus, at the Vision Center, Children's Hospital Los Angeles, Roski Eye Institute, University of Southern California, Keck School of Medicine. Dr. Buffenn earned her Medical Degree and Masters of Public Health Degree in Public Health Policy and Administration from the University of Michigan. She completed her ophthalmology residency at the University of Maryland and her Fellowship in Pediatric Ophthalmology and Adult Strabismus at the Wilmer Ophthalmological Institute, Johns Hopkins Hospital. Dr. Buffenn specializes in pediatric ophthalmology and strabismus, including adult strabismus. Her research interests include clinical and surgical management of strabismus, the impact of strabismus on psychosocial health and quality of life, and the detection of ocular disease in infants and children.

Satisfaction with customizable 3D-printed finger orthoses compared to commercial finger orthoses

N. Irani and R. Ozelie

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USA*

Introduction: Emerging research in rehabilitation/occupational therapy primarily supports 3D-printing as a low-cost, customizable option for prosthetics and adaptive equipment. However, more research is necessary to inform clinicians of its use for orthoses.

Purpose of the Study: (1) To develop a visually attractive 3D-printed anti-swan neck finger orthosis design that can be adjusted, customized, and manufactured quickly, easily, and cost-effectively (Figure 1), (2) To assess orthotic users' satisfaction with customizable 3D- printed finger orthoses compared to commercial finger orthoses.

Methods: Forty persons without prior upper extremity conditions were recruited at an academic medical center in the United States. After wearing each orthosis for 8 hours (or as long as tolerated), participants completed post-satisfaction surveys to measure satisfaction with different aspects of both orthoses worn.

Results: Forty participants (21 females, 19 males, mean age = 24.98 years) were enrolled in the study. Satisfaction scores (N=40) were not statistically significant for 3D-printed orthoses compared to SilverRing™ Splints across all domains except for Affordability, which was rated significantly higher for 3D-printed orthoses (M = 10.00, SD = 0.000)



Figure 1. (A) 12 color palette for customization, (B) Orthotic design via Autodesk Fusion 360, (C) Multicolored orthoses and Adventurer 3 3D-printer used.



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compared to SilverRing™ Splints ($M = 5.28$, $SD = 2.35$), $t(39) = 12.70$, $p < .001$. The mean difference in satisfaction scores was 4.72, with a 95% confidence interval ranging from 3.97 to 5.48 and large effect size ($r = .90$).

Conclusions: Findings provide novel evidence supporting the use of this customizable

3D-printed prototype as a cost-effective, alternative option ($\sim \$0.10$) to established commercial finger orthoses. This study has potential to assist clinicians' decision-making as they navigate best orthoses options for individuals with rheumatoid arthritis and swan neck deformities while considering orthotic wear compliance and client satisfaction

Biography

Natasha Irani recently received her doctorate degree in Occupational Therapy (OTD) from Rush University Medical Center in Chicago, IL, USA. She has clinical experience working in hand therapy, physical disabilities, and mental health. Through her research interest in customizable 3D printed upper limb orthotics and background in business, psychology, and chronic health conditions, she aims to personalize client care to holistically improve clients' orthotic wear compliance, performance in meaningful life activities, and overall physical and mental wellbeing.



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African Americans and depression: The development of a culturally competent depression scale for reducing treatment disparities

Bernice Roberts Kennedy

BRK Global Healthcare Consulting LLC, USA

African Americans suffer depression for a longer period than their White counterparts. Often, African Americans are misdiagnosed and under-treated in the conventional healthcare system. Research studies reported the symptoms of depression among African Americans are inconsistent with the DSM-V. Previous Depression scales have not been culturally competent reflecting the depression symptoms of African Americans. The researcher developed a depression scale to reflect the racism and psychosocial factors contributing to depression in African Americans. African Americans are less likely to receive consistent quality care and evidence-based treatment guidelines (i.e., medication

therapy or psychotherapy) and less frequently included in research studies. Tools for assessing depression need to be culturally sensitive. Also, healthcare professionals need to be aware of cultural factors when conducting assessments and obtaining a medical history and physical. When prescribing psychotropic medications, clients need adequate assessment and an accurate diagnosis to receive the appropriate medication. Also, clients, need an accurate diagnosis when providing culturally competent therapy. If depression is adequately identified in African Americans, health providers will accurately diagnose depression and provide culturally competent treatment.

Biography

Dr. Bernice Roberts Kennedy received a Ph.D. in Health Services from Walden University. She received a Bachelor of Science Degree and a Master of Science Degree in Psychiatric/Mental Health Nursing at the University of South Carolina.

Dr. Kennedy is a Senior Consultant for BRK Global Healthcare Consulting Firm, LLC. This firm provides consulting on research, grants, and education. During her career, Dr. Kennedy worked as a researcher, educator, and clinician. As a researcher, she worked in various organizations in health services and academia. Also, Dr. Kennedy's current research studies have focused on vulnerable populations and issues related to mental health, health equity, health disparities, access to care, utilization of health services, and health outcomes.

Dr. Kennedy is a nationally board-certified Advanced Practice Clinical Nurse Specialist in Psychiatric/Mental Health Nursing. Presently, Dr. Kennedy is a Senior Practitioner at BRK Psychiatric Mental Health Services, LLC. This practice provides a holistic approach to mental health services focusing on the biopsychosocial-spiritual/cultural aspects of the person.

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Exploring maternal health in Ethiopia using indigenous approaches: Policy and practice implications

A. Ibrahima

Northeastern Illinois University, USA

The World Health Organization reports reveal that the average risk of dying from pregnancy-related causes in sub-Saharan Africa is about 1 in 45 compared to 1 in 5,400 in high-income countries. In Ethiopia, maternal mortality remains a tremendous problem. Several studies associate the high maternal mortality ratio to the widespread practice of home birth, household income, and lack of transportation. Absent from the findings of these studies is any discussion of the sociocultural contexts that might influence maternal health service utilization. Birthing bears cultural significance accompanied by rituals. Thus, any solution to maternal health problems must consider the sociocultural and grassroots context. To this end, the needs and priorities of mothers should be central.

This study utilized Indigenous approaches to explore gaps in maternal health services in Ethiopia from the grassroots perspective. Indigenous approaches require participant-level engagement and acceptance of autonomy of the grassroots as research collaborators (Denzin & Lincoln, 2000; Smith, 2012). The

study occurred in North Wollo Zone, Ethiopia. Gatekeepers were used to identify potential research collaborators. Data were collected using in-depth, semi-structured individual interviews with 27 research collaborators. The interviews were conducted in Amharic, the native tongue. Visual dialogue was also used during the interview. Research collaborators were asked to express certain concepts through drawings or using natural settings as a metaphor or a symbol. Their representation was photographed and saved along with their interviews. Then, all interview data were de-identified and transcribed verbatim in Amharic. The transcribed data was then imported into computer-based qualitative analysis software, ATLAS.ti (Version 7.5.11), to manage, sort and code the data. This data was analyzed using, Miles, Huberman, and Saldana's (2013) interactive model. Circles were used for member checks. In a nutshell, this study explored the gaps in the implementation of Ethiopian maternal health policies and programs and identified culturally relevant solutions that could bridge these gaps and address the needs of communities based on the recommendations of research collaborators.

Biography

Aissetu Barry Ibrahima, Ph.D, is an Assistant Professor at Northeastern Illinois University, Social Work Department, Graduate Program. In addition, Dr. Aissetu is an interim director for the Center of Genocide and Human Rights Research in Africa and the Diaspora at NEIU. She also coordinates the African Studies Institute. Dr. Aissetu's research is focused on Indigenous knowledge and approaches, community-based grassroots development, international health policies, and maternal health behavior and practices. Dr. Aissetu is actively involved in different programs that engage African immigrants and refugee communities in the greater Chicago area. She is an Executive Board Member at the African Diaspora Sixth Region Association of Illinois. Aissetu earned her PhD at University of Illinois at Chicago (UIC), Masters in Social Work (MSW) and BA in Sociology and Social Administration at Addis Ababa University.

ACCEPTED ABSTRACTS



Virtual Event

2nd International Conference on Future of Preventive Medicine and Public Health

March 24-25, 2022

FUTURE OF PMPH 2022



2nd International Conference on Future of Preventive Medicine and Public Health



Oncology pharmacists' response to COVID-19 pandemic in Jordan: The King Hussein Cancer Center experience



**Abeer A Al-Rabayah, Suzan S Hammoudeh, Rasha S AbuBlan, Rula Najjar,
Sewar S Salmany, Noor Nassar, Lama Nazer and Saad M Jaddoua**

King Hussein Cancer Center, Jordan

Oncology hospital pharmacists are among the frontline health care workers who are participating in the fight against COVID-19 pandemic. They must be fully prepared to maintain the continuity of care for vulnerable cancer patients. In Jordan, the ministry of health has launched an official website for COVID-19 disease to create awareness about the disease and to provide general guidance documents to hospitals, workplaces, companies, families, and travellers. However, there was no specific guidance for oncology hospital pharmacies.

This paper aims to share the COVID-19 pandemic response model of the pharmacy department at King Hussein Cancer Centre in Jordan. The pharmacy department made six strategic responses: maintaining patient care, maintaining the safety of pharmacy staff, maintaining medication supply, multi-stakeholder collaboration, education, and rapid access to drug information. We recommend those responses as minimum requirements for pandemic response plans of oncology hospital pharmacy.



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**You'll never
walk alone**

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A. Tubadji

Swansea University, UK

Happiness is an elusive entity and difficult to define, especially in time of uncertainty and change. Yet, loneliness, which can be thought as the opposite of happiness in many ways, is also a very particular condition and relates to a feeling that is very clearly connected to the current pandemic COVID-19 which entailed isolation, lockdowns and social distancing. This study examines the change in feelings of loneliness in relation to the pandemic and in relation to local and individual cultural factors. Using data for the UK on regional (super output level) and individual level from the Office of National Statistics, I employ difference-in-differences approach to explore the role of local level of altruism and social capital as a pre-determinant of the experienced level of loneliness before and during the pandemic. Using a hierarchical model, I also explore the relationship of interpersonal differences

in demographic characteristics and cultural attitudes (especially degree of religiosity) as predictors of the differences in the aggregate social experience of loneliness across space. The results show that controlling for objective socio-economic factors of the Mincer equation, loneliness associates significantly and negatively with mental health and positively with levels of religiosity of an individual. It is also in negative relationship with the local level of altruism and social capital. Places with low levels of altruism experience higher levels of loneliness both before and during the pandemic. These findings suggest that the religious narrative has the role of an alleviation of pain in the subjective utility function of people, but effectively and objectively places that are less altruistic experience greater loneliness with the corresponding greater mental health aftermaths.



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“ Imaging trend and disease course in admitted COVID-19 patients

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Arulanantham Zechariah Jebakumar

Prince Sultan Military College of Health Science, Kingdom of Saudi Arabia

Background: Coronavirus Disease 2019 (COVID-19)- a global pandemic declared by the World Health Organization (WHO) in March 11, 2020, for a lower respiratory tract illness of unknown origin that started as an outbreak in Wuhan City of China in December 2019- was found to be a novel strain of corona virus as determined on bronchoalveolar lavage of the affected patients. The disease is still prevalent in whole world, greatly affecting not only the healthcare systems but also severely impacting on world's economy, travel, trade and behaviours of mankind.

Objectives: To describe radiographic imaging findings and disease course in admitted COVID-19 patients

Methods: This retrospective study was carried in the Radiology Department, King Fahad Military Medical Complex, Dhahran between March to August 2020 (6 months). All laboratory confirmed COVID-19 admitted cases were evaluated for their symptoms, duration of hospital stays (in a ward or intensive care unit [ICU]), and imaging findings (ground-glass opacity [GGO], air-space shadowing/consolidation, and others such as atelectasis,

reticulation, peribronchovascular thickening, lymphadenopathy and pleural effusion) on chest radiograph (CXR) and computed tomography (CT) studies. Cavitation, nodularity, bronchiectasis, and embolism detected on CT scans were considered as complications. Disease course in terms of recovery (radiographic regression or resolution of findings), worsening (shifting from ward to ICU), and unfavourable outcome (persistent ICU stay or death) were recorded. Chi-square test was used to determine association.

Results: Out of 106 patients, majority were males (n=82, 77.4%). Forty-six patients (43.3%) had abnormal imaging with mostly peripheral GGO (56.5%), followed by consolidations (34.7%), and others (26%). Complications were detected in 6 ICU patients. All patients with unfavourable outcomes were above 60 years having comorbidities or complications (p less than 0.0005).

Conclusions: Coronavirus disease 2019 is seen mostly affecting males, with peripheral opacities as common imaging findings. Elderly patients with co-morbidities may show unfavourable outcomes.



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The impact of COVID-19 pandemic on blood supplies and transfusion services in eastern mediterranean region



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Background: Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has spurred a global health crisis. The safety and supply of blood during this pandemic has been a concern of blood banks and transfusion services as it is expected to adversely affect blood system activities. We aim to assess the situation in the Eastern Mediterranean Region (EMR) during the first months of the pandemic.

Materials and methods: A survey was designed to address blood supply, transfusion demand, and donor management during the coronavirus disease-19 (COVID-19) pandemic. Medical directors of different blood banks were invited to participate.

Results: A total of 16 centers participated with representation from 15/19 countries in the region. In total, 75% were from national blood banks. Most centres had a decrease in the blood

supply, ranging from 26-50%. Representatives from 14 countries (93.3%) believed that public fear has contributed to a decrease in donations. Most centres (n=12, 75%) had a reduction in transfusion demand, while those who did not, reported heavy involvement in treating patients with underlying haemoglobinopathies and haematological malignancies. Half of the centres activated their contingency plans. Four centres had to alter the blood donor eligibility criteria to meet demands. All centres implemented donor deferral criteria in relation to SARS-CoV-2, but were variable in measures to mitigate the risk of donor and staff exposure.

Conclusion: Blood services in the region faced variable degrees of blood shortages. We summarize lessons learnt during this pandemic for the blood banks to consider to plan, assess, and respond proportionately to future similar pandemics.



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Keys to the practice of nursing leadership in community health



Carmen Ferrer Arnedo

Hospital Central Cruz Roja, Spain

The current situation regarding healthcare has positioned the health system in the need of reflecting on how the service has been addressed after COVID-19 and what can we learned with this crisis.

The current mechanisms of the healthcare response have sometimes been poorly thought through. We have succumbed to the crisis by approaching it as lysis and in a reactive manner sustained over time. This has meant a return to the medicalization of community services. It is important to look to the future from what has been learned and to see what role community nurses should play in the 21st century to achieve improvements in the health of communities.

The needs of the population are changing, post-pandemic even more so. People are dependent and require trained caregivers to care for them at home, to ensure not only life maintenance, but also comfort and safety. The increasingly prevalent chronic pathologies,

which in the pandemic have not had a correct, real, well-supervised care attention, must be taken up again. A nursing attention capable of anticipating is much more needed as well as, leading health promotion strategies with other agents in a shared manner. Thus, we need to analyze where the needs of people are, taking into account patients, caregivers and nurses.

With these elements we propose a new organization of the practice of nursing care in the community environment. The need to create services coordinated with the hospital, the implementation of different community tools to enhance functional recovery and support for people at the end of their life. Additionally, value needs to be placed on home care, health schools and self-care training as key elements to build a new nursing service approach. Maintaining the nursing caregiver presence can provide individualized care with the possibility of the exercise of free choice of nurse.



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Evaluation of anthropometry as an alternative to DXA as predictor of low bone mineral density in children and adolescents with cystic fibrosis



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Background & Aims: Low bone mineral density (BMD) for age in people with Cystic Fibrosis (CF) is associated with worse nutritional status. The aim of this study is to assess body composition by anthropometry as a predictor of BMD in people with CF. Methods: Multicenter cross-sectional study with 39 people aged 5 and 20 years with CF. BMD was assessed by dual energy x-ray emission (DXA) in the incidence of the total body less head (TBLH) and the TBLH Z-score (Z-TBLH) was calculated, adjusted by sex, age, height and ethnicity. Anthropometry was assessed by weight, height, mid-upper arm circumference (MUAC) and triceps skinfold (TSF). Arm muscle area (AMA) and Body Mass Index (BMI) were calculated. Lean mass (LM), fat mass (FM) and free-fat mass (FFM) were identified by DXA. Statistical models of simple and multiple linear regression were created to establish the

predictive power of Z-TBLH in the variables. Results: Average age of the participants was 13.31 ± 3.86 years, 59% of whom were male. They showed more LM ($30.97 \text{ Kg} \pm 11.29$) than females ($23 \text{ Kg} \pm 6.73$). 20 of 30 participants (66.7%) had at least copy of F508del. Among the multiple models, adjusted by height, age and sex, it found BMI ($R^2 = 0.367$), Weight ($R^2 = 0.220$), AMA ($R^2 = 0.338$) as significant predictors of Z-TBLH. The final model composed of AMA, TSF and Age ($p = 0.001$; $R^2 = 0.381$) had AMA and Age as significant predictors. AMA was associated with an increase in the BMD Z-score in the participants studied. Conclusion: A statistical model composed of the values of AMA, TSF and Age can predict Z-TBLH, as well as anthropometric variables Weight, or BMI, or AMA associated with height, age and sex, in children and adolescents aged 5 to 20 years old, of both sexes.



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Current perspectives on contemporary rheumatic mitral valve repair



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Objectives: Although the superiority of mitral valve repair (MVR) over replacement (MVR) is well-established in degenerative mitral valve (MV) disease, its role remains controversial in rheumatic heart disease (RHD). Nonetheless, many surgeons agree valve reconstruction should be the preferred primary correction as it boasts copious advantages over MVR. The aim of the review is to investigate current MVR techniques in RHD that address previous concerns of reproducibility, reliability, and long-term durability.

Methods: A comprehensive literature search was conducted on PubMed, Cochrane Library, Scopus and Medline using the keywords "mitral valve repair", "valve repair techniques", and "rheumatic heart disease". Thirteen observational studies between 1970 and 2020 were reviewed; analysis was emphasized on surgical techniques employed.

Results: Several studies observed a relationship between the degree of diseased tissue and durability of repaired rheumatic lesions. The

current trend of MVR techniques emphasize resection of fibrotic rheumatic tissue plaguing valves, including leaflet peeling and shaving, yielding excellent clinical outcomes in studies employing this 'aggressive' approach. Of note, two studies found the usage of leaflet-related techniques to be a significant risk factor for valve failure, but mention reserving such methods for severe RHD. Other valuable techniques for successful contemporary RHD MVR include commissurotomy, chordal resection, chordal fenestration, and annuloplasty.

Conclusions: Durability of MVR is likely compromised not simply due to high technical demand, but a surgeon's reluctance; a common notion is that advanced rheumatic lesions are better treated by MVR instead of applying several MVR techniques. Thus, the current 'aggressive' MVR trend will both directly address the underlying rheumatic aetiology, and according to several authors, lower a surgeon's reluctance to repair, thereby enhancing durability.



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Maternal mortality among African, American women maternal care: A communication studies perspective

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Maternal mortality as well as pregnancy-related complications have continued to plague African American communities in the United States. Black women are three to four times likely to die from pregnancy-related complications compared to non-Hispanic White women. In some states, those rates are even higher. To address this problem, I engage in critical qualitative research on the prenatal and postnatal experiences of African American women. In my previous and ongoing research, I approach the problem of maternal mortality among African American women from a communication studies perspective—paying close attention to interactions between healthcare providers and African American women during maternal healthcare visits. This way, I have analyzed the communicative acts within the healthcare contexts, and how those messages (spoken and unspoken) (dis)

empower women and advance the experience of mistrust and non-compliance. Through critical race theory and relational dialectics theory, I examine what structural barriers exist in the U.S. healthcare system, those that limit access to quality care during their prenatal and postnatal doctor's visits. Additionally, I examine the presence and role of cultural, marginalizing, discourses in physician-patient interactions and how that generally impact healthcare outcomes. Findings from this study reveal racially insensitive biomedical approach, racial discrimination, systemic racism, as well as dominant discourse of “the strong Black woman”. These findings offer insights for healthcare providers on communicative practices that foster a racially-safe healthcare environment for African American women as well as other Black women in marginalized positions across the world.



A community-based, cross-sectional study to assess interactions between income, nutritional status and enteric parasitism in two Brazilian cities: Are we moving positively towards 2030



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Background: This study assessed the interactions between income, nutritional status and intestinal parasitism in children in Brazil.

Methods: A cross-sectional study (n = 421 children aged 1 to 14 years living in the states of Piauí (rural communities in the city of Teresina) and Rio de Janeiro (rural and periurban communities in the city of Cachoeiras de Macacu) was performed in order to obtain income and anthropometric data, as well as fecal samples for parasitological analyses through the Ritchie technique.

Results: Children infected with *Ascaris lumbricoides* had significantly lower means of height-for-age z scores (-1.36 ± 0.75 vs. -0.11 ± 1.02 ; $p < 0.001$), weight-for-age z scores (-1.23 ± 0.74 vs. 0.09 ± 1.15 ; $p = 0.001$), and weight-for-height z scores (-0.68 ± 0.44 vs. 0.23 ± 1.25 ; $p = 0.006$) when compared with uninfected children. Infection with hookworm was also associated with lower means of height-for-age z scores (-1.08 ± 1.17 vs. -0.12 ± 1.02 ; $p = 0.015$) and weight-for-age z scores (-1.03 ± 1.13 vs. 0.08 ± 1.15 ; $p =$

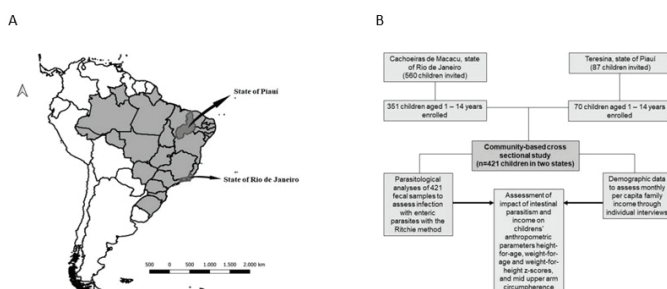


Fig. 1 A: Geographic localization of the studied municipalities: Teresina, in the state of Piauí and Cachoeiras de Macacu, in the state of Rio de Janeiro. **B:** Descriptive flowchart of the general lines of the study

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0.012). Children infected with *Entamoeba coli* presented significantly lower means of height-for-age z scores (-0.54 ± 1.02 vs. -0.09 ± 1.02 ; $p = 0.005$) and weight-for-age z scores (-0.44 ± 1.15 vs. 0.12 ± 1.15 ; $p = 0.002$).

The multivariate multiple linear regression analysis showed that height-for-age z scores are independently influenced by monthly per capita family income ($\beta = 0.145$; $p = 0.003$), female gender ($\beta = 0.117$; $p = 0.015$), and infections with *A. lumbricoides* ($\beta = -0.141$; $p = 0.006$) and *E. coli* ($\beta = -0.100$; $p = 0.043$). Weight-for-age z scores are influenced by

monthly per capita family income ($\beta = 0.175$; $p < 0.001$), female gender ($\beta = 0.123$; $p = 0.010$), and infections with *A. lumbricoides* ($\beta = -0.127$; $p = 0.012$), and *E. coli* ($\beta = -0.101$; $p = 0.039$). Monthly per capita family income ($\beta = 0.102$; $p = 0.039$) and female gender ($\beta = 0.134$; $p = 0.007$) positively influences mid upper arm circumference.

Conclusions: Intestinal parasitism and low family income negatively influence the physical development of children in low-income communities in different Brazilian regions.

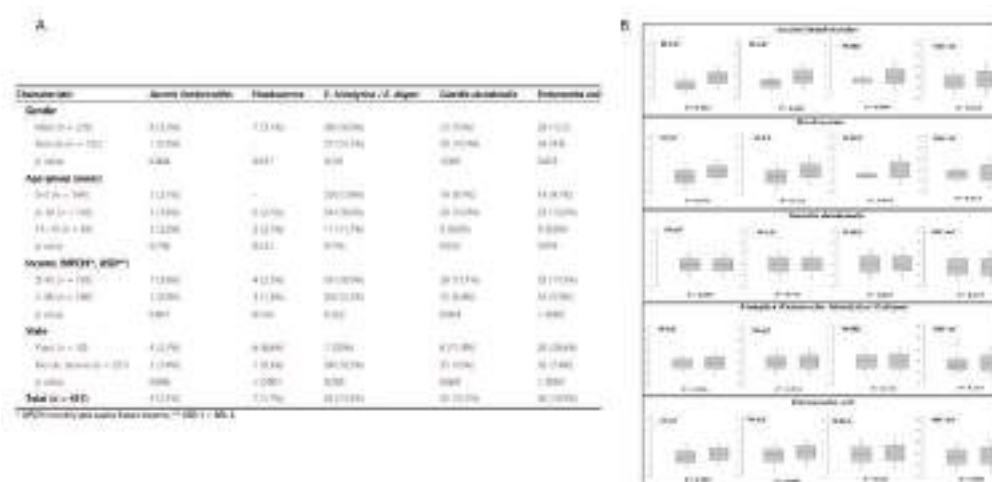


Fig. 2 A: Frequency and distribution of infection with distinct intestinal parasites by gender, age group, income group and state, in children. **B:** Anthropometric parameters, z scores, according to intestinal parasite infection status in children of Teresina and Cachoeiras de Macacu, 2017 and 2018.

Independent variables	HAZ		WAZ		WHZ		MUAC	
	Coefficient	p value	Coefficient	p value	Coefficient	p value	Coefficient	p value
<i>Ascaris lumbricoides</i>	-0.141	0.006	-0.127	0.012	-0.089	0.243	-0.047	0.363
Hookworms	-0.031	0.552	-0.027	0.599	-0.023	0.772	0.004	0.940
<i>Entamoeba coli</i>	-0.100	0.043	-0.101	0.039	-0.064	0.372	-0.059	0.245
MPCHI *	0.145	0.003	0.175	< 0.001	0.100	0.150	0.102	0.039
Gender	0.117	0.015	0.123	0.010	0.070	0.314	0.134	0.007
State	0.011	0.825	0.054	0.283	0.005	0.948	0.025	0.635

* MPCHI monthly per capita house income

Table 1: Multiple linear regression analysis of anthropometric parameters, z scores, by infections with *Ascaris lumbricoides*, hookworms and *Entamoeba coli*; monthly per capita house income, gender and state of children in Piauí, Rio de Janeiro, Brazil, 2017 and 2018



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Association of BMI, physical activity with academic performance among female students of health Colleges of King Khalid University, Saudi Arabia



Farah Aziz, A. Alhazmi and M.M.Hawash

King Khalid University, Saudi Arabia

Body mass index (BMI) is an indicator to detect weight category and known to influence the academic achievements of students. The present study assesses the association of BMI, physical activity with academic performance among undergraduate female students of health colleges, King Khalid University (KKU). Responses from 379 participants were analyzed in the study. Data collection was done by administering an online questionnaire using the university website portal. The questionnaire consists of two sections: the first section includes demographic information along with cumulative Grade point average (GPA) and another section rated student's physical activity. A high frequency of respondents (53.6%) ranged within the normal BMI category. For academic performance, the majority (79.9%) of students reported

high GPA scores with a mean of 4.28 ± 0.41 . Upon correlation, academic performance was found negatively correlated with BMI at 0.0001 level of significance, and insignificantly correlated with physical activity. The present study observed that more than half of the respondents had normal BMI. An inverse relationship was observed between BMI and academic performance, showing participants within the normal BMI category achieved significantly higher GPA. In contrast, physical activity directly influenced the academic performance of the subjects. Therefore, the study suggests to enact counselling centers, health clubs in universities urging the students to adopt regular exercise and healthy lifestyle which could prepare them in achieving future endeavors.



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Influence of emotions on purchase loyalty among child consumers: The moderating role of family communication patterns

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Though the role of emotion and family communication patterns in purchase behavior including purchase loyalty is essentially significant, it has received scant empirical attention in the context of children's consumption behavior. Thus, the present study aimed to explore the influence of children's emotions induced by food product TV commercials, particularly pleasure and arousal, on their purchase loyalty. It also examined the moderating effects of socio- and concept-oriented family communication patterns on this relationship. The empirical analysis of survey data of 209 fifth- and sixth-grade Iranian students through confirmatory factor-analytic approaches and structural equations modeling indicates the need for reflecting on

their emotions as they intend to make purchase decisions. Our findings reveal that children's emotion exercises a significant impact on their purchase loyalty and the more positive they feel about a product, the more loyal they remain towards it. Regarding the moderating roles of family communication patterns, it is found that these maverick consumers make purchase decisions independently regardless of their parents' communication styles. The achievements not only contribute to the theory of planned behavior by indicating emotion as a significant attitudinal element affecting purchase behavior but also they have crucial implications for developing effective marketing communication strategies for young-consumer markets.



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The association between the intensity and duration of non- pharmacological interventions and covid-19 infection and excess mortality



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Background: We evaluated the association of intensity and duration of non-pharmacological interventions (NPIs) and implementation of vaccination strategies with COVID-19 infection and excess mortality (EM) in Europe.

Methods: Data comes from Our Word in Data, we include 22 European countries from January 20, 2020, to May 30, 2021. The time-varying constrained distribution lag model was used in each country to estimate the impact of different intensities and duration of NPIs on COVID-19 control, also considering vaccination coverage. We defined the main effect as the independent impact of daily intensive interventions. The added effect was defined as the added risk due to the duration of NPIs. Country-specific effects were pooled through multivariate meta-analytic.

Results: This study found that high-intensity and long-duration of NPIs showed a positive main effect on reducing infection in the absence of vaccines, especially in the intensity

above the 80th percentile and lasted 7days (RR=0.93, 95% CI:0.89-0.98). However, it was also associated with an increase in excess mortality and the average main effect showed an increasing trend with the duration and intensity. Specifically, it was associated with an increase of 44.16% (RR=1.44; 95% CI: 1.27-1.64) in the excess mortality under the strict intervention (the intensity above the 80th percentile and lasted for 21days). After the vaccination rollouts, the inhibition of the strict intervention on cases growth rate was increased (RR dropped from 0.95 to 0.87). Simultaneously, vaccination also alleviated the negative impact of the strict intervention on excess mortality (RR decreased from 1.44 before vaccination rollouts to 1.25 after vaccination rollouts). Besides, maintaining the strict intervention after the vaccination rollouts appeared to more reduce the cases, as well as avoids more overall burden of deaths compared with weak intervention.

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Figure: Pooled main and added effects (RR) for case growth rate and excess mortality with random effects model across countries under different strong intervention definitions before vaccine policies impalement.

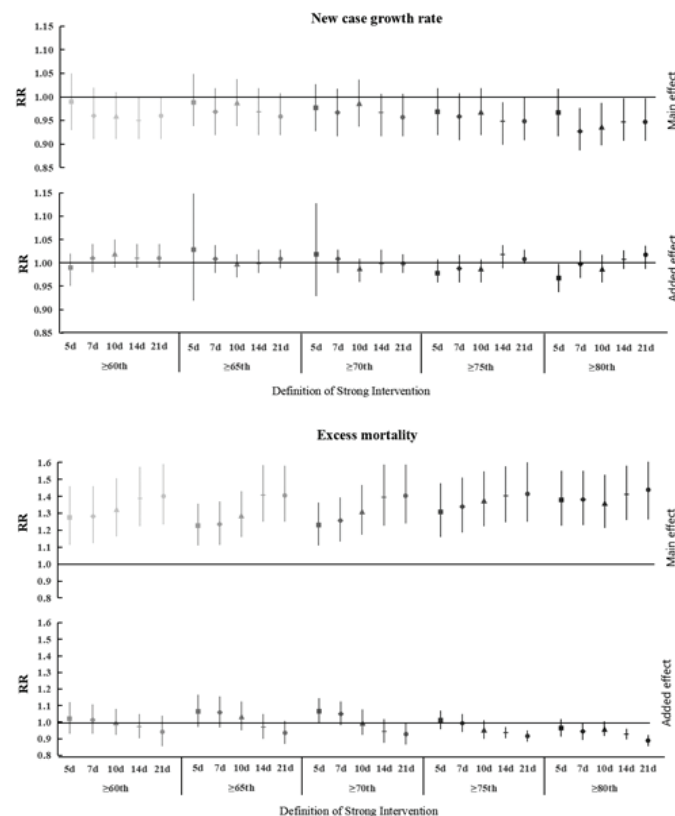


Table. Pooled main, added, and vaccine effects with tests for heterogeneity (*p*-value) across countries under the strict and weak intervention after vaccination rollouts in 22 countries during pandemic.

Intensity of intervention	Effect	Case growth rate		Excess mortality	
		RR (95% CI)	Test for heterogeneity	RR (95% CI)	Test for heterogeneity
Weak (≥60th and 7 days)	Main effect	0.94 (0.89 to 1.01)	<i>P</i> <0.01	1.28 (1.11 to 1.47)	<i>P</i> <0.01
	Added effect	1.00 (0.94 to 1.05)	<i>P</i> <0.01	0.91 (0.83 to 1.01)	<i>P</i> <0.01
	Vaccine effect	1.09 (1.03 to 1.16)	<i>P</i> <0.01	0.85 (0.77 to 0.94)	<i>P</i> <0.01
Strict (≥80th and 21days)	Main effect	0.87 (0.83 to 0.91)	<i>P</i> =0.90	1.25 (1.11 to 1.41)	<i>P</i> <0.01
	Added effect	1.02 (1.00 to 1.05)	<i>P</i> =0.05	0.97 (0.91 to 1.04)	<i>P</i> <0.01
	Vaccine effect	1.08 (1.03 to 1.14)	<i>P</i> <0.01	0.84 (0.77 to 0.92)	<i>P</i> <0.01

Conclusions: Our study highlights the importance of continued high-intensity NPIs in low vaccine coverage. Lifting of NPIs in insufficient vaccination coverage may cause increased infections and death burden. Policymakers should coordinate the intensity and duration of NPIs and allocate medical resources reasonably with widespread vaccination.



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Lot-size models with uncertain demand considering its skewness/kurtosis and stochastic programming applied to hospital pharmacy with sensor- related COVID-19 data



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Center of Micro-Bioinnovation, Universidad de Valparaíso, Chile

Governments have been challenged to provide timely medical care to face the COVID-19 pandemic. Under this pandemic, the demand for pharmaceutical products has changed significantly. Some of these products are in high demand while for others their demand falls sharply. These changes in the random demand patterns are connected with changes in the skewness (asymmetry) and kurtosis of their data distribution. Such changes are critical to determining optimal lots and inventory costs. The lot-size model helps to make decisions based on probabilistic demand when calculating the optimal costs of supply using two-stage stochastic programming. The objective of this study is to evaluate how the skewness and kurtosis of the distribution of demand data, collected through sensors, affect the modeling of inventories of public hospital pharmacies helpful to treat COVID-19. The use of stochastic programming allows us to obtain results under demand uncertainty that are closer to reality.

We carry out a simulation study to evaluate the performance of our methodology under different demand scenarios with diverse degrees of skewness and kurtosis. A case study in the field of hospital pharmacy with sensor-related COVID-19 data is also provided. An algorithm that permits us to use sensors when submitting requests for supplying pharmaceutical products in the hospital treatment of COVID-19 is designed. We show that the coefficients of skewness and kurtosis impact the total costs of inventory that involve order, purchase, holding, and shortage. We conclude that the asymmetry and kurtosis of the demand statistical distribution seem not to affect the first-stage lot-size decisions. However, demand patterns with high positive skewness are related to significant increases in expected inventories on hand and shortage, increasing the costs of second-stage decisions. Thus, distributions that are highly asymmetrical to the right and leptokurtic favor high total costs in probabilistic lot-size systems.



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COVID-19 and sustainable development goals (SDGs): An appraisal of the emanating effects in Nigeria

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Fisayo Fagbemi

Research Fellow at the European Xtramile Centre of African Studies (EXCAS), Belgium

The paper appraised the emanating effect of COVID-19 on sustainable development goals (SDGs) in Nigeria through conceptual analysis and the systematic illustration of the prevailing incidents. It was affirmed that the preoccupation with the COVID-19 cases caused many other critical socioeconomic issues (like education, infrastructure development, and employment) to suffer a state of negligence or be overlooked. Like other developing countries, Nigeria could become poorer, given the increased unemployment rate and the anticipated difficulty in servicing debt resulting from the COVID-19 outbreak. Hence,

festering challenges including poverty, limited access to health care, low education quality, poor road networks among others, could be further entrenched. These incidents could be detrimental to sustainable development goals (SDGs) 2030 agenda. The current crisis, therefore, poses a threat to Nigeria's development prospects, as it may take more time to recover, especially in the post-COVID-19 era. Thus, it is critical to recognize the significance of securing strong institutional regulatory setup and resources (including financial and material resources) needed to facilitate sustainable change in the economy.



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Belief salience, religious activities, frequency of prayer offering, religious offering preference and mental health: A study of religiosity among Muslim student

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Seema Gul

Prince Sultan University, Saudi Arabia

To investigate role of belief salience, participation in religious activities, religious offering preference and prayer offering positively predicts mental health among university students. It is a cross-sectional research design carried out in International Islamic University Islamabad, February 2018 to August 2018. Demographic variables were assessed by collecting information about age, education, marital status, family income and socioeconomic status. Mental Health Inventory-38 was used to measure mental health of the students, and in order to measure religiosity, Religiosity Measure Scale tapping belief salience, religious activities, frequency of prayer offering and religious offering preference was used. The results of the present study were analyzed

through SPSS 21v. For computation of the findings, regression analysis and t test were applied. Study found that involvement in religious activities, prayer offering and belief salience positively predicts mental health among university students. Along with that, female students were also found to be highly involved in prayer offerings, religious offering preference and belief salience. However, there were no significant gender differences on participation in religious activities and mental health. It is recommended that development and enhancement of belief salience and religiosity in treatment of Muslim clients with psychological issues may boost their mental health. Therefore, these may be incorporated in treatment models.



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Evaluation of copeptin and psychological stress among healthcare providers during covid-19 pandemic



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Background: The (COVID-19) pandemic created a remarkable impact on healthcare providers both physically and psychologically. Perceived psychological stress (PSS) influences the homeostatic equilibrium, involving activation of the sympathetic nervous system and hypothalamus pituitary adrenal (HPA) axis. Copeptin; C-terminal portion of Vasopressin (AVP) precursor is stable, however, evidence about impact of PSS on copeptin levels is limited.

Aim: Of this study was to estimate the influence of psychological stress on copeptin levels among healthcare providers working in intensive care unit (ICU).

Methods: A total of 70 healthcare providers (HCP) served in quarantine ICU participated in this prospective study; 35 physicians (28 males and 7 females) and 35 nurses (10 males and 25 females). A control group of 40 HCP matched age, BMI and specialty in non-quarantine hospitals. Fasting morning blood samples were withdrawn for determination of copeptin, cortisol, insulin at three points; first

point was pre-quarantine at ICU. Second point at end of first week in quarantine and third point was two weeks' post quarantine. A questionnaire was conducted to all participants to assess stress (PSS). Cortisol was determined by a chemiluminescence immunoassay while insulin and Copeptin were measured by ELISA.

Results: Baseline plasma copeptin level pre-quarantine was significantly increased 15.76 ± 8.6 pmol/l ($P = 0.001^*$) and was positively correlated with high stress PSS score mean 66.9 ± 18.3 . Post-quarantine copeptin was markedly reduced 3.98 ± 1.28 pmol/l and mean PSS was 23.0 ± 7.95 ($P = 0.001^*$). Also, there was positive correlation between plasma copeptin and PSS, systolic blood pressure and serum insulin. On the other hand, there was no correlation between copeptin and serum cortisol.

Conclusion: Our finding suggested that copeptin may be used a potential biomarker for physiological strain during work in a stressful environment.



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The biological and clinical implications of emerging SARS- CoV-2 variants

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Hikmet AKKİZ

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Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is continuing to evolve worldwide, emerging novel variants with spike protein mutations that are affecting the epidemiological and clinical aspects of the COVID-19 pandemic. Although most mutations identified in the SARS-CoV-2 genome are neutral or mildly deleterious, a small number of mutations can affect virus phenotype that confers a fitness advantage. These mutations can increase rates of virus transmission, increase the risk of reinfection and reduce the protection afforded by neutralizing monoclonal antibodies and vaccination. Since December 2020, the SARS-CoV-2 has generated four rapidly expanding strains, designated variants of concern (VOCs), including the Alpha variant (B.1.1.7), the Beta variant (B.1.351), the Gamma variant (P.1) and the Delta variant (B.1.617.2). These variants have multiple mutations in the immunodominant spike protein that facilitates viral cell entry via the angiotensin-converting enzyme -2 (ACE2). Mutations in the receptor binding domain (RBD) on the spike protein are of great concern for their potential for immune escape. The B.1.1.7 variant emerged in the UK in the second half of 2020 that has spread globally and acquired the E484K mutation in the UK and the US. The Beta and Gamma

variants emerged in South Africa and Brazil, respectively that have additional mutations in the RBD at positions E484 and K417. SARS-CoV-2 variants containing the combination of N501Y, E484K, and K417N/T mutations have significantly reduced sensitivity to vaccine-induced and convalescent sera. The Gamma variant may cause more severe disease even in persons who have been previously infected. The Delta variant emerged in India in December 2020 and has further spread to many countries including the United States and the United Kingdom. The delta variant has 8 mutations in the spike protein, including T19R, D157-158, L452R, T478K, D614G, P681R, and D950N. Several of these mutations may affect immune responses to the key antigenic regions of receptor binding protein (452 and 478) and deletion of part of the N-terminal domain. The spike protein mutations and other non-structural mutations in the VOCs can cause escape approved vaccination in certain extend. Unfortunately, with the emergence of novel variants of SARS-CoV-2, early optimism regarding the development of COVID-19 vaccines has been tempered. This review highlights the biological and clinical effects of emerging novel SARS-CoV-2 variants and their impact on vaccine-elicited and monoclonal antibody-mediated neutralization.



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The Shh/Gli1 signaling pathway regulates regeneration via transcription factor Olig1 expression after focal cerebral ischemia in rats



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Objective: Ischemic stroke is a major cause of death in the global population, with a high disability and mortality rate. Lack of regenerative ability is considered to be the fundamental cause. This study aims to determine the effect of Shh pathway, which mediates regenerative signaling in response to CNS injury, on myelin repair and Olig1 expression in focal ischemic lesions in the rat.

Methods: A model of middle cerebral artery occlusion (MCAO) was established using the intraluminal suture method where the middle cerebral artery (MCA) was restricted for 120 min. Cyclopamine, a specific inhibitor of Shh, or saline was administered 12 h after MCAO surgery and lasted for 7 days. After MCA occlusion, male Sprague-Dawley rats were randomly allocated to cyclopamine- or saline-treated groups. Rats of each group were randomly divided into 4 subgroup by observation time of days 1, 3, 7 and 14. A

group of no-injection animals after MCAO was used as controls. The Shh signaling pathway, myelinogenesis-related factor MBP and Olig1 were tested by immunohistochemistry and RT-PCR assay.

Results: The levels of Shh and its component Gli1 were elevated from day 1 up to 14 following ischemia, indicating that the Shh-Gli1 axis was broadly reactivated. Treatment with cyclopamine can partially block the Shh signaling pathway, prevent myelin repair, and decrease the Olig1 expression following ischemic stroke.

Conclusion: That blockade of Shh signaling concurrently with the creation of a lesion aggravated ischemic myelin damage, probably via its downstream effect on Olig1 transcription. Shh plays a contributory role during regeneration in the CNS, thereby providing promising new therapeutic strategies to assist in recovery from ischemic stroke.

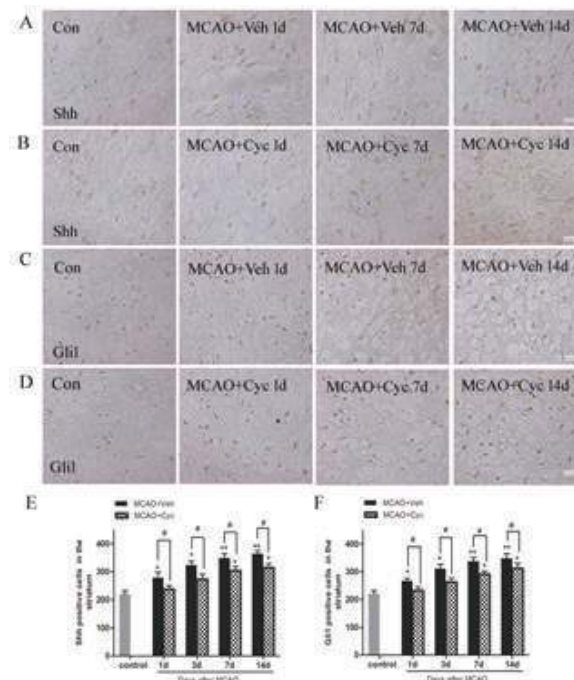


Figure 1. *Shh* signaling upregulated early after stroke and cyclopamine partly inhibited this effect. (A-D) The immunostaining of *Shh* and *Gli1* transcripts in the ischemic striatum of vehicle and cyclopamine-treated rats at 1 d, 7 d and 14 d after MCAO. Scale bar, 50 μ m. (E-F) Quantification of the number of *Shh* and *Gli1* positive cells. * $P < 0.05$, ** $P < 0.01$, MCAO+Veh/MCAO+Cyc vs. Con. # $P < 0.05$, MCAO+Cyc vs. MCAO+Veh. MCAO, middle cerebral artery occlusion; Con, control; Cyc, cyclopamine; Veh, vehicle.

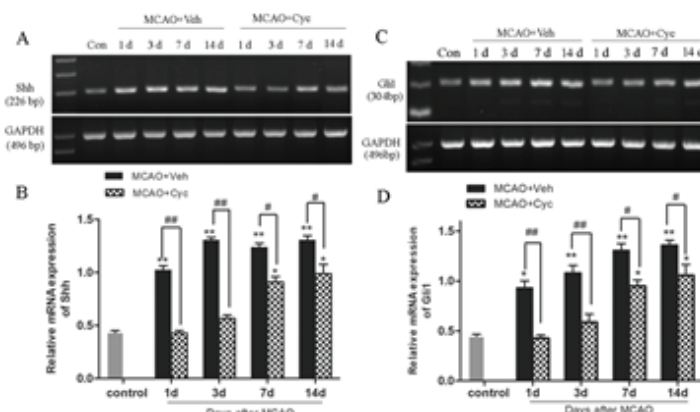


Figure 2. Effect of cyclopamine treatment on *Shh* and *Gli1* mRNA expression. (A) The ischemic striatum mRNA level of *Shh* in vehicle and cyclopamine-treated rats at different time points after MCAO was determined by RT-PCR. GAPDH was used as a loading control. (B) Histogram representing the quantification of relative *Shh* mRNA expression level. (C) *Gli1* representative bands of RT-PCR were presented. GAPDH was used as a loading control. (D) Histogram representing the quantification of results in (C). * $P < 0.05$, ** $P < 0.05$ MCAO+Veh/MCAO+Cyc vs. Con. # $P < 0.05$, ## $P < 0.01$, MCAO+Cyc vs. MCAO+Veh. MCAO, middle cerebral artery occlusion; Con, control; Cyc, cyclopamine; Veh, vehicle

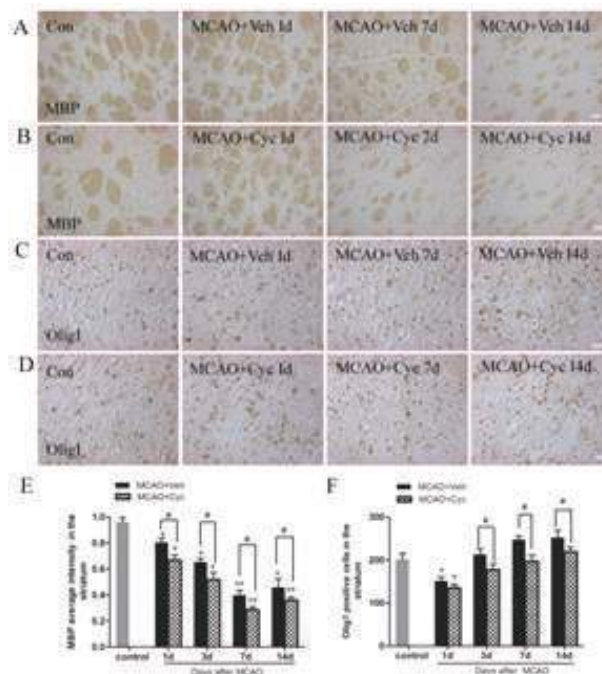


Figure 3. MBP and Olig1 immunostaining of the ischemic striatum in MCAO rats after cyclopamine treatment. (A-D) Microscopic images of sections stained with anti-MBP and anti-Olig1 in the ischemic striatum of vehicle and cyclopamine-treated rats at 1 d, 7 d and 14 d after MCAO. Scale bar, 50 μ m. (E-F) Quantification of the MBP average intensity and the number of Olig1 positive cells. * $P<0.05$, ** $P<0.01$, MCAO+Veh/MCAO+Cyc vs. Con. # $P<0.05$, MCAO+Cyc vs. MCAO+Veh. MCAO, middle cerebral artery occlusion; Con, control; Cyc, cyclopamine; Veh, vehicle.

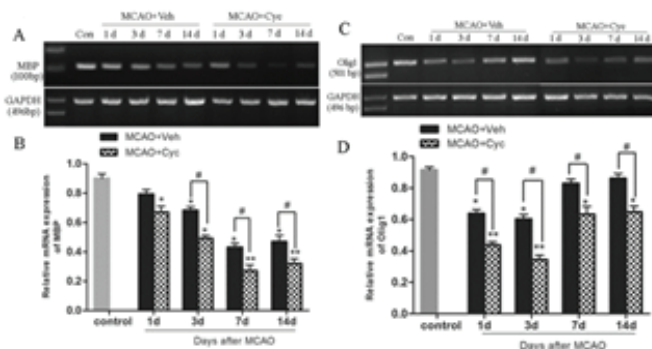


Figure 4. RT-PCR detection of MBP and Olig1 mRNA in ischemic striatum of vehicle and cyclopamine-treated MCAO rats. (A) shows MBP bands at different time points (1 d, 3 d, 7 d and 14 d) after MCAO. (B) Quantitative data of MBP mRNA shown in (A). The level of MBP mRNA showed a progressively decreasing trend following ischemia when compared with the control. Cyclopamine treatment further down-regulated MBP expression when compared to the vehicle-treated one. (C) RT-PCR analysis of Olig1 at different time points (1, 3, 7, and 14 days) in the ischemic striatum of vehicle and cyclopamine-treated MCAO rats. (D) Quantification of Olig1 mRNA level normalized to loading control. * $P<0.05$, ** $P<0.01$, MCAO+Veh/MCAO+Cyc vs. Con. # $P<0.05$, MCAO+Cyc vs. MCAO+Veh. MCAO, middle cerebral artery occlusion; Con, control; Cyc, cyclopamine; Veh, vehicle.



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“Global leadership in IPECP research to address the quadruple aim”

Hossein Khalili

UW Center for Interprofessional Practice and Education (UW CIPE), University of Wisconsin-Madison, USA

The enduring and devastating COVID-19 pandemic has reminded the world of the importance of the health care transformation through interprofessional and inter-organizational collaboration to achieve Quadruple Aim (better health, better care, better value, and better work experience).

Just like the global system-wide coordination required for vaccine development and deployment in response to the pandemic, global leadership is necessary to transform health care systems through the integration and incorporation of interprofessional education and collaborative practice (IPECP). IPECP is not just an approach or strategy, rather IPECP reflects the philosophy of teamwork and collaboration across different professions, programs, institutions, and sectors.

While significant improvements in the quality of IPECP research studies have been noted, there is still much to be achieved. The current need for IPECP research is to produce significant and scientifically sound evidence determining the impact of IPECP on the improvement of health outcomes and quality care and service; lowering of health care cost and the burden

on health human resources; increasing the 'collaborative practice-readiness' of health and social care professionals; enhancing resilience and work experience; and the eventual improvement in population health.

To meet these challenges, here are the global IPECP research priorities developed by interprofessionalresearch.global (IPR.Global: the Global Network for Interprofessional Education and Collaborative Practice Research):

1. Building the science and scholarship of IPECP through the discovery and integration of innovative evidence-informed strategies.
2. Identifying and applying innovative approaches that embrace and address the inherent complexity of interprofessional endeavours in healthcare.
3. Developing evidence of impact along the continuum from education to practice

To further this agenda, in this interactive speech each of the above priorities along with examples of applied IPECP theoretical frameworks and research methodologies to achieve the priorities will be discussed.



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The effects of group counselling utilizing narrative therapy on self-esteem, stress response, and insight for individuals with alcohol dependency

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Jae Wan Park and Hee Sook Kim

Kyungpook National University, South Korea

Alcoholism is a serious problem that is difficult to treat. This study investigated the effects of group counseling utilizing narrative therapy on self-esteem, stress response, and insight for alcoholism. Narrative therapy, unlike conventional strategies, is a subject-centered approach to managing problems by effectively enhancing one's identity and value. Narrative therapy is a therapeutic approach that reinforces high self-determination regulations, focusing on rediscovery of forgotten positive values or identity. We utilized a nonequivalent control group, non-synchronized design. Collected data were analyzed using descriptive statistics, Fisher's exact test, Chi-squared test,

independent and paired t-tests, and repeated measures ANOVA. The experimental group showed significant improvements in self-esteem ($F = 14.03$, $p < .001$), stress response ($F = 4.31$, $p < .05$), and insight ($F = 21.27$, $p < .001$) after the intervention compared with the control group. Additionally, there were significant improvements in self-esteem ($t = -6.32$, $p < .05$), stress response ($t = 4.93$, $p < .05$), and insight ($t = -5.02$, $p < .05$) within the experimental group after the intervention. Thus, narrative therapy is recommended as an autonomous regulation approach for developing strengths necessary to refrain from alcoholism.



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Effect of physical activity and nutrition education on body mass index, blood pressure and biochemical variables in overweight and obese adolescents



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¹University of KwaZulu-Natal, South Africa

²North-West University, South Africa

Background: The majority of obese children live in developing countries. The ten-fold increase in obesity during the last four decades necessitates implementing interventions to mitigate the long-term effect of obesity into adulthood. The study aimed to determine the impact of physical activity and nutrition intervention on the body mass index (BMI), blood pressure and selected biochemical factors of overweight and obese children aged 13.0 to 16.1 years from eThekweni, South Africa.

Methods: Participants (N = 41) with a BMI >85th percentile were included in the 10-week controlled trial of physical activity and nutrition education intervention. Baseline and end measurements included BMI, blood pressure, and fasting biochemical variables (glucose, cholesterol, insulin resistance and alanine aminotransferase). BMI was classified according to the WHO BMI z-scores. The 10-week intervention entailed combined aerobic and resistance exercises supervised twice a week together with once-a-week nutrition

intervention. Participants performed additional unsupervised aerobic exercises three times a week.

Results: Elevated systolic blood pressure (52%), low-density lipoprotein levels (29%), insulin (17%) and insulin resistance values (15%) were identified. The 10-week intervention programme significantly decreased BMI (30.8 ± 5.4 kg/m² to 29.8 ± 5.7 kg/m²; $p < 0.01$), systolic blood pressure (125.9 ± 15.7 mmHg to 115.2 ± 12.4 mmHg; $p < 0.05$), and low density lipoprotein cholesterol (2.63 mmol/L to 2.37 mmol/L; $p < 0.05$). Controlling for pre-testing variables as covariates, additional ANCOVA analysis highlighted significantly lower BMI ($M = 28.33$, $F = 7.88$, $p < 0.05$) and BMI z-scores ($M = 2.08$, $F = 4.99$, $p < 0.05$) in the intervention group post-testing.

Conclusion: A 10-week physical activity and nutrition education intervention in overweight and obese adolescents significantly reduced BMI and showed trends of a decrease in blood pressure and low-density lipoprotein cholesterol.



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“ Genotoxic effects of air pollutants emanating from oil fields ”

Jinan Tuma Sabah

Faculty of Sciences, Wasit University, Iraq

At present, the economy of several countries relies completely on the export of fossil fuels. To meet the growing demand of fossil fuels and strengthening the foreign reserve, oil companies in the respective country have to expand to new locations. However, oil extraction being an intricate process leads to manifold undesirable consequences such as oil spills related substantial contamination of the landscape, the environmental pollution, disturbance in the sustainability and biodiversity, and the health disturbances in humans living in the oil field regions.

In 2009, Iraq's crude oil production averaged 2.4 million barrels per day, about the same as 2008 levels, and production in March 2016 stood at 4.55 million barrels a day. Millions of gallons of untreated toxic wastes, gas and crude oil are released into the environment. Oil mining mediated pollution may cause damage to humans and the environment. To investigate potential health risks for children living in this

area, we recruited a sample of 6–8 year old school children residing within a 5 km radius around the oil field, and a control sample of children of the same age from a school 40 km away from the oil-field. Exfoliated buccal mucosa cells obtained from these children were analyzed applying the micronucleus (MN) cytome assay. Nuclear anomalies were significantly elevated in children living near the oil-field. Micronucleated cells 1.3-fold, nuclear buds 3-folds, binucleated cells 3-folds, karyorrhetic cells 4-folds and karyolysis more than 10 folds. It was shown that children living near to the oil field (with heavy air pollution) have a high level of MN in buccal mucosa cells compared to the control groups for both girls and boys. The frequency of micronuclei indicating genotoxicity increased after exposure. Based on the findings of the present study, air pollutants that generate from oil fields can induce mutagenic effects and cellular death, indicated by cell damage in oral mucosa cells



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Mechanisms of traumatic brain injury and Alzheimer disease risk



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²Lady Hardinge Medical College, India

³University of Louisville School of Medicine, USA

Objective: To investigate the role of traumatic brain injury (TBI) in Alzheimer disease.

Introduction: The most common type of dementia; Alzheimer's Disease (AD), and the cause of disability in young adults; TBI have credible associations but are relatively elusive, and highly complex in nature. Recently, alterations in blood brain barrier (BBB) integrity have been shown to have implications in dementing disorders. Further, downstream effects on capillaries may alter not only the behavior, but also cognitive output in the affected patient precipitating AD.

Methods: PubMed and PubMed Central data bases were methodically searched for articles within the last ten years, incorporating the keywords- Alzheimer's disease and TBI. After searching, original articles were included in the study.

Results: A group of ten studies were analyzed. Briefly, Hayes et. al found that moderate to severe TBI is a stronger external risk factor

for the gradual progression of AD as compared to the milder trauma. A retrospective study estimated prior history of TBI, and earlier onset of AD, and concluded that dementia occurred 2.8 years earlier in comparison to the control group ($p = 0.002$). Notably, one study hypothesized disruption of the glucose hemostasis in the brain that appears to be evoked by TBI relying on the premise of common mechanistic pathways. Most importantly, individuals with a genetic link to APOE $\epsilon 4$ allele have been shown to progress into AD pathophysiology over a relatively short interval following TBI insult.

Conclusions: TBI does amplify the overall risk for AD. The mechanisms are multifactorial and include environmental, genetic, and cell-signaling components that partake in disease process. More likely than not, it is an injury-led remodeling of the BBB that consequently triggers a cascade of reactions leading to hyperphosphorylation of the tau protein.

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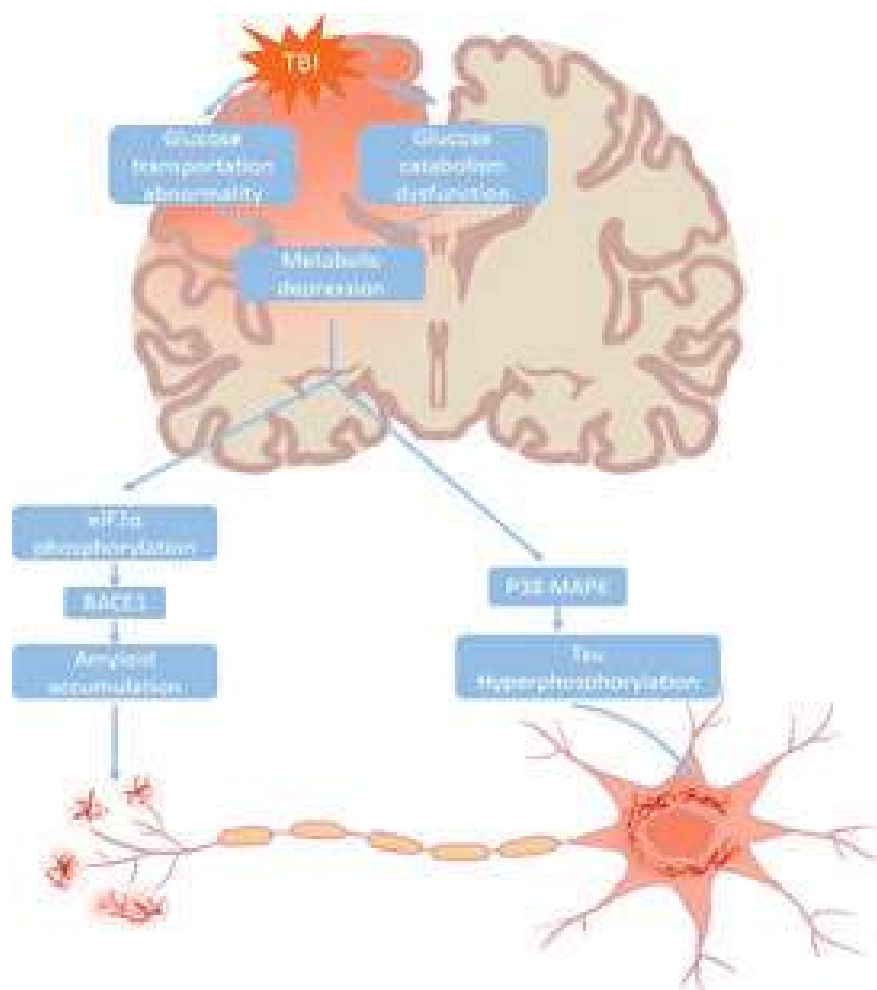


Figure 1: From Xu XJ, "Glucose metabolism: A link between traumatic brain injury and Alzheimer's disease"



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Preventive medicine: Perspective of classical Chinese medicine



Keekok Lee

Honorary Research Fellow Faculty of Humanities, University of Manchester, UK

The Institute for Systems Biology has used the term “P4 Medicine” referring to Personalised, Predictive, Preventive and Participatory Medicine. Classical Chinese Medicine/CCM also has its own “P4 Medicine” – Personalised, Predictive, Preventive and Participatory Medicine. Needless to add, although these two versions may be said to share the same thin concept of P4 Medicine, they differ in the account of their thick concepts. This talk will, therefore, explore briefly the two conceptions of Medicine – on the one hand, Biomedicine/Bm today and on the other CCM. The dominant strands of Bm occur within a philosophical framework of Materialism (of Thing-ontology), its Reductionist methodology and its accompanying Humean-Newtonian causal model of linearity. In contrast, the Chinese philosophical framework is one bounded not simply by Thing-ontology but also by Process-ontology, with its Wholist methodology and its accompanying causal

model of multi-factorial, non-linear causality. The talk will further show that the CCM concept of Preventive Medicine is best explored in conjunction with its account of Predictive Medicine as it stands to reason to claim that an ability to prevent something from occurring presupposes an ability to foresee and to predict its occurrence. Examples will be cited from the history of CCM ranging from pre-natal to post-natal contexts, to environmental contexts including the nutritional strategy as a crucial measure of Preventive Medicine. It emphasises that for CCM, Preventive Medicine is key and it showers greatest praise on physicians who excel(ed) in it. This talk, therefore, brings out the commonalities as well as the differences between two different medical perspectives and to show that paradoxically what has a very ancient ring about it (CCM) is at once also very “advanced” and “up-to-date” while what is very “up-to-date” and forward-looking brings forth resonance of something ancient



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The evaluation of helicopter emergency medical services with a physician for acute myocardial infarction in Japan: Registry-Based study of prognosis and time reduction



Ken Ishikura¹, Yoshihide Nakagawa², Yuko Nakagawa³, Asuka Tsuchiya², Tatsuya Noda⁴, Hayato Takayama⁵, Masanari Machida⁶, Hiroshi Takayama⁷, Tomoko Sato⁸, Ryu Tsumura⁹, Kyoji Saito¹⁰ and Hiroshi Imai¹

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³Department of Traumatology and Acute Critical Medicine, Osaka University Graduate School of Medicine, Japan

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⁵Regional Medical Support Center, Nagasaki University Hospital, Japan

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¹⁰Emergency and Critical Care Center, Aomori Prefectural Central Hospital, Japan

Introduction: The aim of this study is to compare the prognosis and time reduction between helicopter emergency medical service with physician (HEMS) and ground emergency medical services (GEMS) in acute myocardial

infarction (AMI) cases.

Methods: This is a registry-based study of Japan Helicopter Emergency Medical Service registry from April 1, 2015, to March 31, 2018.

Results: A total of 605 cases of AMI were



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registered in the HEMS group, while 794 cases in the GEMS group. In the cases of non-cardiopulmonary arrest (CPA), the prognosis between HEMS and GEMS did not differ significantly. Regarding the road distance, for ranges of 20-40km and >40 km, the times from the call to the angiography room were significantly shorter in the HEMS than in the GEMS (median 91 vs. 97 minutes, $p=0.036$, 101 vs. 132 minutes, $p=0.002$, respectively).

In cases of CPA, HEMS had a higher rate of return of spontaneous circulation (ROSC) than GEMS (55.3% vs. 36.8%, $p=0.038$), but HEMS had a lower prognosis than GEMS (22.9% vs. 38.9%, $p=0.036$).

Conclusion: The present study suggested that HEMS had an advantage in reducing the time to angiography in AMI cases of non-CPA. In cases of CPA, HEMS increased ROSC without improving the prognosis.



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Proven mental health strategies for return to work



Liz R. Scott

Organizational Solutions Inc., Canada

As mental health concerns continue to rise, contributing to approximately 30% of short and long-term disability claims, employers are recognizing the importance of support in the mental health space. This also ties into the emerging research and importance of human and organizational sustainability. In this informative seminar, Dr. Liz Scott will discuss the interaction of healthcare and organizations by providing support to the workforce, the importance of objective medical evidence, the right diagnosis, innovative treatment modalities, and the right treatment for effective return to work planning.

Learning Outcomes:

1. Clearly identify mental health disability management practices
2. Understanding of evidence-based strategies
3. Take home toolbox

Main Topics:

1. What is mental health disability management?
2. What does the evidence say?
3. What keeps you up at night (interactive)?
4. Strategies for complex claims
5. Mental Health claim toolbox



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Digital application was superior to physical therapy for orthopedic knee injuries assessed by PROMIS® measures



**Marc P. Gruner¹, Nathan Hogaboom^{2,3}, Ike Hasley¹, Jared Hoffman DPT¹,
Karina Gonzalez-Carta¹, Andrea L. Cheville¹, Zhuo Li⁴ and Jacob L. Sellon¹**

¹Department of Physical Medicine and Rehabilitation, Mayo Clinic College of Medicine and Science, USA

²Center for Spinal Cord Injury Research, Kessler Foundation, USA

³Center for Outcomes and Assessment Research, Kessler Foundation, USA

⁴Division of Biomedical Statistics and Informatics, Mayo Clinic College of Medicine and Science, Rochester, USA

Physical therapy is often the initial treatment for conservative care of musculoskeletal disorders in the United States. Efficacy of a physical therapy exercise program delivered via a digital application (Limber Health app) compared to standard physical therapy has not been thoroughly assessed. We hypothesize that Digital Home-Exercise Therapy Application (DETA) will be superior to the standard of care (Physical Therapy (PT)) after 8 weeks with respect to improvement in PROMIS® pain and function Computerized Assessment Test (CAT) measures.

We use a multi-center, prospective; single-blind randomized clinical trial comparing PT (standard of care) to DETA. A total of 60 patients prescribed PT were randomly assigned in a 1:1 parallel block randomization compared to PT prescription. The PT groups were assigned to therapy twice a week for 8 weeks. The DETA group was assigned to 15-25 minute videos 3 times a week for 8 weeks that were tailored based on the patient's disability and health status. The DETA's algorithm adjusted the intensity of program progression based on

changes in PROMIS® scores. The primary outcome was PROMIS® pain and function CAT.

Thirty patients completed the 8 week intervention (17 control, 13 treatment) at the time of submission. Independent t-tests revealed absolute changes in PROMIS Physical Function were significantly greater in the DETA group compared with control, indicating a greater improvement in function; a large effect size was noted ($p < .05$, Hedge's $g = 0.77$). Reductions in Pain Interference were not significant between the groups, but a medium-to-large effect size was noted in favor of the Limber app ($p > .05$, Hedge's $g = .60$). Changes in Physical Function and Pain Interference surpassed MCID in the Limber group, but not in the control group.

An 8-week DETA program was superior to the standard of care of PT; a digital therapeutic exercise application could have similar outcomes with respect to pain and function compared to traditional PT. This study describes an innovative approach to risk stratify patients to appropriate exercise based on their disability.



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Dehumanisation

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Marie Oldfield*Oldfield Consultancy, UK*

Artificial intelligence and the world of cyber are inextricably bound. When logging on one can be susceptible to any number of manipulations by actors in cyberspace. Some have attempted to put in a myriad of controls that seek to provide safety but instead provide restriction and push negative forces into hiding. The methods in which manipulation is present in cyberspace are not widely well understood and so this paper explores how techniques such as anthropomorphism and humanlike technology can affect, and manipulate, people and their belief systems. As we have observed over the last few years, this can end in legal proceedings, or damage to society. Recently more serious effects of AI have been observed. Dehumanisation is the human reaction to overused anthropomorphism and lack of social

contact caused by excessive interaction with, or addiction to, technology. This can cause humans to devalue technology and to devalue other humans. This is a contradiction of the use of 'social robots' and 'chatbots', indicating that the negative effects of this technology would outweigh any perceived positive effects. In cyberspace, anthropomorphism and similar techniques based on deep philosophical principles can be, and are, used to alter the behaviour of humans. To the authors knowledge the concepts within this paper have not been pulled together in this way to discuss the impact on cybersecurity. As these types of techniques are becoming more widespread in the cyberspace area, it is clear that we are entering uncharted territory that holds a vast array of consequences for society.



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Eco-friendly alternative malaria control strategies: Insecticidal activity of *Aeollanthus* *pubescens* leaf essential oil against *Anopheles gambiae*



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Background: The excessive use of synthetic insecticides is responsible for many cases of resistance in insects. Therefore, the use of natural molecules of ecological interest with insecticidal properties turns out to be an alternative approach to the use of synthetic insecticides. This study aims at investigating the larvicidal, adulticidal activity and the chemical composition of the essential oil of *Aeollanthus pubescens* on the major malaria vector, *Anopheles gambiae*.

Methods: Three reference strains of *Anopheles gambiae sensu stricto* (Kisumu, Kiskdr and Acerkis) were used in this study. The leaves of *A. pubescens* were collected in

southern Benin. The standard WHO guidelines for larvicide evaluation were used and the chemical composition of the essential oil was analysed by gas chromatography coupled to mass spectrometry. Adult mosquitoes were exposed to the net pieces coated with the essential oil for 3 min using the WHO cone bioassay method. Probit regression analysis was used to determine lethal concentrations (LC50) and time to knockdown (KDT50). The Log-rank test was performed to evaluate the difference in survival between the strains.

Results: 14 components were identified representing 98.3% of the total of oil content. The major components were carvacrol



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(51.1%), thymyle acetate (14.0%) and α -terpinene (10.6%). The essential oil has shown larvicidal properties with LC₅₀ of 29.6, 22.9, and 28.4 ppm respectively on Kisumu, Acerkis and Kiskdr strains. With the net pieces treated at 165 $\mu\text{g}/\text{cm}^2$, the KDT₅₀ of both Acerkis (1.71 s, $Z = 3.34$, $p < 0.001$) and Kiskdr (2.67 s, $Z = 3.49$, $p < 0.001$) individuals were significantly lower than that of Kisumu (3.8 s). The lifespan of the three mosquito strains decreased respectively to 1 day for Kisumu (χ^2

= 99, $df = 1$, $p < 0.001$), 2 days for Acerkis ($\chi^2 = 117$, $df = 1$, $p < 0.001$) and 3 days for Kiskdr ($\chi^2 = 96.9$, $df = 1$, $p < 0.001$).

Conclusion: Our findings show that the *A. pubescens* essential oil has a larvicide and adulticide properties against the malaria vector *An. gambiae* s.s. This bio-insecticidal activity may be a promising discovery for the control of the resistant malaria-transmitting vectors.



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Re-embodied by the rhythm: A Jungian understanding of a woman's experience of birth trauma and its transformation through a spiritual dance practice

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Pacifica Graduate Institute, USA

C. G. Jung, and those who followed in his footsteps to shape Depth Psychology, gave us the words to understand the complexes that develop after someone has experienced trauma. In particular when a woman experiences birth trauma, she can become gripped by the victim complex, feeling trapped by the feeling-toned archetypal core that affects how she interacts with the world. But what is the remedy to heal this? In the mire of my own turmoil, after the terrifying medicalized birth of my son, a chance encounter with a spiritual dance practice on the cliffs of the California coast was the only thing that helped. Curious to determine what was happening within me, I discovered that the ancient practice of dance actually engages the Transcendent Function. Miller (The transcendent function: Jung's model of

psychological growth through dialogue with the unconscious, State University of New York Press, Albany, 2004) offers a beautiful description of this Jungian concept, "The transcendent function is the tissue between consciousness and the unconscious; it is the expression of the space or field that mediates between the two" (p. 126). This connective tissue had been broken during my traumatic experience and it was only when my consciousness could once again successfully communicate with my unconscious that I began to become restored. Thus, my research examines how a complex can develop as a result of trauma, the way in which dance activates the transcendent function, and how these two things worked together to help me align with the complex to work towards individuation after tribulations.



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“Hume’s guillotine in developing AI ethics”

P. Saariluoma

Jyväskylä University, Finland

In future intelligent digital society, the way people are organized around intelligent machines shall change. Intelligent machines can follow ethical rules in their behavior. One approach to investigating intelligent systems and their social influence is based on the analysis of human information processing. Intelligence is information processing. However, factual and ethical information are different. Facts concern true vs. false, while ethics is about what should be done. David Hume recognized a fundamental problem, which is that can facts be used to derive values. His answer was negative. This is a critical concern in developing intelligent ethical technologies.

Thought Hume’s problem is not crucial when values can be assigned to technologies by people, in case of sc. weak ethical artificial intelligence (AI). However, Hume’s problem is hard when we speak of strong ethical AI, in which machine’s should generate values from facts. In ethical discourses, this problem is called Hume’s guillotine and it apparently makes strong ethical AI impossible.

Nevertheless, one can argue that Hume’s

guillotine is grounded on a mistaken juxtaposition of emotions and cognition. In the human mind, the encoding of all the experiences is based on the cooperation of emotions and cognitions. Therefore, Hume’s guillotine is not a real obstacle, but it is possible to use stronger forms of ethical AI to develop new ethics for intelligent society. The analysis of human ethical information processes provides clarity to the possibility of strong ethical AI. Human ethical information processing begins with positive or negative emotions associated to situations. Situations can be seen as consequences of actions and for this reason people can define rules about acceptability of typical actions.

Finally, socio-ethical discourses create general ethical rules. Intelligent systems can provide important support in ethical process and thus the difference between weak and strong ethical AI is polar. These ethical information processes can be modelled by AI systems, and thus it is possible to develop AI systems which can generate ethical rules.



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Uncertain climate change, increasing risk, and mutual insurance



Roland Eisen

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Besides the Covid Crisis, two further challenges are confronting us: the demographic development and climate change. While the demographic development is – as seen by most demographers – a well-known process with only small risk, the climate change is – as seen by most scientists – governed by huge and increasing risk. This involves not only the questions of discounting the distant future and with which interest rate, but also the (unknown) techniques of abatement of environmental damages. Or – as Martin Weitzman (2009) has pointed out – what is the “appropriate way to represent the the damages from global warming” (ibid, p. 1)? Furthermore, should the damages done to the environment be treated *multiplicatively* (and are thus substitutable with other goods, meaning e. g. that climate changes “drive up

only the prices of food or increase the demand for air conditioning” (ibid)? Or should the damages be treated *additively* in the (social) utility function where the “impact of climate change is on things that are not readily substitutable with material wealth, such as biodiversity and health”? In the end this leads to Probability Density Functions (PDF) with very fat tails such “that its variance is effectively infinite” (ibid, p. 8).

To control these processes, sophisticated insurance (or risk management) products are called for. And here, mutual insurance comes in, especially when the risks are large, probabilities unknown, and events correlated!

In the following the advantages of mutual insurance are shown with respect to these “cascades of uncertainties” (Weitzman, 2009).



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The relationship between academic anxiety, self-regulating learning ability, and self-esteem among the Chinese candidates for the college entrance examination during covid-19 outbreak



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This study explored the relationship between academic anxiety and self-esteem in Chinese candidates preparing for the college entrance examination during the COVID-19 pandemic. We explored the mediating effect mechanism of self-regulating learning ability. The data were collected for 293 candidates using a general information questionnaire and scales such as the Academic Anxiety Scale, Self-regulated Learning Ability Scale, and Self-esteem Scale during COVID-19 prevalence in 2020. This study found

that: 1) students of the high and the low academic anxiety groups had different levels of self-regulated learning ability and self-esteem; 2) the academic anxiety, self-regulated learning ability, and the self-esteem levels of the students were significantly correlated; 3) after controlling the two independent variables of gender and subject type, academic anxiety had a significant negative predictive effect on self-esteem, and self-regulated learning ability played a mediating role between academic anxiety and self-esteem, where the mediating effect accounted for 18.6%.



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Together let us confront it: An outbreak investigation of Hepatitis B in pathanamthitta district, Kerala



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Introduction: Hepatitis B is a potentially life-threatening liver infection caused by the Hepatitis B virus (HBV). The established routes of transmission are from mother to infant, sexual contact, and exposure to blood or body fluids. Though HBV is preventable by vaccine and robust infection control practices, outbreaks of HBV infection do occur in India. However, the state of Kerala with its health parameters, one among the best in the country, cannot afford to have continuing outbreaks. An unusual increase in the reported cases of Hepatitis B in a rural area of Pathanamthitta district of Kerala called for an outbreak investigation.

Aims: To describe the epidemiological features, to determine the risk factors associated with HBV transmission, and to suggest measures to prevent future transmission.

Methods: A community-based case-control study (1:2) was undertaken. A total of 162 participants (54 cases and 108 age, gender, and neighborhood matched controls) took part in the study. Focus group discussions were

conducted with subject experts to develop an interview schedule assessing 40 risk factors. It was further reviewed by the University of Sydney. Data was collected by trained Junior Health Inspectors and Junior Public Health Nurses of the Primary Health Centers. Data were analyzed using SPSS v. 20. Proportions were compared by Univariate analysis, subgroup analysis, and logistic regression. Population Attributable Risk (PAR) was also calculated.

Results and Conclusion: More than 90% of the infections were IgM anti-HBc positive, suggesting recent infection. Interventions during hospitalization [OR: 7.98 (95% CI – 2.17--29.4)], family history of Hepatitis B [OR: 4.14 (95%CI – 1.73--9.9)], and laboratory investigations [OR: 3.99 (1.72--9.31)] were found to be significant risk factors. PAR was highest for laboratory interventions (32%). Vaccinating household contacts and strict enforcement of infection control practices could substantially reduce the burden of this fatal disease.

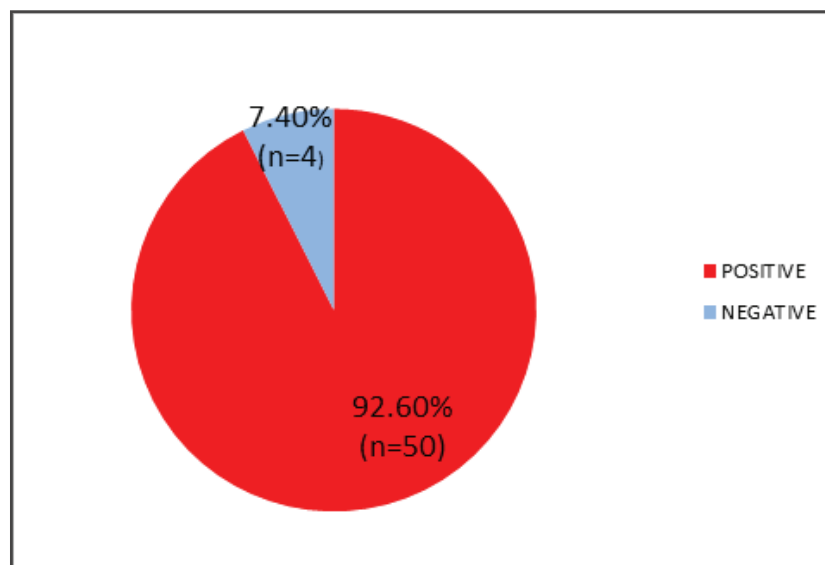
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Table 1. RISK FACTORS ASSOCIATED WITH HEPATITIS B IN THE STUDY

Table 1. RISK FACTORS ASSOCIATED WITH HEPATITIS B IN THE STUDY				
UNIVARIATE ANALYSIS				
FACTORS	CASES (N=54)	CONTROLS (N=108)	OR (95% CI)	p - value
Underwent hospitalisation	12 (22.2%)	4 (3.7%)	7.42 (2.27-24.34)	0.001
Exposure to major or minor surgical procedures	5 (9.3%)	2 (1.9%)	5.36 (1.01-28.5)	0.030
Family history of Hepatitis B	20 (37%)	13 (12%)	4.29 (1.93-9.57)	0.001
Underwent dental procedures during six months prior to diagnosis	14 (25.9%)	12 (11.1%)	2.80 (1.19-6.58)	0.015
Contact with jaundiced persons	21 (38.9%)	23 (21.3%)	2.35 (1.15-4.80)	0.018
Laboratory investigations during six months prior to diagnosis	34 (63%)	49 (45.4%)	2.05 (1.05-3.99)	0.035
MULTIVARIABLE LOGISTIC REGRESSION				
FACTORS	PAR _{cc}	ODDS RATIO	95% CI of OR	p- VALU E
Underwent hospitalisation	17.3%	7.98	2.17- 29.4	0.002
Family history of hepatitis B	28%	4.14	1.73- 9.9	0.001
Laboratory investigations	32%	3.99	1.72-9.31	0.05

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Fig 1. Showing the IgM anti-HBc status of the cases (n=54)





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Corruption risk management at the tendering and signing of the contract stage in the Iraqi construction sector



Semaa Hazim Najim Alani

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Risk management has evolved into a critical component of all management missions. Given that the construction industry is regarded as one of the riskiest, corruption risk is a significant concern in the construction industry. One of the country's most critical problems is corruption, and it has become increasingly problematic as it has spread to the construction sector. Based on the ISO 31000 risk management standard and the ISO 31000 Bow-Tie risk management assessment from the International Organization for Standardization (ISO). The feature provides a recognized and credible approach for analyzing the corruption risk of policy failure, by elaborating: (a) the "corruption risk", assessing the probability and impact based on qualitative analysis; (b) the

effectiveness of the system of management measures in avoiding and reducing risk; and, (c) the existence of the interaction aspect of management measures rapidly increasing factors, including laws and legislation change. This paper aims to manage the corruption risk at the tendering and signing of the contract stage that affects the performance of the project. It offers a policy analysis by the Bow-tie tool with the potential to address risks associated with future corruption to achieve better project execution and will reduce deviations and claims that will occur during implementation in the Iraqi construction sector. The resultant model assists stakeholders in gaining a better understanding of corruption risks, their origins, and their consequences.

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A Vaccine can prevent subacute sclerosing panencephalitis

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Subacute sclerosing panencephalitis (SSPE) is a rare, slow, and insidious neurodegenerative disease caused by measles. This disease mostly has a classic course. However, sometimes it can be presented with atypical manifestations and fulminant course.

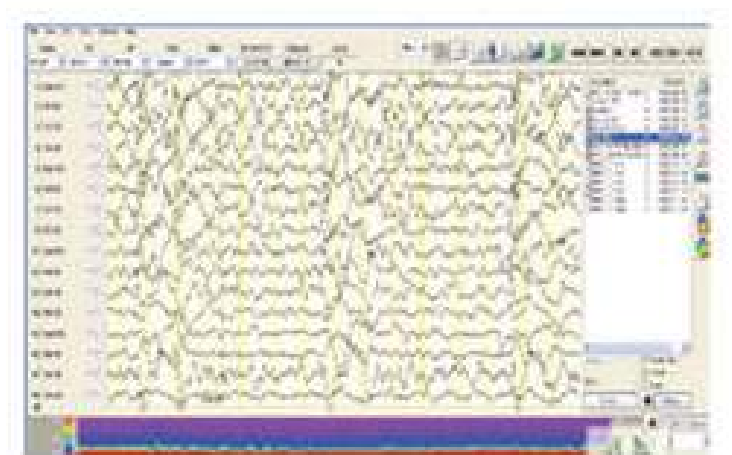
Aim: To report different courses of SSPE, when a patient comes with neurological manifestations, SSPE should always be one of the differential diagnoses.

Methods: The files of 4 patients who were followed up with the diagnosis of SSPE in Çukurova University Faculty of Medicine Pediatric Neurology Service between 2015 and 2021 were retrospectively reviewed, and patients with a follow-up period of at least one year were included in the study.

Case Summary: In this paper, we aim to present four male cases mean age of $6 \pm 1,7$ that were hospitalized due to seizures and ataxia. Cerebral magnetic resonance imaging showed hyperintense lesions in the thalamic, brainstem, and periventricular area. Periodic epileptiform discharges were detected in the repeated electroencephalogram. Investigations from the cerebrospinal fluid

showed markedly elevated anti-measles virus IgG, which was consistent with the diagnosis of SSPE, which should always be ruled out when a patient comes in with uncontrollable seizures ataxia, and apathy.

Conclusion. SSPE is a preventable disease; effective and timely vaccination is vital to induce adequate protective immunity in preventing fatal SSPE.





Determinants of maternal satisfaction with Existing Delivery Care at Wolaita Sodo University Teaching and Referral Hospital, Ethiopia



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²School of Public Health, Institute of Health Sciences, Jimma University, Ethiopia

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Background: Assessing maternal satisfaction on delivery service has significant public health importance to measure the quality of maternal and child care services in a country. Therefore, the objective of this study was to further investigate the determinants of maternal satisfaction on delivery service provided at the Woliata Sodo University Teaching and Referral Hospital, Ethiopia.

Methods: An institutionally based cross-sectional study was employed at the Wolaita Sodo University Hospital, Ethiopia. All mothers who gave birth between March and May 2018 were included in the study. Data were collected through using a pretested and structured interviewer-administered questionnaire. Both bivariate and multivariable logistic regression analyses were performed.



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Concurrent reciprocal IVF and risk of pre- eclampsia



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Reciprocal IVF is an established method for lesbian couples to have a child to whom they both have a biological connection. It involves one partner being the genetic parent by providing the oocytes which following fertilisation are then implanted in the other partner's womb who then acts as the gestational parent. Pregnancy from donated oocytes is a significant risk factor for pre-eclampsia.

We report a case where both partners in a lesbian couple underwent concurrent reciprocal IVF and a PLGF test diagnosed a high risk of pre-eclampsia in one partner.

Partner A aged 39 conceived first. She was at high risk of pre-eclampsia according to NICE guidance so she was prescribed low dose aspirin in early pregnancy. Her blood pressure was normal throughout her pregnancy and she did not develop pre-eclampsia. She delivered via emergency c-section after admission with PPRM at 35 weeks.

Partner B aged 38 conceived 15 weeks later. She was not deemed high risk for pre-

eclampsia according to NICE guidance. At 28+6 weeks she was diagnosed with gestational hypertension without proteinuria. A PLGF test was performed which was <12 mg/ml. At 33+5 weeks she was admitted with a blood pressure of 152/98, significant proteinuria, and diagnosed with pre-eclampsia. She delivered at 34 weeks via emergency c-section due to worsening hypertension and raised pulsatility index in the foetal umbilical artery doppler.

Our experience, highlighted by this case report, suggests that patients considering Reciprocal IVF are properly counselled about the significantly increased pre-eclampsia risk and the possible maternal and foetal complications.

If Reciprocal IVF or donor oocytes are the chosen assisted reproductive technique, we recommend consideration of low-dose aspirin in early pregnancy. PLGF levels may also allow prompt detection of risk and appropriate antenatal scheduling. We suggest that 'pregnancy from donated oocytes' becomes a documented risk factor for pre-eclampsia under NICE guidelines.



A descriptive analysis of sentencing decisions by the Canadian criminal justice system of people with intellectual disabilities convicted with sexual offenses



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This study reviews sentencing decisions of people diagnosed with intellectual disabilities who have been convicted of sexual offences by judges in Canada. Given the prevalence of people with intellectual disabilities managed within the criminal justice system (CJS), courts have increasingly been faced with issues concerning appropriate sentencing. In addition, many people with intellectual disabilities have complex social and medical backgrounds that require multidisciplinary perspectives to account for each person's legal and moral culpability, which in turn influences sentencing decisions, including placement in prisons versus rehabilitation programs. The legal databases Canlii and LexisNexis Quicklaw were used to search full text judgements

from Canadian courts for adults (over the age of 18) diagnosed with an intellectual disability and charged with a sexual offence. In total, 61 cases were included within the full-text review. These cases were analysed based on the accused's demographics, past social history, past medical history, current diagnoses, past criminal record, current charges, mitigating/aggravating factors, use of a Gladue report, sentence, and other pertinent information that contributed to the final judgement. Recommendations on how to increase the effectiveness of the CJS in trying and sentencing people with intellectual disabilities are made based on the findings of this study.



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Effects of point of care serial NT-proBNP measurement in patients with acute decompensated heart failure as a therapy-monitoring during hospitalization (POC-HF): Study protocol and preliminary results of a prospective, unblinded, randomized, controlled pilot trial



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Despite important advances in diagnosis and medical therapy of heart failure (HF), disease monitoring and therapy guidance remains based on clinical signs and symptoms. NT-proBNP was demonstrated to be a strong and independent predictor of morbidity and mortality in patients with HF. Only few and conflicting data are available on the efficacy of serial measurement of NT-proBNP as a tool for treatment monitoring in HF. While these are limited to the outpatient setting, no data are available on the effects in patients hospitalized for acute decompensated HF (ADHF).

The goal of POC-HF was to explore whether the availability of serial NT-proBNP measurements influences treatment decisions in patients with ADHF, and whether this leads to more rapid dose adjustments of prognostically beneficial medical therapies and earlier hospital discharge. In the intervention group, serial NT-proBNP measurements every second business day were performed and made available to the treating physician, while no measurements

were available in the control group. Though participating physicians were told to follow the European Society of Cardiology guidelines for the diagnosis and therapy of acute and chronic HF, individual HF therapy decisions were left at the discretion of the treating physician.

Primary endpoints were defined as the effects of monitoring NT-proBNP on medical HF therapy, including type and dosing of medical therapies, rapidity of adjustments, length of hospital stay, and changes in NT-proBNP values. Secondary endpoints included the incidence of electrolyte imbalances, renal failure, changes in NYHA functional class, vital signs, body weight, quality of life, incidence of adverse events, transfer to Intensive Care Units, and mortality.

Preliminary results from 26 patients are available demonstrating a trend towards more rapid and pronounced reduction of NT-proBNP values, better recovery rates from signs and symptoms of acute decompensated HF, and a faster up-titration of prognostically relevant HF therapies.



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“ Artificial intelligence in digital health ”

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Artificial Intelligence (AI) is the simulation of human intelligence processes by machines. Natural Intelligence (NI) displayed by humans and animals, which involve consciousness and emotionality. Three processes in the AI required (1) Learning processes. Focuses on acquiring data and creating rules for how to turn the data into information. The rules, which are called algorithms, provide computing devices with step-by-step instructions for how to complete a specific task. (2) Reasoning processes. Focuses on choosing the right algorithm to reach a desired outcome. (3) Self-correction processes. Focus on designing to continually fine-tune algorithms and ensure they provide the most accurate results possible. AI has widely used in the medical domain. Digital health is defined as the “use of information and communication technologies to improve human

health, healthcare services, and wellness for individuals and across populations.” Recently technology medical doctor required on real-time results in prediction and decision making for example in early warning or preparedness. AI is widely used in prediction and decision making. When using AI, the reliability and accuracy in prediction and decision making required the medical doctor verification. One of the AI was used as personal movement in the rehabilitation. In the exercise games, usually the physiotherapy will perform the manually setting that suitable by the patients. But when using AI, it can be done automatically and help physiotherapy. It helps the patient’s improvement tremendously. Most of the hospital nowadays using Hospital Information System, for example, x-ray or diagnosis kept in the database. It is easier for the medical doctor to extract the data from everywhere.



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“ Activation of intestinal bitter taste receptors for the prevention and treatment of metabolic diseases ”

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Intestinal bitter taste receptors play important and complex roles in nutrient digestion, absorption, and metabolism, and regulate glucose and lipid homeostasis through the release of gastrointestinal hormones. Numerous bitter taste receptors in mammalian species have been identified over the past decades, and growing evidence support that dietary supplementation of bitter herbs may provide health benefits in glucose and lipid metabolic disorders. Bitter medicinal herbs were widely used in traditional herbal medicine for their properties to aid digestion and/or anti-inflammation, and recent studies have investigated the value of some medicinal plants and their bitter constituents for treating metabolic disorders. Despite the complexity of bitter taste receptors in the digestive system, emerging evidence highlights bitter agonists isolated from medicinal herbs activate bitter signal transduction and facilitate the enteroendocrine secretion of GLP-1 and other gut hormones. Given that the impaired incretin

effects are associated with the occurrence of type 2 diabetes, the nutritional and pharmacological studies of bitter melon, hops strobiles, and berberine-containing herbs were carried to evaluate the therapeutic potential in the prevention or treatment of metabolic syndrome and obesity-associated diabetes. Based on current clinical and preclinical evidence, bitter melon can be applied as a dietary supplementation for patients with mild diabetes. Moreover, bitter compounds, such as hops derived KDT501 and berberine, can be used to improve both glycemic control and lipid profile through targeting bitter taste receptors (i.e. human TAS2R1 and TAS2R3 with specific agonists) with the modulation of the enteroendocrine hormone secretion and bile acid turnover. Therefore, such an approach may offer an alternative treatment for metabolic syndrome individuals or diabetic patients with dyslipidemia-related comorbidities beyond incretin-based therapy.



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Progression and regression of abdominal aortic aneurysms in mice

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Objective: Abdominal aortic aneurysm (AAA) is a significant medical problem with a high mortality rate. Nevertheless, the underlying mechanism for the progression and regression of AAA is unknown.

Methods: Experimental model of AAA was first created by porcine pancreatic elastase incubation around the infrarenal aorta of C57BL/6 mice. Then, AAA progression and regression were evaluated based on the diameter and volume of AAA. The aortas were excised for hematoxylin-eosin staining (HE), orcein staining, sirius red staining, immunofluorescence analysis and perls' prussian blue staining at the indicated time point following. Finally, β -aminopropionitrile monofumarate (BAPN) was used to explore the underlying mechanism of the regression of AAA.

Results: When we extended the observation period to 100 days, we not only observed an

increase in the AAA diameter and volume in the early stage, but also a decrease in the late stage. Consistent with AAA diameter and volume, the aortic thickness showed the same tendency based on HE staining. The elastin and collagen content first degraded and then regenerated, which corresponds to the early deterioration and late regression of AAA. Then, endogenous up-regulation of lysyl oxidase (LOX) was detected, accompanying the regression of AAA, as detected by an immunofluorescent assay. BAPN and LOX inhibitor considerably inhibited the regression of AAA, paralleling the degradation of elastin lamella and collagen.

Conclusion: Taken together, we tentatively conclude that endogenous re-generation of LOX played an influential role in the regression of AAA. Therefore, regulatory factors on the generation of LOX exhibit promising therapeutic potential against AAA.

“ Monoclonal antibody directed to the PilQ -PilA DSL region in *Pseudomonas* *aeruginosa* improves survival of infected mice with antibiotic combination ”

**Abed Zahedi bialvaei, Aylin Esmailkhani, Shabnam Razavi and
Gholamreza Irajian**

Microbial Biotechnology Research Center, Iran University of Medical Sciences, Iran

Objectives: *Pseudomonas aeruginosa* infections are associated with considerable morbidity and mortality in critically ill patients because of multidrug resistance. Our objective in this study was to determine the protective effects of murine monoclonal antibodies

(MAbs) against a fusion protein containing PilQ and disulphide turn region of PilA (QA) from *P. aeruginosa* in a model of burn wound sepsis.

Methods: After expression in *E. coli* BL21 strain, recombinant proteins were adsorbed to Ni-NTA, and confirmed by Western blotting.

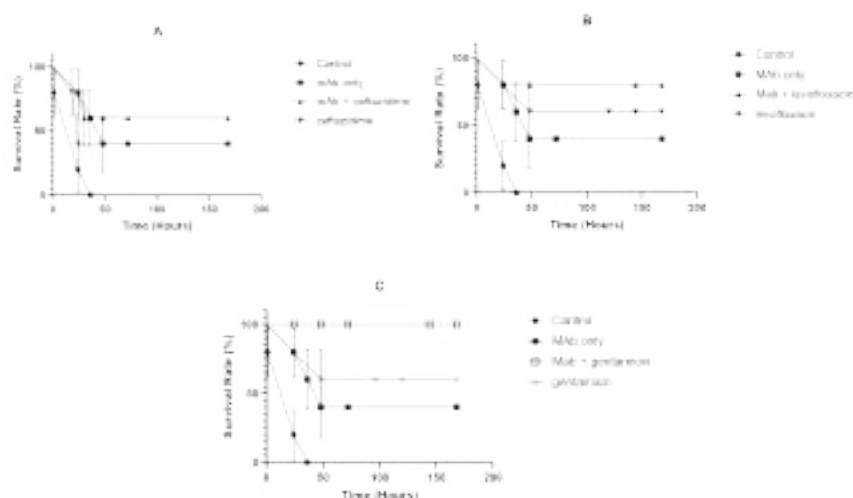


Figure 1: Survival curves of mice in the control and three treatment groups (2E1-E6 mAb only; antibiotic only; 2E1-E6 mAb + antibiotic) examined in this study. A: Ceftazidime. B: Levofloxacin. C: Gentamicin.



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The purified recombinant protein was used as an antigen to immunize mice. Immunized murine spleen cells were fused with myeloma cells and hybridoma cells were cultured in HAT medium. A number of antibody-producing hybridomas were cloned by limiting dilution method. Then, for mass production of MAbs, ascites fluid formation method was used in mice and purified by affinity chromatography. Final confirmation of MAbs purity was performed by SDS-PAGE method. Twitching motility inhibition assay was performed to evaluate the biological activity of the produced MAbs. After modeling the burn in mice, *P. aeruginosa* O1 infection was induced by injecting bacteria with a concentration of 3 times LD50 ($3-5 \times 10^2$ cfu / ml) in the burned area and mortality was

assessed in mice treated with MAbs compared with control groups for 7 days.

Results: The 1H10-D6 and 2E1-E6 MAbs produced against the PilQ-PilA DSL region sequence completely inhibited the motility of the PAO1 strain. Also, the results showed that mice receiving 2E1-E6 provided significant protection against bacterial strains. Reliably, in comparison with other treatment groups, the combination of antibiotic and 2E1-E6 mAb essentially enhanced the survival of mice infected with PAO1.

Conclusion: Consequently, the antibiotic and 2E1-E6 MAb combination gives a new effective strategy for the treatment of *P. aeruginosa* sepsis, particularly when large numbers of exceptionally virulent strains are present.



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A study of prevalence, severity, and determinants of pain in patients with thalassemia from a developing country



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Background: As the life expectancy in thalassemia is improving, pain is being recognized as an emerging problem. There is a need for a prospective observational study of pain in these high-risk patients.

Objectives: Assess the pain prevalence, severity, and impact of co-morbidities in thalassemia.

Methods: All patients >10 years of age (n=165) attending Thalassemia Day Care Center of a tertiary care hospital were assessed for pain prevalence, severity, and its impact on various life activities using Brief Pain Inventory. Their medical records were reviewed for the presence of various comorbidities. All statistical calculations used SPSS 21 version statistical program for Microsoft windows.

Results: The pain was reported by 62.4% of participants with 35.2% and 59.4% participants, reporting pain in the past 1 week

and 4 weeks respectively. A significantly higher pain prevalence was reported in females (p=0.03), patients residing in urban areas and employed participants (p=0.03). The commonest sites of pain were the lower back and calves. General activity (p=0.02) and enjoyment of life (p= 0.02) were significantly affected due to pain in patients between 21 to 30 years of age. Female participants reported interference of pain with mood (p=0.03). A significant relation of pain prevalence was found with higher average serum ferritin (p = 0.015), moderate to severe liver iron concentration (p= 0.04), and lower levels of 25 hydroxyvitamin D levels (p=0.03).

Conclusion: Pain is an emerging cause of morbidity in thalassemia. The study found a significant association of pain with modifiable factors such as serum ferritin, LIC, 25 hydroxyvitamin D levels.



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“Fatal necrotizing fasciitis in illegal abortion and the negligence tort”

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The availability of newer techniques has reduced the complications in medically terminated pregnancies; however, the deaths due to illegal abortions carried out by the clandestine abortion practitioners still poses a challenge, especially in rural areas. Mostly due to lack of awareness, social fear a pregnant woman fall prey to the quacks and readies herself for an illegal pregnancy termination. The common complications of the abortion like incomplete abortion, haemorrhage, sepsis, etc. are usually handled successfully by the gynaecologist; however, they often miss early detection of rare complications like necrotising fasciitis leading to death of the patient. We

report a case of illegal abortion which developed sepsis and necrotising fasciitis of right lower limb due to intra-vaginal use of abortifacient herbs prescribed by a clandestine abortion practitioner. The case was succumbed to the complications of sepsis/necrotising fasciitis after a week of hospitalization. This led to negligence tort filed by her family members against the treating gynaecologist alleging that the delayed diagnosis and treatment for necrotising fasciitis led to the death of the woman. We have discussed here about the prudent medicolegal and medical steps on the part of the treating gynaecologist that could have prevented such sequel.



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Antimicrobial resistance modulation of MDR *E. coli* by antibiotic coated ZnO nanoparticles



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We evaluated three types of total six preparations against multidrug resistant *E. coli* i) three antibiotic coated ZnO nanoparticles (gentamicin coated nanoparticle-GNp; chloramphenicol coated nanoparticles-CNp; and both gentamicin & chloramphenicol coated nanoparticle-GCNp), ii) ZnO nanoparticle alone-Np, and iii) two antibiotics used in single (Gentamicin-G; and Chloramphenicol-C). A total of n = 200 sub-clinically positive mastitic milk samples of bovine origin were processed for isolation of MDR *E. coli* using microbiological and clinical laboratory & standard institute's protocols. ZnO Nps were prepared from zinc acetate dihydrate ($\text{Zn}(\text{CH}_3\text{COO})_2 \cdot 2\text{H}_2\text{O}$), polyethylene glycol ($\text{C}_{2n}\text{H}_{4n+2}\text{O}_{n+1}$), and urea ($\text{CH}_4\text{N}_2\text{O}$) by standard chemical protocol. Nps were characterized by XRD and STEM analyses while coating of antibiotics on Nps was confirmed by UV-Visible spectrophotometric analysis. Analysis of variance and student t-test were

applied at 5% probability using SPSS version 22 statistical software for inferences on obtained data. There was significantly ($p < 0.05$) lowest minimum inhibitory concentrations (MICs) and highest zone of inhibitions (ZOIs) in case of GCNp ($10.42 \pm 4.51 \mu\text{g/mL}$ & $22.00 \pm 1.00 \text{ mm}$) followed by GNp ($20.79 \pm 8.95 \mu\text{g/mL}$ & $20.00 \pm 1.00 \text{ mm}$) and then CNp ($25.96 \pm 8.95 \mu\text{g/mL}$ & $12.33 \pm 0.57 \text{ mm}$). Percentage increase in ZOI were expressed as 135.8, 78.43, and 312.76% by GCNp when compared with that of G, C, and Np, respectively. GNp and CNp coated preparations exhibited 114.36 and 275.73% increase in ZOI than to that of G and C, respectively. Similar trend was found in percentage reduction of MICs of preparations. Highest filamentation, indicator of bacterial damage, of *E. coli* was noted at MIC of GCNp followed by GNp and CNp. The study concluded antibiotic coated ZnO nanoparticles significant candidates modulating antibiotic resistance in MDR *E. coli*.



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Privacy preserving attribute-focused anonymization scheme for healthcare data publishing



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The advancements in industry 4.0 brought tremendous improvements in the healthcare sector such as better quality of treatment, enhanced communication, remote monitoring, reduced cost, and so on. Sharing healthcare data with healthcare providers is crucial in harnessing the benefits of the improvements. Healthcare big data generally contains sensitive information about individuals. Hence, sharing such data is challenging due to various security and privacy issues. According to the privacy regulations and ethical requirements, it is essential to preserve the privacy of the patients before sharing the data for medical research. In this paper, we propose an attribute-focused privacy preserving data publication scheme. The proposed scheme is two-fold, it comprises of a fixed-interval approach to protect numerical attributes and an improved l-diverse slicing

approach to protect the categorical and sensitive attributes. The proposed scheme is effective in thwarting privacy attacks such as identity disclosure, attribute disclosure, and membership disclosure even when the adversary possesses concise background knowledge. In the fixed-interval approach, the original values of the healthcare data are replaced with an equivalent estimated value. The improved l-diverse slicing approach protects the data from various privacy risks. Therefore, the proposed scheme ensures both privacy and data utility of the published healthcare data. Extensive experiments with real datasets are conducted to evaluate the performance of the proposed scheme. Experimental analyses show that the proposed scheme is efficient in preserving the privacy and data utility with less computational complexity.



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“ Preventive healthcare uptake in private hospitals in Nigeria: A cross-sectional survey (Nisa premier hospital) ”

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Background: Understanding the features of preventive care uptake is critical for assessing the performance and viability of primary care in any healthcare system. There are gaps in previous studies that focused on primary healthcare features, challenges and way forward in Nigeria but were mainly public sector focused and do not characterize the features of preventive care. Since private healthcare sector remains the most accessed and utilized in Nigeria, this study sought to characterize the features of uptake of preventive care to better understand the current preventive healthcare landscape.

Method: A descriptive cross-sectional study, using survey questionnaire were randomly administered to adult patients attending the Family Medicine Out-Patient Department (OPD) at Nisa Premier Hospital, Jabi Abuja. The study was conducted over a three-month period. (January to June 2017). Data collected were analyzed using SPSS version 23 (IBM SPSS, Chicago, IL, USA). Descriptive statistics in the form of frequency and percentage were used to report the results.

Results: A total of 381 participants completed the survey. The results revealed that while

an over overwhelming majority (>90%) of participants indicated knowledge of benefits of preventive care, and preferred interventions aimed at preventing a disease before they occur, 48% preferred interventions aimed at reducing disease or injury impact or interventions aimed at ameliorating the impact of ongoing disease or injury with long lasting effect (43%). Unfortunately, less than 40% of respondents would visit the hospital when their health condition is not serious. Important barriers to uptake of preventive care were revealed as cost (45%), distance to the healthcare provider (36%) and lack of health insurance (33%), whereas poor education (19%), social norms (13%) as well as cultural and religious beliefs (10%) towards accessing certain health services appeared to be lesser barriers.

Conclusion: Although people are aware of the benefits of preventive care, its uptake will greatly be enhanced through improved health insurance coverage, refocusing primary healthcare functions on preventive rather than curative care and instituting policies that mandatorily prescribe uptake for the insured, both at the individual and the insurer's level.



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AI based drug discovery model for corona virus

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The growth of corona virus pandemic, popularly called as COVID-19, has imposed life threatening conditions all over the world. Many ardent researchers, medical professionals and pharmaceutical companies are trying their level best to provide means and solution in order to fight with the current COVID-19 situation, but are yet to achieve success.

As we know corona viruses are a group of related RNA viruses that causes respiratory tract infections ranging from mild to lethal. The prominent features of the virus identified

ranges from basic symptoms like cough, sneeze, sore throat and nasal choke to deadly respiratory blockage depending upon the physical conditions of the body shows its growth and affect.

The research project aims at studying the various features of corona virus from the collected sample test cases and identify the features responsible for the multiplication of the corona viruses. It also aims to conduct an analysis of various other factors effecting it and subsequently identification of the treatable stage for a corona virus infected patients.



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Levels and health risk assessment of mercury, cadmium, and lead in green mussel (*Perna viridis*) and oyster (*Crassostrea* *iredalei*) harvested around Manila Bay, Philippines



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The coastal provinces of Manila Bay contribute 38% of mussel and oyster's production in the Philippines. However, concerns in the consumers' health are rising due to the possible pollution in the bay waters that may contaminate the bivalves. Thus, the present study determined the level of Hg, Cd, and Pb in green mussel (*Perna viridis*), oyster (*Crassostrea iredalei*), seawater as well as the potential health risk. Bivalves and seawater had levels of metals below the regulatory limit established by the country (Bureau of Fisheries and Aquatic Resources; Department of Environment and Natural Resources) and the EU. The maximum estimated daily intake (EDI) of Hg (1.95×10^{-08} mg/kg/day) in mussel was from Seneguelasan (Cavite) during dry season (DS) while maximum EDI of Cd (8.48×10^{-08} mg/kg/day) in oyster was from Tibaguin (Bulacan) during wet season (WS) both in 5–9 years old (yo) male and female,

respectively. For maximum EDI of Cd (2.70×10^{-08} mg/kg/day) and Pb (3.54×10^{-08} mg/kg/day) in the mussel, it was found in 10–19 yo male from Wawa (Bataan) during DS and WS. Whereas, maximum EDI of Hg (1.19×10^{-08} mg/kg/day) and Pb (3.30×10^{-08} mg/kg/day) in oyster were found in 40–59 yo male from Timalang Balsahan during DS. However, none of the bivalves showed higher EDI and weekly intake than the reference dose (EPA 1991; EPA IRIS 1989 and 2001) and provisional tolerable weekly intake (FAO/WHO 2000; 2007; 2011). Furthermore, no health risks were associated with the consumption of mussel and oyster as hazard quotients were <1 . The possible cancer risks were estimated in four to six individuals out of 1×10^7 . The study recommends to have further risk assessment on other fishery commodities available in the area to secure the consumer's safety.



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Religious and cultural interpretations of artificial insemination in south-west Nigeria



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Background: In a constantly changing and increasingly globalized world, religion and cultural practices still play significant role in influencing consumer behaviour towards assisted reproductive technologies.

Purpose: This study examined the religious, cultural and personal interpretations of artificial insemination.

Scope of the study: The study was conducted in South-western Nigeria comprising 6 states namely; Ondo, Ekiti, Lagos, Ogun, Osun Oyo. Three states (Lagos, Ogun and Oyo) out of the six states were purposively selected based on their perceived level of urbanization and civilisation. Furthermore, two local governments were selected from each of the three states. A total of 72 respondents were randomly selected from across the different Christian and Muslim denominations in each of the selected local governments.

Methods: The research methodology was triangulated using qualitative and quantitative methods of data collection. Stratified and simple random sampling technique was used to select the study participants for quantitative data, while, Key Informant interviews (KIIs) was used elicit for qualitative data.

Results: The findings showed that majority

of the respondents were aware of artificial insemination, 75.3% of the respondents had adequate knowledge of artificial insemination. About 54.2% of the respondents agreed that their religious denominations supported any form of artificial insemination, For instance, in contrast to the 61.1% of Roman Catholic respondents' who acknowledged that their religious denomination did not support artificial insemination, 75% of Shia Muslim, and 65.0% of Pentecostal respondents' acknowledged religious support for artificial insemination. For 32.8% of the respondents the process of artificial insemination by donor negates the will of God, while 32.8% of the respondents, posited that artificial insemination is a deviation from cultural norms. The study also revealed that 57.0% of respondents personally perceived artificial insemination to be a very good medical breakthrough.

Conclusions and Implications: Regardless of the technological or educational prowess leading to artificial insemination, certain religious denominations and cultural practices do not support artificial insemination. Medical ethics should take cognisance of the religious and cultural ideas and principles of the society in which they are practiced.



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Occupational health morbidity and associated socio- demographic variables among street sweepers in a metropolitan city



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Background: Work related safety and health hazards are a major public health concern worldwide and are under-researched especially in low and middle income countries.

Aims: To study the socio demographic profile of the street sweepers, to assess the morbidities prevalent among the street sweepers in a metropolitan city and to study the association between socio demographic variables and various morbidities. To analyze the knowledge, attitude and practice among the street sweepers and to suggest preventive measures to improve the health of street sweepers.

Study Design : A cross sectional study

Methods: The study was conducted for a period of two months amongst 100 street sweepers in the age group of 18 to 60 years working under Municipal Corporation. A questionnaire was formulated and validated by a pilot study before the start of the study. Moreover, thorough general, clinical and systemic examination was done to find out morbidities. Exposure to any sort of occupational hazards if any was also noted.

Results: The most common morbidities observed amongst street sweepers were skin problems (91%) followed by musculoskeletal disorders (88%) predominantly in males belonging to the age group of 40-50 years.

Moreover musculoskeletal disorders were more common above 40 years (91%) while skin problems were more common below 40 years of age (95.5%). The prevalence of anemia was found to be relatively higher in females with low socio economic background (6.7%). Additionally, illiteracy was a risk factor for respiratory symptoms (14.7%). This could be due to overcrowded dwellings, ill ventilated houses and poor sanitation. It was also observed that greater the duration of services, more is the risk of morbidities like musculoskeletal disorders (88.5%), respiratory disorders (11.5%), hypertension (6.4%) and cardiovascular disorders (1.3%). As far as knowledge, attitude and practice is concerned, majority of the study subjects had fairly good knowledge about hand washing (92%), importance of using protective devices (80%) and health hazards related to sweeping (45%). Perception of the street sweepers was excellent in respect to hand washing (92%), regular use of personal protective devices (71%) and motivating co-workers regarding safety measures (96%).

Conclusion: Periodic health check up of workers should be done biannually and immediate corrective measures should be taken to protect the health of the employees at risk. Safety training and reorientation programs should also be conducted for the street sweepers periodically.



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“Ebola virus disease, diagnostics and therapeutics: Where is the consensus in over three decades of clinical research?”

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Ebola virus is a neglected tropical disease widely accepted as one of the most fatal diseases of human and nonhuman primates ever encountered in recent years. For a long time, development of vaccines and anti-Ebola drugs has been slow. However, with recent devastating outbreaks in West Africa and Democratic Republic of Congo, the development of rapid diagnostic methods, vaccines, and antiviral drugs are at different stages of clinical trials. Despite the progress made in fighting the Ebola virus epidemic, the approaches still face various obstacles. Such obstacles highlight the desire to search for effective diagnostic and therapeutic interventions. Furthermore, Ebola virus is associated with adverse indirect effects since resources are diverted from programs aimed at controlling important diseases such as malaria, tuberculosis, and HIV infection. We hypothesize that a significant burden of Ebola viral disease if undetected may lead to missed opportunities for prevention and heighten the risk for large-scale outbreaks and pandemics. Further, Ebola is associated

with high fatality rate and significant socio-economic impact. Therefore, the need for a rapid diagnostic technique to be used at the point of care, universal Polyvalent- Ebolavirus vaccine, and effective anti-Ebola drug cannot be overemphasized. Thus, this review focuses on the availability, suitability, and significance of current advances in diagnostics, vaccines, and therapeutic options for the Ebola disease and the need to develop novel vaccines and antiviral therapies that are effective against all known Ebola virus species. This review concluded that, numerous countermeasures have been developed including vaccines (rVSV-ZEBOV and Ad26-ZEBOV/MVA-BN-Filo prime-boost vaccine), nucleoside and nucleotide analogues (BCX4430, favipiravir, and GS-5734), plasma transfusions (Ebola-Tx), immunotherapeutics (Zmapp and MIL77), nucleic acid based drugs, and repurposed drugs. However, there is need to speed development of vaccine and therapeutic agents with broad-spectrum activity against filoviruses like Marburg virus and Ebola viruses.



Psychological distress and health- seeking behaviour among patients with orofacial tumour: The Ghanaian perspective



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Introduction: One of the tumours that can lead to deformity among patients is orofacial tumour (OFT). OFT may result in severe physical and psychological pains that affect daily functions of patients.

Aim: The study investigated the level of psychological distress and health-seeking behaviour (HSB) among patients with orofacial tumours (OFT) visiting the various referral hospitals in Ghana.

Methodology: A cross sectional survey design was used for this study. A sample of 272 comprising 143 patients with OFT and 129 patients with general periodontal diseases who served as a comparison group aged between 18 and 83 years were purposively selected from three referral hospitals in Accra. Data was collected via self-administered structured questionnaires.

Table 1: Analysis of Variance on level of Psychological distress among Patients

Condition	M	SD	df	F	Sig	Bonferroni
Benign	100.88	17.48				
Malignant	181.05	5.67				
Control	46.62	7.91				
Total	91.36	38.28	2,269	49.88	.000	2>1,>,3

Mdf-1 and 2= 80.18, $p < .000$); Mdf-2 and 3= 134.43*, $p < .000$); Mdf-1 and 3= 54.25*, $p < .000$). Partial Eta squared =.770, 1=Benign, 2= Malignant, 3=Control*

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Results: On Analysis of variance, the type of condition significantly predicted psychological distress among patients. The result also showed that the level of psychological distress among patients with OFT was significantly higher than that of the patients with periodontal diseases. Additionally, spirituality was found to be the most significant predictor of health-seeking behaviour (HSB). Delayed health-seeking was also indicative of the state of health of patients with OFT.

Discussion: Spirituality emerged as one of the key determinants of health-seeking behaviour and also a major coping tool for the patients. Factors that influence health-seeking among patients including spirituality have to be effectively integrated into educating the public on the dangers of OFT and early health-seeking.

**Summary of Bonferroni Post hoc analysis*





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Family planning differentials among caste groups in Bihar, India



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The family welfare program in India has experienced significant changes in terms of policy but many goals remain under-achieved. The use of family planning is low in Bihar than the national average. The family planning use varies by socio-economic and demographic characteristics of women and differentials that exist among caste groups. Therefore, we aimed to examine the family planning differentials in the context of socio-economic and demographic characteristics among caste groups in Bihar. The data has been analyzed from the fourth National Family Health Survey (NFHS 4) conducted during 2015-2016 in India. The analysis of data has done by using bi-variate, and logistic regression analyses to observe the association between family planning use and socio-economic and demographic characteristics. The analysis reveals that family planning differentials exist among caste groups. The knowledge of any family planning method and any modern

method is universal and it does not vary much among caste groups in Bihar. Current contraceptive use is higher among the women of other castes than among SC/ST and OBC women. Female sterilization is the most widely used method followed by IUD, condom, and pill among all the caste groups. Contraceptive use is high among the women who have three or more surviving children and this proportion is higher for the women who have two or more sons than the women who have two or more daughters invariably of methods and caste groups in Bihar. The logistic regression analysis on contraceptive use show that differentials exist between the caste groups and the rural areas are lagging behind urban areas. There is a positive relationship between education, wealth and family planning. The use of the family planning method significantly increases with the age of the women, marital duration, education and household wealth index.



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Prenatal lead level and their association with neurodevelopment outcome in early infancy



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Background: In utero, exposure to toxic metal substances can cause severe neurodevelopmental deficits in the developing fetus and infants.

Methods: We evaluated the association of umbilical cord blood lead concentration with early neurodevelopment performance (cognitive, language (receptive and expressive), motor (fine and gross), and social-emotion development). The Bayley Scale of Infants Developments-III (BSID-III) was used to perform neurodevelopment outcomes at an average age of 8 months. In this prospective study total of 167 mother-child pairs were enrolled from western Rajasthan, India. Cord blood lead concentration was measured in whole blood using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES).

Multivariate regression was performed to understand the association of cord blood lead level with infant neurodevelopment outcome.

Results: The obtained umbilical cord blood lead concentration 5.0-10.5 µg/dl was negatively associated with the sub-scale gross motor development score (β -coefficient with 95% CI; -0.29 (-5.0 – 0.11), $p = 0.04$). However, no associations were found with cognitive, language, gross motor, and social-emotional development scores. The umbilical cord blood lead concentration <5.0 µg/dl was also not associated with the BSID-III scores.

Conclusion: The data suggest that umbilical cord blood lead concentration 0.5 to 10.5 µg/dl has a negative association with early gross motor development during infancy.



Detect-S: An mHealth application to assist health professionals to identify suicide risk in hospitalized patients



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Introduction: Suicide is a serious public health problem that affects the whole world. This study describes development of the prototype for an mHealth application (app) intended to assist healthcare professionals to identify suicide risk

in hospitalized patients and reports on testing of the app by some of these professionals, conducted to confirm its functionality. Method: This is applied exploratory research into use of Information Technology within the healthcare

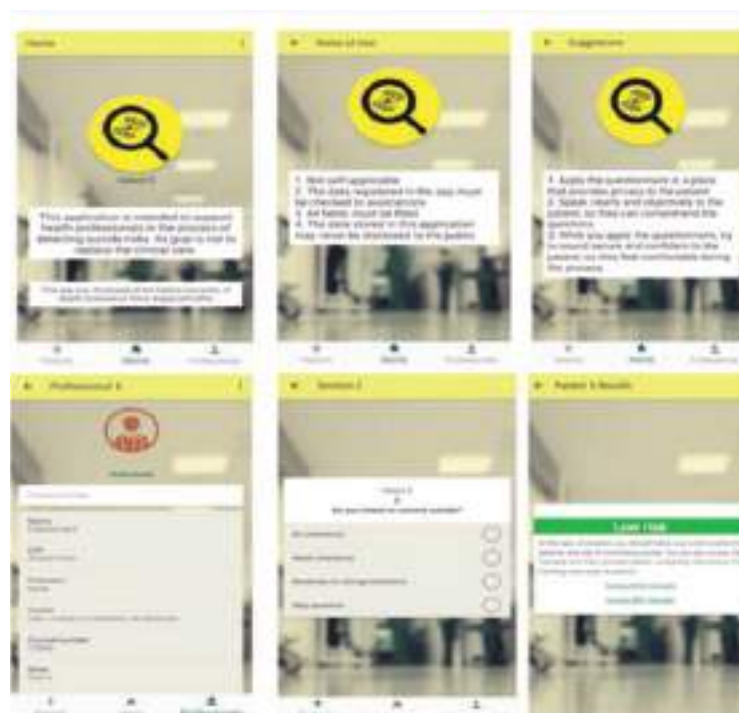


Figure 1 - App interfaces.



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field, based on application prototyping for mobile devices. The research was conducted at the Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA) from 2017 to 2019. Six healthcare professionals, one data scientist, and three undergraduate students in Biomedical Informatics took part in the study. All research participants signed the free and informed consent form. Results: The main findings show that the development team created a prototype named Detect-S, which became a cross-platform application

(iOS and Android) offering 16 functions. Conclusion: It can be concluded that Detect-S has the potential to be a positive technological instrument that can be tested in a hospital setting to assist healthcare professionals to identify and manage patients with at risk of suicide. has the potential to be a positive technological instrument that can be tested in a hospital setting to assist healthcare professionals to identify and manage patients with at risk of suicide.



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Binge eating after bariatric surgery in patients assisted by the reference service in a Brazilian hospital and the correlation with weight loss



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Introduction: Obesity is a complex multifactorial disorder that combines psychological, social, biological aspects and requires a multidisciplinary approach for proper understanding, diagnosis and treatment. Bariatric surgery, for some patients, is the most effective tool for obesity treatment and control, however, some patients doesn't achieve the desired weight or regain part of the lost weight. Since some change in eating behaviour may negatively influence weight losses, recognizing this condition is essential in order to proceed with an early reintervention and guarantee to the patient the expected outcome.

Purpose: Identify, 18 months after bariatric surgery, the binge eating variation and its relation with weight regain or loss.

Materials and methods: Cross-sectional, retrospective study with 108 patients, assisted by an obesity walk-in clinic of a specialized hospital in São Paulo (Brazil), who had undergone bariatric surgery a minimum of 18

months previously. The anthropometric and clinic data were collected from medical records, and binge eating symptoms were evaluated with the application of the Binge Eating Scale (BES). Scale outcomes were related to weight regain and loss at the application moment.

Results: The average age (standard error) of the sample was 47 years (± 0.91) and 93% were female. Patients had lost 52.2% of their body weight and regained 4.7% of their weight 18 months after the surgery. The elapsed surgical time (> 50 months) was associated with a higher gross weight ($p < 0.0001$).

Conclusions: Bariatric surgery has been shown to be effective for improving diabetes mellitus as well as for controlling obesity. The variation in binge eating intensity 18 months after bariatric surgery is a factor that interferes in the amount of weight regained. The presence of binge eating symptoms negatively affects the % total weight loss (%TWL).



A personalized diet approach study: Interaction between PPAR- γ Pro12Ala and Dietary Insulin indices on metabolic markers in diabetic patients



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Background: The objectives were to investigate the effect of the interaction between peroxisome proliferator-activated receptor gamma (PPAR- γ) Pro12Ala polymorphisms and dietary insulin load and insulin load (DIL and DII) on Cardio-metabolic Markers among diabetic patients.

Methods: This cross-sectional study was conducted on 393 diabetic patients. Food-frequency questionnaire (FFQ) was used for DIL and DII calculation. PPAR- γ Pro12Ala was genotyped by the PCR-RFLP method. Biochemical markers including TC, LDL, HDL, TG, SOD, CRP, TAC, PTX3, PGF2 α , IL18, leptin and ghrelin were measured by standard protocol.

Result: Risk-allele carriers (CG, GG) had higher obesity indices WC ($P_{interaction} = 0.04$), BMI ($P_{interaction} = 0.006$) and, WC ($P_{interaction}$

$= 0.04$) compared with individuals with the CC genotype when they consumed a diet with higher DIL and DII respectively. Besides, carriers of the G allele who were in the highest tertile of DIL, had lower HDL ($P_{interaction} = 0.04$) and higher PGF2 α ($P_{interaction} = 0.03$) and PTX3 ($P_{interaction} = 0.03$). Moreover, the highest tertile of the DII, showed an increase in IL18 ($P_{interaction} = 0.01$) and lower SOD ($P_{interaction} = 0.03$) for risk allele carriers compared to those with CC homozygotes.

Conclusion: We revealed PPAR- γ Pro12Ala polymorphism was able to intensify the effect of DIL and DII on CVD risk factors; risk-allele carriers who consumed a diet with high DIL and DII score have more likely to be obese and have higher inflammatory markers. Also, protective factor against CVD risk factors were reduced significantly in this group compared to CC homozygotes.

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Programmable cellular automata based random key generation for one-time pad encryption using unity attractors

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In the past, the medical record was a paper repository of information that was used for clinical, research, administrative, and financial purposes. It was severely limited in terms of accessibility, available to only one user at a time. The physician was in control of the care and documentation processes and authorized the release of information. Due to this, patients rarely viewed their medical records. Also, paper-based medical records were the lack of security. Nowadays, the electronic health record (EHR) can be viewed by many users simultaneously and utilizes a host of information technology tools. Patients routinely review their electronic medical records and are keeping personal health records (PHR), which contain clinical documentation, about their diagnoses from the physician or health care websites. According to researchers, it is “the right of individuals to keep information about them from being disclosed to others. Patient information should be released to others only with the patient’s permission. The

key to preserving confidentiality is making sure that only authorized individuals have access to information. Many organizations and physician practices take a two-tier approach to authentication, adding a biometrics identifier scan, such as palm, finger, retina, or face recognition. Today, the Internet of Things (IoT) is an emerging environment and has a wide impact in healthcare applications. Due to the heterogeneous nature of the devices, security becomes a critical issue. Hence, the authors published a programmable cellular automaton based one-time pad (OTP) authentication framework. With the openness of public healthcare cloud various attacks are possible over user sensitive data. A theoretical analysis has been carried out and a mathematical model is developed to prevent chosen plaintext and brute force attacks. The performance of OTP algorithm results show that it is efficient for protecting security risks in the context of IoT healthcare data.



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The impact of religion and culture on medically assisted reproduction in the Middle East and Europe

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Infertility is a medico-socio-cultural problem associated with gender-based suffering. Infertility treatment, including assisted reproductive technology (ART), is a human right. Culture and religion were among the stumbling blocks to early acceptance of ART, particularly in the Middle East and to a lesser extent in Europe. This was mostly due to the different cultural and religious perspectives on the moral status of the embryo in the two regions and the concerns about what could be done with human embryos in the laboratory. There is an increased demand for ART in both the Middle East and Europe, although the

reasons for this increased demand are not always the same. Although Europe leads the world in ART, there is an unmet need for ART in many countries in the Middle East. Where ART is not supported by governments or insurance companies, a large percentage of couples paying for ART themselves will stop before they succeed in having a baby. There are similarities and differences in ART practices in the two regions. If a healthcare provider has a conscientious objection to a certain ART modality, he/she is ethically obliged to refer the patient to where they could have it done, provided it is legal.



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Mitochondrial dysfunction and oxidative stress in metabolic disorders - A step towards translation of bioenergetic therapeutic strategies



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Mitochondria, powerhouse of the cell, malfunctioning causes serious consequences that might be responsible for a wide range of disease pathologies including cancer, diabetes, neurodegenerative diseases, and so on. Altered mitochondrial morphology, excessive generation of reactive oxygen species, and disturbances in oxidative phosphorylation, resulting in a decline in adenosine triphosphate production. Mitochondria are important for the metabolism of energy, regulation of apoptosis, and signalling of cells. In malignant cells, mitochondria differ structurally and functionally from those in normal cells and actively participate in metabolic reprogramming. overproduction of reactive oxygen species (ROS), which encourages the development of cancer by causing genomic instability, altering gene expression, and participating in signalling pathways. Mutations in mitochondrial and nuclear DNA induced by oxidative damage that impairs the oxidative phosphorylation

mechanism can lead to further production of mitochondrial ROS, completing the “vicious cycle” between mitochondria, ROS, genomic instability, and cancer development. Impaired signalling pathways disturb the normal cell cycle, which then leads to the development of a plethora of pathological conditions including neurodegenerative diseases and cancer. In the last decade, tremendous progress has been made in understanding mitochondrial structure, function, and their physiology in metabolic syndromes such as diabetes, obesity, stroke and hypertension, and heart disease. Further, progress has also been made in developing therapeutic strategies, including lifestyle interventions (healthy diet and regular exercise), pharmacological strategies and mitochondria-targeted approaches. These strategies were mainly focused to reduce mitochondrial dysfunction and oxidative stress and to maintain mitochondrial quality in metabolic syndromes.



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Relationship between physical activity level and disease severity in patients with covid-19



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Background: During the COVID-19 pandemic, restrictive measures can reduce physical activity. The purpose of this study was to evaluate pre-disease physical activity and current functional capacity in patients with and without the presence of pneumonia and oxygen requirement in Turkish survivors of COVID-19.

Methods: Among the COVID-19 patients admitted to the hospital, 100 patients were selected. Data about pre-disease physical activity (by short-form International Physical Activity Questionnaire), oxygen requirement and presence of pneumonia, and current functional capacity (by the 6-min walking test) were collected. Continuous and categorical variables were compared with the Mann-Whitney U and χ^2 test, respectively ($P < .05$).

Results: The pre-disease physical activity levels and current functional capacity of patients with pneumonia and oxygen requirement were significantly lower than patients without pneumonia and oxygen requirement ($P < .05$). However, there was no significant difference between males and females ($P > 0.05$). Pneumonia and oxygen requirement was more common in the older adults ($P < .05$). Also, a significant correlation was found between age with pre-disease physical activity ($r = .530$, $P = .000$) and current functional capacity ($r = -.346$, $P = .000$) and pre-disease physical activity level with current functional capacity ($r = .523$, $P = .001$).

Conclusion: The physical activity level may be related to the severity of COVID-19 disease.



The association between diabetic complications and health-related quality of life in patients with type 2 diabetes: A cross-sectional study from Iran



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Introduction: This study aimed to investigate the health-related quality of life (HRQoL) of type 2 diabetic patients and its relationship with the complications of diabetes in Farashband County, Fars, Iran.

Methods: Data of this cross-sectional study were collected by a researcher-made demographic questionnaire, EuroQol-5 Dimensions questionnaire (EQ-5D) and Visual Analog Scale (VAS) and also from patient records. Multivariate regression model was used to investigate the net effect of diabetes complications on HRQoL after controlling for other independent variables.

Results: A total of 685 patients with a mean age of 58.36 and a disease duration of 7.64

years participated in the study. The mean EQ-5D and EQ-VAS scores of all patients were 0.64 and 56.53, respectively. The HRQoL dimensions in which the largest portions of the population had problems were Pain/Discomfort (77.23%) and Anxiety/Depression (63.50%). Among the studied diabetic patients, women, divorcees, and widows were more likely to report problems in all dimensions of HRQoL, and people without complications, people with university degrees, and employed people were more likely to report fewer problems in these dimensions ($P < 0.05$). After controlling for the effect of all independent variables in the multivariate regression model, a significant negative relationship was found between



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diabetes complications and EQ-5D: $\beta = -0.149$ (95% CI $-0.186, -0.112$) and EQ-VAS: $\beta = -6.697$ (95% CI $-9.947, -3.747$). This indicates that for each additional diabetic complication, 0.149 and 6.697 units of EQ-5D Index and EQ-VAS were reduced, respectively.

Conclusion: This study indicated that type

2 diabetic patients in the studied region, especially those with complications, suffer from poor HRQoL. Therefore, more attention should be paid to the main determinants of HRQoL when adopting policies for diabetes management in order to ultimately improve the HRQoL of these patients.



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Spatiotemporal variability of exposure to secondhand smoke in Iran during 2009- 2020: A systematic review



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The present study aimed to provide a systematic review of studies on the prevalence of second-hand smoke (SHS) exposure in the Iran population as a serious indoor health hazard. A literature review of studies that considered SHS exposure, available in multiple electronic databases including Web of Science, PubMed, and Scopus published 2009-2020 in English and two Persian databases (SID and Magiran) was carried out following the PRISMA recommendations. A total of 55 studies were included based on the inclusion and exclusion criteria and the quality assessment. The results showed, no specific decrease in the prevalence of exposure to second-hand smoke in Iran; however, it appeared that the exposure has been increasing. Distribution of studies in terms of age group revealed that most studies (38%)

investigated adults (more than 18 years old), while 34% of the studies considered less than 18 years of age group and a single article considered infants (6-24 months). Based on the present study results, a large population of Iran was exposed to SHS. Moreover, Based on Iran- STEPs 2016 (Stepwise Non-communicable Diseases Risk Factors Survey in Iran) study, the overall prevalence of SHS exposure at home (57.5%) was higher than in workplaces (49.2%). The results of the present study recommended that protection measures should be comprehensive in terms of exposure places and since the exposure prevalence in some provinces was higher than the others, it is especially important to consider the local measures and cultural aspects in SHS control programs.



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Sustainable continuous development of Safety Improvement Plan (SIP)

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Hossein Charkhand

HSE Director of AryaSasol Polymer, Iran

Objectives: Achieving Zero Harm utilize by many leading companies in their own strategy map. Safety Improvement Plan (SIP) Provides a mechanism to increase employee involvement in safety improvement activities; and, fosters employee communication by providing a common direction and commitment to achieving safety goals and improvement initiatives. To work towards zero harm, each year you will try to reduce the number of accidents happening and gain sustainable productivity.

Scope: From 2008, Safety Improvement Plan (SIP) was being prepared according to the AryaSasol Polymer Company (ASPC) strategy map and long-term objectives to achieve Zero harm. This plan implemented throughout to whole organization such as a board level, management level and employee as well as all service providers.

Results: Safety Improvement Plan (SIP) not only Increasing the AryaSasol Reputation worldwide and sustainable productivity, but also improved the most KPI's performance. For instance, ASPC sustained to RCR 0.09

(including employee & Contractors) as an excellent (World- Class) achievement end of the year 2020 (June 2008 it was 4.87). In addition, the Fire, Explosion, and Release (FER) rate was 2.9 in the year 2009 and by implementing Process Safety Management this rate improved to 1.2 by the year 2020.

Methods: This safety improvement plan was adapted form SASOL, Dow chemical and Dupont companies that developed to get more benefits for Araya Sasol Polymer company. Safety Improvement Plan consist of 6 main elements such as; Safety Leadership, Process Safety Management, Safety Campaign, World-Class Management System, Program and Process, Behavioral Safety.

Conclusion: Safety Improvement Plan can play a critical role in the delivery and implementation of the United Nation's (UN) 17 Sustainable Development Goals (SDGs) to protect employees and provide safe and healthy workplaces and is linked directly to SDGs 3 and 8. Therefore, this plan lead to shareholder satisfaction to have sustainable profit thorough " Sustainable Safety Production".

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Sustainable Continuous Development of Safety Improvement Plan (SIP) ASPC Journey to World Class Safety Performance – How to Achieve Zero Harm





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Level of awareness, knowledge and involvement of Malaysian medical and dental practitioners in dysphagia management of head and neck cancer patients



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Head and neck cancer patients are at high risk of developing dysphagia from undergoing cancer treatment. It is essential for medical and dental practitioners to recognize speech-language pathologists' role and dysphagia symptoms to provide a timely referral to speech-language pathologists. This study aims to determine the level of awareness, knowledge, and involvement of medical and dental practitioners in dysphagia management. A total of 391 medical and dental practitioners from 22 government hospitals across Malaysia participated in this cross-sectional study. Participants completed the questionnaire specifically on the level of involvement, knowledge, awareness regarding the role of SLP and dysphagia symptoms. The results revealed a statistically significant relationship between the level of awareness of

the role of SLP, $\chi^2(4, 391) = 9.87, p = 0.043$ and the level of involvement of medical and dental practitioners, $\chi^2(8, 391) = 27.68, p = 0.001$ and percentage of referring head and neck cancer patients. The odds of referring head and neck cancer patients for pre-treatment assessment increased 3 times for each 1 unit of the participation of medical and dental practitioners [OR] 3.65 (1.56, 8.51) $p = 0.003$ among those who are already highly involved in dysphagia management. These findings compel healthcare practitioners in head and neck cancer to revisit their collaborative practices. Head and neck cancer patients should receive swallowing management from speech-language pathologists to improve their swallowing function and avoid further complications such as dehydration, malnutrition, and death

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**Mediating role
of maladaptive
cognition in
relationship of family
functioning and
internet addiction
among adolescent
students**

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This study examined the mediating role of maladaptive cognition in the relationship of family functioning and internet addiction among adolescent students in Nsukka Urban, Enugu state Nigeria. Four hundred and sixteen (416) adolescents (59.6%, male and 40.4% female) who were adolescent students participated in the study. Three hypotheses were tested. Pearson r and HAYES PROCESS macro were used to examine the hypotheses. Results showed that family functioning positively predicted internet

addiction as well as maladaptive cognition. Also, maladaptive cognition positively mediated the relationship between family functioning and internet addiction. This study indicated that poor family functioning is a risk factor to internet addiction and that the presence of maladaptive cognition increases the risk associated with it. These findings underscore the importance of examining not only the direct risk factors of internet addiction, but also those factors that when present, can worsen the addiction.



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Do we need to go further to train healthcare providers in the targeted regions for malaria elimination in Myanmar? A mixed-methods study



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Background: The National Malaria Control Programme (NMCP) in Myanmar trained health staff at the township level starting in mid-2016 in order to achieve the *Plasmodium falciparum* malaria elimination target by 2020. This study aimed to evaluate the knowledge and perception of Basic Health Staff (BHS) and Vector-borne Diseases Control (VBDC) teams exposed to a short training course on malaria elimination in six survey townships which included two conflict-affected townships between 2016 and 2017.

Methods: This was a cross-sectional mixed-methods study using quantitative and qualitative data extracted from one survey database conducted between October 2018 and March 2019. Modified Poisson regression analysis was performed to ascertain the determinants of low knowledge scores after the training programme.

Results: Altogether, 544 trained frontline health workers involved in malaria elimination at the time of the survey were recruited and 56% (302/544) were stationed at sub-Rural Health Centers. More than half of the respondents had correct knowledge of malaria case categories although relapse and recrudescence cases (39% and 37% respectively) were less

well known. Over two-thirds of respondents could mention those eligible for malaria testing. Less than 30% knew the foci classification. The overall knowledge scores ranged from 10 to 31. The significant predictors of low level of knowledge [the cut-off point was set at the median value of 21 (IQR 12–30)] in multivariate analysis were the younger age group (18–29 years) and health staff who had attended malaria elimination training in 2017, [(APR = 1.6, 95% CI 1.2–2.2)]; and (APR = 1.5, 95% CI 1.2–1.8)]. Qualitative data from 10 key informants identified perceived challenges in conflict-affected areas as well as in areas of high population mobility with further implications for case surveillance. In addition, the low level of education of community members was noted as one of the barriers that hampered public readiness in the elimination scenario.

Discussion and Conclusion: A significant impact on knowledge improvement after the training programme was not visible especially for correct notification of malaria cases and treatment according to National Malaria Elimination Guidelines. Regular monitoring and continuing guidance by the higher level management is critical to support the field staff.



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**Understand public
governance tensions
to better prevent
them and contribute
to the well-being
of healthcare
professionals**



K.S. Bennani

University Tunis Carthage (UTC), Tunisia

The profound changes in the health system and, more specifically, those affecting hospital structures are part of the overall context of public administration reforms, under the label of New Public Management (NPM). This managerial revolution has led to public governance tensions (PGTs), that have multiplied signs of a deep crisis. So many destructive manifestations seem to affect health professionals (doctors, nurses and care assistants) who, in the wake of managerial reforms, have become deeply affected from within by a feeling of stress, malaise, loss of meaning, discouragement, exhaustion, depression, revolt, and a desire to leave work.

The first part of the paper allows us to situate

public health institutions and their actors in the complexity. More specifically, it provides an idea of how paradoxes and GPTs, are revealed within these institutions during the transformations linked to the NPM. The second part suggests ways of intervening to prevent and manage tensions: carefully assigning responsibilities and clarifying the expectations of the requirement, accepting the paradoxical nature of the contradictory aspects of the organization and the cost of the tensions generated by their simultaneous presence, setting up an agile mode of collaboration, and providing spaces for discussion about the work.



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Epitope based peptide vaccine design against fructose bisphosphate aldolase of candida glabrata: An immunoinformatics approach



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Background: Candida glabrata is a human opportunistic pathogen that can cause life-threatening systemic infections [1-2]. There are multiple effective vaccines against fungal infections, some of these vaccines were engaged in different stages of clinical trials, none of them yet approved by (FDA) [3].

Aim: Using Immunoinformatics approach to predict the most conserved and immunogenic B- and T-cell epitopes from the Fructose

Bisphosphate aldolase (Fba1) protein of C. glabrata.

Material and Method: 13 C. glabrata Fructose bisphosphate aldolase protein sequences (361 amino acids) retrieved from NCBI and presented in several tools on the IEDB server for prediction of the most promising epitopes. Homology modeling and molecular docking were performed.



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Result: The promising B-cell Epitopes were AYFKEH, VDKESELYTK, and HVDKESELYTK (Figure 1). While, promising peptides which have the high affinity to MHC I binding were: AVHEALAPI, KYFKRMAAM, QTSNGGAAY, RMAAMNQWL and YFKEHGEPL. Two peptides LFSSHMLDL and YIRSIAPAY were noted to have the highest affinity to MHC class II that interact with 9 alleles. The molecular Docking revealed the epitopes QTSNGGAAY and LFSSHMLDL have the lowest binding energy to MHC molecules.

Conclusion: Epitope-based vaccines predicted

by using Immunoinformatics tools have advantages over the conventional vaccines that they are more specific, less time consuming, safe, less allergic and more antigenic. Further in vivo and in vitro experiments are needed to prove the effectiveness of the best candidates' epitopes (QTSNGGAAY and LFSSHMLDL). In the best of our knowledge, this is the first study that has predicted B- and T- cells epitopes from Fba1 protein by using immunoinformatics to design an effective epitope-based vaccine against *C. galabrata*.



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Reproductive health care status of the displaced tribal women in India: An analysis using nussbaum central human capabilities



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In this paper, the author underlines the capabilities of tribal women in post displacement settings. The study was conducted in three wildlife sanctuaries in the Indian States of Odisha and Chhattisgarh namely Simlipal, Chandaka Dampara, and Achankamar. Sequential explanatory study design was employed for collecting the data. A total of 194 displaced tribal women within the reproductive age group of 15–49 years were surveyed and Focus Group Discussion was conducted among the displaced women. Women who had given birth in the last five years were selected using a purposive sampling method. Key findings of the study

suggest that women lack awareness of child spacing capabilities (57%) and the unmet need for family planning is comparatively higher. More than half of the women face domestic violence that curtails their capabilities to avail reproductive healthcare services. It also reduces the immediate wellbeing of their children. Women in this study lack control over the decision on reproductive healthcare. Due to this, women lack social and political freedom. The Government of India has taken fewer initiatives to promote effective reproductive healthcare services. Also, there is limited awareness in the rehabilitation colonies on protection from domestic violence

“**The role of digital informal learning in the relationship between students’ digital competence and academic engagement during the covid-19 pandemic**”

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During the COVID-19 crisis, digital informal learning is important for students’ academic engagement. Although scholars have highlighted the importance of students’ digital competence in improving digital informal learning, the mediating role of digital informal learning between digital competence and academic engagement has remained ambiguous. The purpose of this study is to investigate the relationship between students’ digital competence and their academic engagement with the mediating role of digital informal learning (DIL) in the higher education context. This study used a descriptive correlational design, and the data were analyzed using

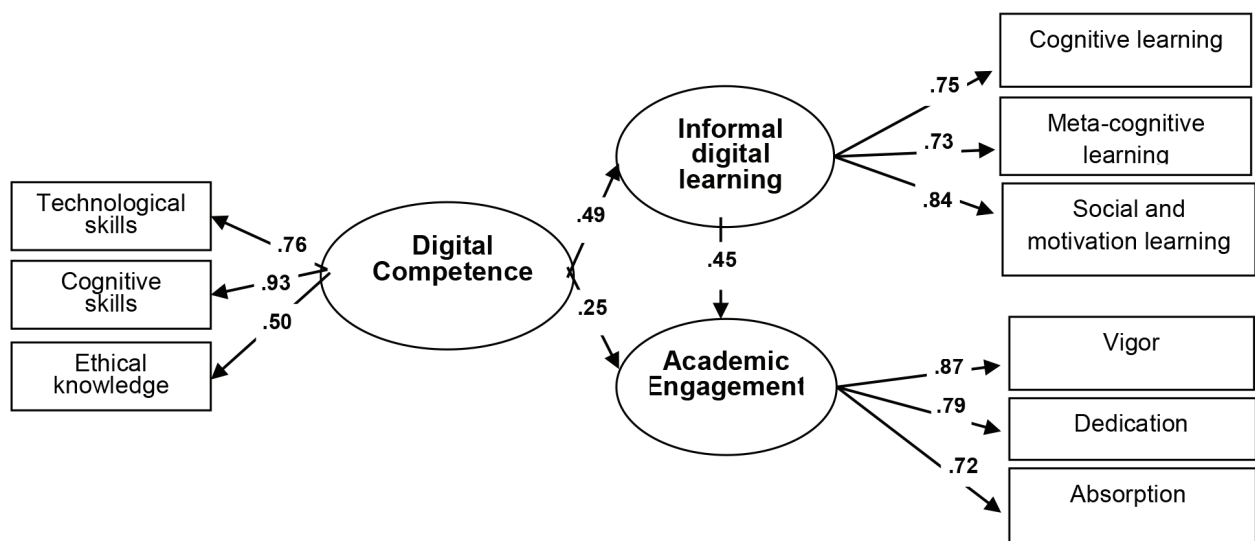


Figure 1. Structural model analysis



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structural equation modeling (SEM). The study sample included 308 students from Shiraz University, Iran. The results showed that digital competence positively and significantly correlated with students' DIL and their academic engagement. Furthermore, DIL, as the mediator variable, was found to mediate the relationship between students' digital competence and their academic engagement.

Since higher education institutions have a key role in improving students' academic engagement, particularly in the COVID-19 pandemic, academic administrators should pay more attention to students' digital competencies and provide them with efficient and user-friendly DIL platforms that can increase their academic engagement.



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Persian medicine recommendations for the prevention of pandemics related to the respiratory system: A narrative literature review



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Background: Pandemics of infectious diseases have long been regarded as societal challenges. This study aimed to summarize the theories of Persian medicine for controlling respiratory disease-related pandemics and to compare these theories with the findings of modern medicine.

Methods: We searched the classic medical reference books of the 9th to 19th centuries for the terms 'polluted air' and 'pandemic', and we searched 4 databases (PubMed, Google Scholar, Science Direct, and Scopus) with the keywords 'COVID-19', 'pandemic', 'history', and 'prevention programs'. The results were collected and subjected to content analysis.

Results: From the point of view of traditional

Iranian physicians, disease prevention is primarily possible by avoiding pathogenic factors. As a secondary solution, reducing one's susceptibility to the disease is crucial; this can be achieved through cleansing the body and strengthening the mood, reducing food intake, decreasing the internal humidity, disinfecting the house with herbal fumigation, and making use of pleasant aromas. Some of these recommendations are reaffirmed by modern research.

Conclusion: Persian medicine techniques may be preventive during respiratory, influenza-like disease pandemics. However, rigorous studies are needed to confirm this



Dietary practices of soccer athletes registered at the University of Limpopo, Limpopo province, South Africa



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Background: There is a growing number of athletes participating in soccer sports within the higher institutions of learning. However, studies involving the dietary practices of these athletes remain relatively scarce.

Objective: To determine the dietary practices of soccer athletes registered at the University of Limpopo, Limpopo Province, South Africa.

Methodology: This was a descriptive quantitative study, which adopted a purposive sampling technique to obtain 31 out of 40 registered soccer athletes representing the University of Limpopo as a team. The approval was obtained from the Turfloop Research and Ethics Committee (TREC). Data were collected at the University of Limpopo sports grounds,

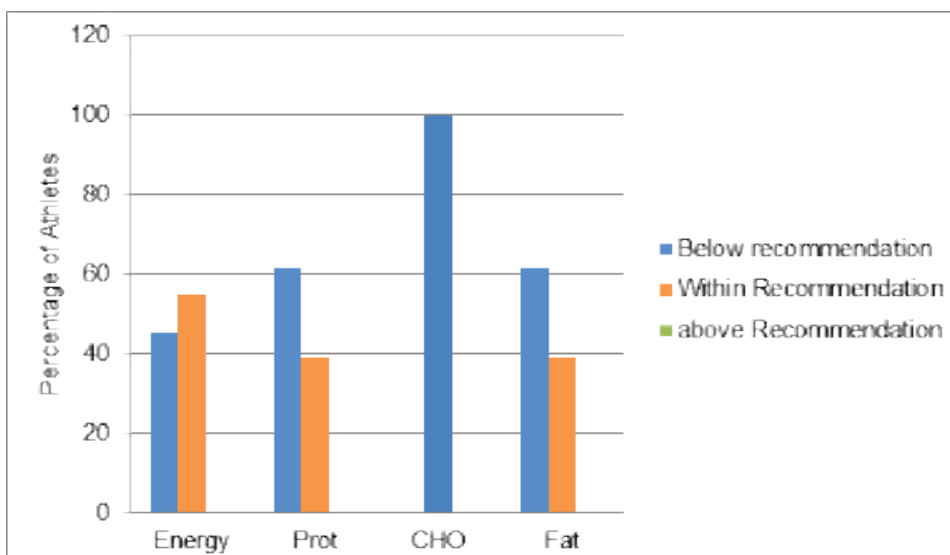


Fig. Illustrates macronutrients intake by athletes. Majority of athletes (61.3 and 61.3%) consumed protein and fat below recommendations. All athletes (100%) consumed CHO below recommendations. More than half (54.8%) of athletes consumed energy within recommendations.



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in the afternoons before the commencement of the training. The demographic status which included the gender, weight, and duration of athletes involved in sports of soccer at the University were collected. The weights of the athletes were also measured using a digital scale from SECA to calculate the nutrient requirements. The dietary practices of athletes were collected using the modified 24-h recall questionnaire on three different days. Athletes were required to recall all food items consumed in the previous 24h. The researchers used household measuring utensils and food models to assist athletes in estimating food quantities. Athletes were required to recall incidences that took place in the previous to associate with food items taken. Food Frequency Questionnaire was used to determine the regularity of consumption of different food items. The nutrient intake for the athletes was obtained from the average analysis of the three 24-h recall questionnaires through MRC Food Finder (version 3.0). The SPSS software (24.0) was then used to determine descriptive tests expressing variables as percentages, means, standard deviations (\pm SD), and minimum and maximum values. The obtained test results were then compared to the recommendations

by the International Society of Sports Nutrition (2018).

Results: Majority (81.0%) of athletes engaged in soccer sport for ≤ 2 years while at University. Overall, 61% of athletes consumed three meals/day. Only 65% consumed meals 2–3h before the training. Majority of the athletes ($\geq 61\%$) consumed carbohydrates, protein, and fat below the International Society of Sports Nutrition (ISSN) recommendations. Additionally, more than 65% of the same athletes consumed vitamins and minerals below the recommendations. None of the athletes consumed any food immediately after training.

Conclusion: The dietary intakes were below the ISSN recommendations. The dietary practices of athletes involved in the sport of soccer at the University of Limpopo were not adhering to soccer nutritional guidelines. Therefore, athletes need to receive nutrition support through the appointment of nutrition experts or dietitians to assist in nutrition and dietary related practices of athletes. Involvement of other multidisciplinary members is also warranted in sports of soccer and other sports categories to improve athletes' performance without compromising their health.



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Evaluation of efficiency of MWCNTs-CuNiFe₂O₄ nanocomposite in activation of peroxymonosulfate for degradation of reactive black dye 5 from aqueous solutions



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Novel copper-nickel ferrite nanocatalyst loaded on multi-walled carbon nanotube (MWCNTs-CuNiFe₂O₄) was synthesized and applied to activate peroxymonosulfate (PMS) in the degradation of the reactive black 5 (RB5). The structure of the catalyst was well characterized by scanning electron microscope (SEM), Fourier-transform infrared spectroscopy (FTIR), and X-ray powder diffraction (XRD). The MWCNTs-CuNiFe₂O₄/PMS system showed a high performance in the degradation of RB5 with a kinetic rate of 1.5–2.5 times higher than homogeneous and heterogeneous systems. Maximum degradation efficiency (99.60%) was obtained at an initial pH of 7, catalyst dosage of 250 mg/L, PMS dosage of 4 mM, the temperature of 25 °C, and reaction time of 15 min. Anion experiments emphasized that the presence of nitrate, carbonate, and phosphate in the solution reduced the degradation efficiency by producing reactive species with

low oxidation potential. The RB5 degradation rate evolved with temperature, and the activation energy was obtained to be 44.48 kJ/mol. The mechanism of PMS activation and production of free radicals was proposed based on tert-butyl alcohol (TBA), ethanol (EtOH), and potassium iodide (KI) scavengers. Trapping experiments showed that both sulfate (SO₄ •⁻) and hydroxyl (•OH) radicals are involved in the catalytic degradation of RB5. The effective treatment of real wastewater and tap water by the MWCNTs-CuNiFe₂O₄/PMS system requires a long reaction time. Gas chromatography-mass spectrometry (GC-MS) analysis indicated that RB5 can be degraded via methylation, decarboxylation, hydroxylation, and ring/chain cleavage pathways. The stable catalytic activity after three consecutive cycles suggested that MWCNTs-CuFe₂O₄ is a novel reusability catalyst in PMS activation.



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Environmental statistics and analytics research for preventive medicine and healthcare

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The recent Coronavirus pandemic brought up the importance of using preventive medicine such as vaccination and keeping your environment clean. Contaminated environment puts everyone at risk, but the risk is higher for certain age or prior illness categories. Big data provided from the hospitals allows us to recognize and analysis trends, patterns, exceptions and categories. Analytics research can shed light on the cause-effect factors and may be used in what-if analysis. Machine learning, which is a branch of artificial intelligence, and heuristic algorithms, may be used to facilitate the discovery of relevant factors in dynamic circumstances. Online libraries of books and papers and large-scale database will be added in the future.

Enviroble is a social network platform for environmental information and exchange of ideas. A website and app has been developed and is launched by the authors. Many users, which include environmental activists and students, and many organizations, which include vendors and charities, have already joined the platform. They form and join groups on specific topics where they share knowledge and learn from other groups. Data is gathered and stored for analysis and research on various topics, including environmental and healthcare topics. Related research papers and projects are shared on the platform as well. Further development is expected in the research and statistics topics leading to description, prediction, and prescription.



Prevalence of Nomophobia; And an analysis of its contributing factors in the undergraduate students of Pakistan



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King Edward Medical University, Pakistan

Background: Nomophobia (no-mobile-phone phobia) is a relatively new term that describes the growing fear and anxiety associated with being without a mobile phone.

Aims: Our study aims to determine the prevalence of Nomophobia among the undergraduate students of Pakistan, and to determine its correlation with age and gender.

It also aims to determine the contributory factors of Nomophobia.

Methods: A cross sectional study was conducted through an online survey from March 25 to April 25, 2021. The snowball sampling technique was used for data collection. The Nomophobia Questionnaire NMP-Q developed by Yildirim and Correia was circulated among

Sr. No.	Total Score on NMP-Q	Inference
1.	20	Nomophobia Absent
2.	21-59	Mild Nomophobia
3.	60-89	Moderate Nomophobia
4.	100-140	Severe Nomophobia

Factor	Description	Items concerned on NMP-Q	Average Score per Question (1-7)
Factor I	Not being able to communicate	Item 10, 11, 12, 13, 14, 15	4.89
Factor II	Losing connectedness	Item 16, 17, 18, 19, 20	4.59
Factor III	Not being able to access information	Item 1, 2, 3, 4	4.97
Factor IV	Giving up convenience	Item 5, 6, 7, 8, 9	4.10



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the target population. It was a 7-point Likert Scale which was analyzed based on age, gender using IBM SPSS version 22 and MS Excel 2007. The contributing factors were also analysed.

Results: Of the 483 responses we received, 28 were discarded due to incompleteness and respondents being out of age under study i.e 15-25 years. Most of the respondents were women (n=314, 69.01%). Men were less in number than women (n=141, 31%). The ages of most of the respondents lied between 15-25. 20 was the mode age. 186 (40.88 %) had

severe, 221 (48.57%) had moderate and 48 (10.55 %) had mild Nomophobia. Average factor wise scores and individual item scores were also added.

Conclusion: Our findings reached a conclusion that most of the undergraduate students in Pakistan suffer from Nomophobia ranging from its mild to severe form. Nomophobia can possibly be included as a recognized phobia in the DSM. Wider research on the subject to investigate it further and evaluate the clinical significance should be done.



Risks assessment of adherence to non pharmaceutical measures towards covid 19 among residents of Mashhad in the North East of Iran during the awful wave of the epidemic



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Background: Since the Coronavirus disease 19 (Covid-19) rampaged in Iran, three waves of the epidemic occurred.

Objective: In the present study, two issues are considered. First: What proportion of the people adhere to the mitigation approaches towards the disease? Second: Which are the reasons to disobey these rules?

Methods: A cross-sectional, population-based phone survey was applied among the population aged over 16 years in Mashhad between November 5 and December 1, 2020. A valid and reliable knowledge, attitude, and performance (KAP) designed questionnaire was used and logistic regression was performed with STATA 14.

Results: The final sample size was 776;

90.59, 89.8 and 48.1% of the participants had sufficient reliable knowledge, attitude, and practice, respectively; 20.1% of the participants did not wear masks; nearly half of them visited traditional healers for the prevention and cure; 97.8% of them believed the efficiency of the vaccine and stated that they will consume it if it is distributed.

Among the sociodemographic factors, only the unemployed had low adherence to the preventive approach; 51.7% of the main worry was the weak economic situation and 69% of jobs and expenditures were poorly affected. The odds ratio (OR) for optimising attitude reduced from 4.64 to 3.22, and for good performance from 5.64 to 5.43 after adjusting for the economic, knowledge and perception factors.

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Multiple logistic regression analysis of factors associated with personal hygiene practice

Characteristic	Integration approaches practice		OR	
	Mean	SD	a. OR (95% CI)	b. AOR (95% CI)
Age				
0-44	7.36	1.07		
45-64	7.96	1.22		
65-74	7.95	1.19		
≥75	7.22	1.08		
Gender				
Male	7.98	1.17	1	
Female	7.12	1.22	0.61 (0.48-0.78)	
Education				
Elementary or below	7.88	1.08	1	
Primary education	7.14	1.23	0.41 (0.31-0.55)	
Secondary education	7.13	1.27	0.22 (0.17-0.29)	
Post-secondary education	8.76	1.03	0.94 (0.75-1.17)	
Occupation				
White collar	7.41	.98	1	
Blue collar	7.46	1.17	1.02 (0.79-1.31)	
Unemployed	6.64	1.27	0.61 (0.45-0.82)	
Homemaker, retired	7.89	1.06	1.06 (0.82-1.37)	
Student/worker	7.80	1.06	0.68 (0.51-0.91)	
Nationality				
Iranian	7.10	1.18	1	
Others	8.07	1.16	0.51 (0.39-0.67)	
History of underlying disease				
No	7.94	1.22	1	
Yes	7.10	1.11	0.82 (0.68-0.99)	1.79 (0.96-3.32)
Someone infected by COVID-19				
Yes, close relatives	8.97	1.14	1	
Yes, far relatives	7.12	1.11	0.18 (0.13-0.24)	
No one	7.10	1.20	0.12 (0.09-0.16)	
Major issue				
COVID-19	7.94	1.07	1	
Economic	8.89	1.16	1.06 (0.84-1.34)	0.29 (0.17-0.51)
Economic issue				
No change	7.23	.97	1	
Exponentially increasing economic inflation	7.22	.96	0.91 (0.74-0.72)	1.49 (0.93-2.37)
Reduce working hours	8.94	.90	0.99 (0.89-1.09)	0.17 (0.12-0.23)
Reduced salary or dismissal	8.26	.93	0.79 (0.69-0.91)	0.09 (0.06-0.12)
Attitude score				
Positive	8.07	1.11	1	
Negative	7.18	1.17	0.60 (0.48-0.75)	1.22 (0.81-1.84)

Discussion: Despite all the health rules and probably COVID-19 vaccines global access (COVAX), it seems that the most effective way to reverse this horrific wave and its economic consequences is the improvement of the economy and livelihood of the society.

Multiple logistic regression analysis of associated with personal hygiene practice

Characteristic	Integration approaches practice		OR	
	Mean	SD	a. OR (95% CI)	b. AOR (95% CI)
Age				
0-44	8.18	.91		
45-64	8.16	.94		
65-74	8.22	.88		
≥75	8.33	.72		
Gender				
Male	8.22	.89	1	
Female	8.13	.84	0.98 (0.78-1.23)	
Education				
Elementary or below	8.23	.80	1	
Primary education	8.26	.85	1.03 (0.77-1.38)	
Secondary education	7.82	1.27	0.75 (0.44-1.26)	
Post-secondary education	8.28	.72	1.04 (0.59-1.83)	
Occupation				
White collar	8.58	1.03	1	
Blue collar	8.18	.85	0.91 (0.72-1.14)	
Homemaker, retired	9.14	.61	0.91 (0.72-1.14)	
Unemployed	8.29	.76	0.91 (0.72-1.14)	
Student/worker	8.37	.80	1.22 (0.88-1.68)	
Nationality				
Iranian	8.29	.89	1	
Others	8.38	.73	1.21 (0.70-2.08)	
History of underlying disease				
No	8.11	.97	1	
Yes	8.13	.73	1.38 (1.02-1.87)	1.42 (0.97-2.08)
Someone infected by COVID-19				
Yes, close relatives	9.04	1.02	1	
Yes, far relatives	8.11	.93	0.91 (0.72-1.14)	
No one	8.21	.78	1.08 (0.59-1.71)	
Major issue				
COVID-19	8.22	.89	1	
Economic	8.18	.84	0.99 (0.81-1.21)	0.93 (0.71-1.21)
No major	7.89	.69	0.71 (0.55-0.92)	0.13 (0.07-0.24)
Economic issue				
No change	8.27	.68	1	
Exponentially increasing economic inflation	8.53	.64	1.22 (0.87-1.72)	1.24 (0.87-1.77)
Reduce working hours	9.03	.68	0.91 (0.55-1.25)	0.99 (0.64-1.52)
Reduced salary or dismissal	7.78	.44	0.51 (0.31-0.84)	0.78 (0.40-1.51)
Attitude score				
Positive	7.52	1.04	1	
Negative	8.28	.84	1.68 (1.25-2.25)	1.49 (1.01-2.19)

a. OR, crude odds ratio in the univariate analysis

b. AOR, Adjusted odds ratio in the multivariate analysis



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African swine fever in the northern regions of Cameroon: Seroprevalence survey and spatiotemporal analysis of outbreaks from 2010 to 2017



Ranyl Nguena Guefack Noumedem^{1,2}, Mohamed Mactar Mouliom Mouiche¹, Rodrigue Poueme Namegni², Jean Marc Kameni Feussom^{3,4}, Frédéric Moffo¹, Nnode Herman Okah-Nnane⁵, Hermann Landry Munshili Njifon⁶, Abel Wade² and Julius Awah-Ndukum^{7,8}

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The present study was carried out to establish the spatiotemporal distribution of ASF between 2010 and 2017 in the Adamawa, North, and Far North regions of Cameroon. A retrospective study with data relating to the northern regions from epidemiological reports from target organizations in Cameroon was used to analyze outbreaks of ASF from 2010 to 2016. A prospective study consisting of risk factor

analysis and serological investigation of anti-ASF antibodies and ASF RT-PCR antigen detection test in pig farms in the study regions with clinical suspicion of ASF was carried out in 2017. During the period 2010 to 2016, a total of 53 ASF outbreaks were reported and confirmed in the three northern regions of Cameroon and involved 4905 pigs (2232 deaths and 2673 slaughtered for sanitary measures). The seroprevalence for the 2017 serology



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survey was 5.23% (95% CI [3.57–6.89]) at the individual and 10.81% (95% CI [6.34–15.28]) at herd level. Region, management of farms system, on-farm slaughter by the owner (OR = 4.60; 95% CI [0.34–46.20]; $p = 0.014$), and selling of animals to community or to butchers (OR = 4.82; 95% CI [0.51–62.15]; $p = 0.010$) had significant effect on individual

level seropositivity of ASF. The viral antigen was not detected by PCR. This study showed that ASF cases have decreased significantly in the northern regions of Cameroon following the epizootic 2010 outbreaks. The findings predict a better future for the pork farming in the regions through the enforcement of strategic measures.



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Healthcare expenditure and life expectancy in Cameroon

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The advent of the covid19 pandemic has shown that no country was prepared to curb this type of health shock. Because all governments were overwhelmed by this situation. As of November 17, 2021, the Economist newspaper estimates the number of deaths from covid19 worldwide at around 17 million, the equivalent of the entire population of the Netherlands. Even if this pandemic is not yet behind us (with the appearance of the Omicron variant), it puts the issue of health financing at the end of the day. Because, if some patients with covid19 died on a ventilator, others did not have the chance to be taken care of.

Following the Bamako Initiative in 1987, the government of Cameroon adopted a new health policy in 1992 based on the decentralization of healthcare delivery, emphasizing primary healthcare (which refers to essential healthcare based on scientifically sound and acceptable methods and technology, whose ultimate goal is to make better health accessible to all) and the participation of beneficiary communities in the co-financing and comanagement of healthcare facilities. African leaders pledged to allocate at least 15% of their national budgets to health at the Abuja Conference

in 2001, given its enormous contribution to socioeconomic wellbeing.

Healthcare is a serious issue confronting governments and calling for repeated deliberations in international forums. Health, as measured by life expectancy, is one of the key components of the Human Development Index (HDI). Ensuring good health for all was the predominant call of the Millennium Development Goals (MDGs), re-echoed again in the Sustainable Development Goals (SDGs). Several health targets in the 2030 Sustainable Development Goals follow the unfinished agenda of the Millennium Development Goals, which ended in 2015.

Economics deals with the distribution of scarce resources which have competing uses. Thus, if a country is spending huge sums of money on healthcare, it is allocating itself a resource. It is making an investment whose outcome must be worthwhile. This outcome can somehow be measured in terms of prolonged life or years of life gained.

The first objective of this study is to evaluate and compare the impact of public and private health spending on life expectancy, and the second objective is to examine the causal



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link among public health expenditure, private health expenditure and life expectancy in Cameroon. We used annual time series data from 1980 to 2014. Ordinary least squares (OLS) regression was employed to evaluate the effect of public and private health expenditure on life expectancy while the Toda and Yamamoto causality test was used to examine the relationship among public health expenditure, private health expenditure and life expectancy in Cameroon. The results show that private health expenditure has a positive and significant impact on life expectancy while public health expenditure has no significant

impact on life expectancy in Cameroon. The results of the causality test show a bidirectional causality between private health expenditure and life expectancy and a unidirectional causality running from life expectancy to public health expenditure. The findings of this study suggest that the Cameroonian government should continue to embark on its National Development Strategy Paper (NDSP) and in pursuing its vision of attaining the SDGs by 2030. In addition, establishing effective public-private partnerships in developing the health sector could go a long way to improve the health status of the population.



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Beading as a therapeutic activity in Ghana



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Africa's fascinating bead history pre-dates the African Trade Bead era by over 82,000 years. Beads thought to be over 12,000 years old have been found within Libya, Sudan and Kenya where the Turkana people once recognised beads for their value as currency. Cowrie shell beads and bone beads are thought to be among the first types of beads until glass beads were introduced from Western Europe. The Krobo land is among notable bead manufacturing and beading areas in Ghana today.

The presentation discusses the cultural importance of beading in Ghana and how the occupation is used therapeutically in a regional mental health hospital, based on the argument that activities of making intrinsic to traditional, user-centred design practices might impact wellbeing. In addition to wellbeing and their connection to making, the concepts of recycling and income generation are explored in relation to the United Nations Sustainable Development Goals.



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Mucormycosis of paranasal sinuses of odontogenic origin post COVID 19 infection: A case series

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Pooja Das, Poonam Saidha, Sahil Kapoor, Vikas Kakkar and Arun Kumar
SGT University, India

The Severe acute respiratory syndrome and the Middle East respiratory syndromes emerged in 2002 and 2012 respectively. Currently the world is witnessing a global pandemic caused by a novel coronavirus, the severe acute respiratory syndrome coronavirus 2 (SARS CoV- 2) causing the Coronavirus 2019 (COVID-19).

Mucormycosis is a fungal infection primarily affecting individuals with an immunocompromised state like diabetes

mellitus, malignancies etc. Patients who have or have had COVID-19 infection with pre-existing uncontrolled Type 2 Diabetes mellitus are presumably more vulnerable for emergence of fungal infections cases.

This article presents a report of 6 cases with histopathological proven mucormycosis associated with COVID-19 and uncontrolled Diabetes mellitus.



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Impact of the 2019 coronavirus disease pandemic on health- related quality of life and psychological status: The role of physical activity



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Hatem H. Allam¹, Marwa M. Eid^{1,2} and Kabir P. Sadarangani^{3,4}**

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Objective: this study investigated the impact of the 2019 coronavirus disease pandemic (COVID-19) on health-related quality of life (HRQoL) and psychological status among adults living in Saudi adults, and whether physical activity modifies this association.

Methods: This study was a cross-sectional study. Data collected using an online survey, data including demographic information, the impact of COVID-19 (assessed by the Posttraumatic Stress Disorder Checklist for Diagnostic and Statistical Manual of Mental Disorders-5), HRQoL (Short Form-8), psychological distress (Depression, Anxiety and Stress Scale), and physical activity behavior (International Physical Activity Questionnaire-Short Form) were collected.

Results: 518 adults aged ≥ 18 years (67.4% men) have participated in this study. Adults reporting moderate or high impact of COVID-19 had a lower HRQoL and higher psychological distress than adults reporting

a low impact. HRQoL was higher for adults reporting any level impact (low, moderate, or high) of COVID-19 when they participated in recommended levels of physical activity (≥ 600 metabolic equivalent (MET)-min/week of total physical activity). Moreover, psychological distress was lower in adults reporting a high impact of COVID-19 when they participated in recommended physical activity.

Conclusion: In people who have reported a moderate to high impact of COVID-19, this impact was associated with a significantly lower HRQoL and higher psychological distress when compared to those who have reported a low impact level of COVID-19 on them. However, these associations were moderated by the recommended levels of physical activity. Therefore, future studies should consider a longitudinal study design to establish a cause-and-effect relationship between the impact of COVID-19 on adults and their HRQoL, psychological status, and level of physical activity.



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African swine fever in the northern regions of Cameroon: Seroprevalence survey and spatiotemporal analysis of outbreaks from 2010 to 2017



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ASF antibodies and ASF RT-PCR antigen detection test in pig farms in the study regions with clinical suspicion of ASF was carried out in 2017. During the period 2010 to 2016, a total of 53 ASF outbreaks were reported and confirmed in the three northern regions of Cameroon and involved 4905 pigs (2232 deaths and 2673 slaughtered for sanitary measures). The seroprevalence for the 2017 serology survey was 5.23% (95% CI [3.57–6.89]) at the individual and 10.81% (95% CI [6.34–



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15.28]) at herd level. Region, management of farms system, on-farm slaughter by the owner (OR = 4.60; 95% CI [0.34–46.20]; $p = 0.014$), and selling of animals to community or to butchers (OR = 4.82; 95% CI [0.51–62.15]; $p = 0.010$) had significant effect on individual level seropositivity of ASF. The viral antigen

was not detected by PCR. This study showed that ASF cases have decreased significantly in the northern regions of Cameroon following the epizootic 2010 outbreaks. The findings predict a better future for the pork farming in the regions through the enforcement of strategic measures.



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Endobronchial tuberculosis simulating acute foreign body inhalation: A case report



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Endobronchial tuberculosis is a rare form of pulmonary tuberculosis that can be due to the rupture of an infected lymph node through bronchial wall or lymphatic spread to the lining of the bronchial tree. Clinical presentation is non-specific, and can simulate inhalation of a foreign body. Otolaryngologists should be aware of its presentation often atypical. The following case is an unusual presentation of endobronchial tuberculosis in a 23-month-old patient initially diagnosed as a foreign body in the respiratory tract with acute

dyspnea with unilateral wheezing and suspected foreign body on chest computed tomography. Bronchoscopy revealed a granulomatous mass in carina and both primary bronchi. Granuloma ablation improved patient's respiratory status. The pathology revealed an epithelioid and gigantic cellular with caseous necrosis compatible with tuberculosis. This unusual presentation of tuberculosis should be known to otolaryngologists and paediatricians in view of the frequency of tuberculosis in our context as well as increase in its incidence.



Simultaneous covid-19 and dengue epidemic impose a double burden in the limited-resource setting country: Empirical evidence from Bangladesh



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Bangladesh faces challenges fighting against the concurrent COVID-19 and dengue epidemic with limited resources and more than 170 million large populations. As a resource-limited and highly populated

country, Bangladesh is vulnerable to simultaneous outbreaks due to its inadequate health systems, low socioeconomic conditions, natural calamities, migrants, refugees, and concurrent infectious diseases like COVID-19

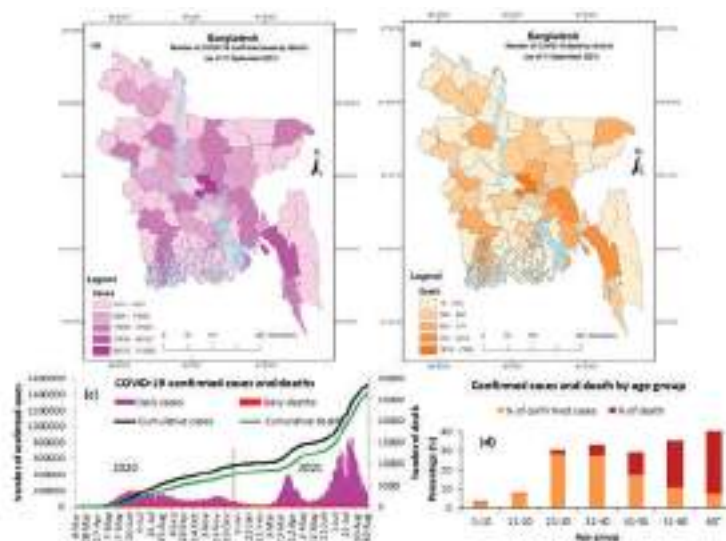


Figure1: The current situation of the COVID-19 outbreak in Bangladesh (a) Number of confirmed cases distributed by districts (b) Number of deaths distributed by districts, (c) Daily count of confirmed cases and death of COVID-19, and (d) Confirmed cases and deaths of COVID-19 by age group

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and dengue. Till now, 1,562,958 confirmed COVID-19 cases, along with 27,699 deaths, have been recorded. At the same time, dengue fever adds fuel to the fire to exacerbate the risks of the COVID-19 pandemic. Since January 2021, 20,336 people have been admitted to hospitals with dengue infections, and 78 fatalities were recorded for the mosquito-borne disease. The dengue epidemic amid COVID-19 placed further strain on Bangladesh's already stretched health systems. Another health disaster could arise if the COVID-19 outbreak continues and the dengue pandemic spreads further. This study aims to assess the preparedness of Bangladesh to curve the adverse effects of concurrent COVID-19 and the dengue epidemic. First, we provide an overview scenario of the concurrent COVID-19 and dengue epidemic in Bangladesh. Second, the comprehensive literature review and analyzed data answers the main research question, "what are the preparedness and gap between

curving the concurrent epidemics?" Finally, we propose specific recommendations for managing simultaneous epidemics considering high population density and limited resource setting environment. DEN-1 and DEN-2 variant outbreaks occurred in past years, but DEN-3, a variant of the dengue virus that increases mortality risk, is more frequent this year. In addition, complicating matters is that dengue fever and COVID-19 have similar clinical and laboratory profiles, making it more challenging to identify the two, and hence there will be an increased chance of misdiagnosis. Besides, COVID-19 patients currently occupy almost all hospital beds and Intensive Care Units (ICUs), making it hard for those with severe dengue to get admitted to a hospital. Core findings of this assessment should provide helpful guidelines to government, researchers, and policymakers for further intervention to take effective short and long-term measures.

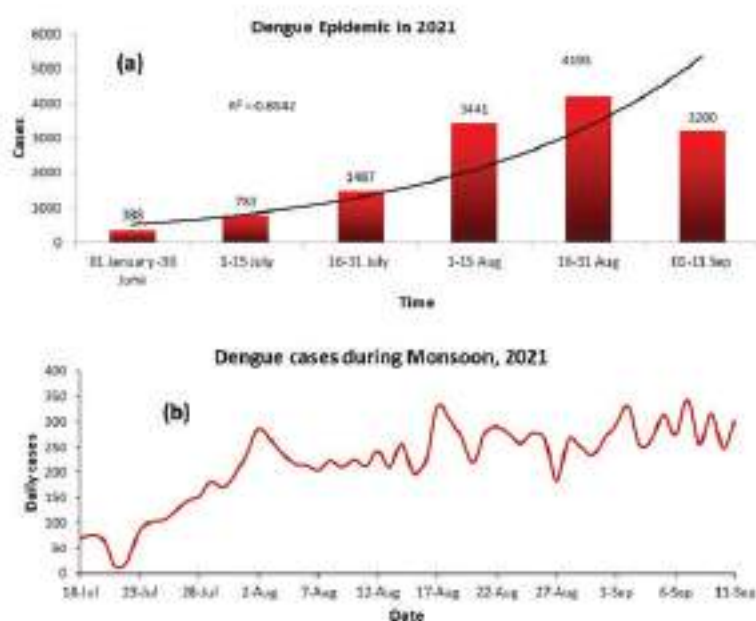


Figure 2: The dengue situation in Bangladesh (a) Dengue Epidemic in Bangladesh, 2021, and (b) Increasing trend of dengue during monsoon 2021 in Bangladesh



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Effects of e-sportsmanship on aggressive feelings, empathy, self-esteem, and gaming addiction tendencies

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Few previous studies have identified causal relationships with respect to exploring the detrimental psychosocial effects of e-sports and identifying parameters that could mitigate them. In this study, we created the e-sportsmanship Scale as a variable for healthy use of e-sports. For example, "I don't cheat to win," "I don't badmouth or swear at other players," "I don't do anything that would cause me to lack respect for other players," "Playing fair is more important than winning." e-sportsmanship's impact on aggressive feelings, empathy, self-esteem, and gaming addiction tendencies were revealed through

an online survey.

A two-wave panel survey was conducted among Japanese youth (n=753) who currently play e-sports at least once a month. Results of cross-delayed analysis showed that high e-sportsmanship was significantly causally related to empathy ($\beta = 0.10$) and gaming dependency ($\beta = -0.12$). No significant effects on aggressive feelings and self-esteem were found. The results of this study indicate that the use of e-sports with high e-sportsmanship may increase empathy and reduce the tendency to game addiction.



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Epidemiology of sleep disturbances among primary school students in Kerman, Iran, in 2019



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Introduction and objectives: Primary sleep disturbances are common in both children and adults but especially can lead to cognitive problems and educational and psychological disorders. In this study, we evaluated the epidemiology of sleep disturbances among children in Kerman, Iran in 2019.

Methods: This cross sectional study was done between 561 children in 2019 in elementary schools of Kerman, Iran. Data were collected by Pittsburgh Sleep Quality Index (PSQI) questionnaire that filled by parents and analyzed statistically.

Results: A total of 561 children with a mean age of 9.54 ± 1.55 years were enrolled. Boys: Girls' ratio was a 1.01 and consistent across age groups. The prevalence of sleep disturbances in this population study was 26.7% (150

patients) that 51.3% of them were girl. Sleep disturbances were associated with mothers' lower education level and parents' higher job positions (P value <0.05). Table 1

Conclusion: This study showed the relatively high prevalence of sleep disturbances among children in this region that needs some program such sleep training or promote the level of parent's education to reduce it. We recommended some educational programs and preschool screening to evaluate the sleep disturbances and educate their parents for increasing their responsiveness.

Abstract should give clear indication of the objectives, scope, results, methods used, and conclusion of your work. One figure and one table can be included in your results and discussions.

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Table 1: Prevalence of sleep disorder among children according to parents' education and job

Variable	subgroups	Sleep disorder (n 150)	Total (n=561)	P value
Father education	< Diploma	71 (47.3)	262 (46.7)	0.13
	Diploma- Bachelor	74 (49.3)	264 (47.1)	
	>Bachelor	5 (3.3)	35 (6.2)	
Mother Education	< Diploma	48 (32)	234 (41.7)	0.0001
	Diploma- Bachelor	99 (66)	308 (54.9)	
	>Bachelor	3 (2)	19 (3.4)	
Father's job	Unemployed or without any job	9 (6)	29 (5.2)	0.00001
	Employee or have a job	127 (84.7)	486 (86.6)	
	Retired	14 (9.3)	46 (8.2)	
Mother's job	Employee or have a job	43 (28.7)	147 (26.2)	0.00002
	Unemployed or without any job	107 (71.3)	414 (73.8)	



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Association of blood pressure variability with cardiovascular events and mortality in old age



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Elevated blood pressure (BP) is a severe medical condition that significantly increases the risks of organ damage. Hypertension has been consistently demonstrated with a greater risk for cardiovascular events and all-cause mortality. Most studies have used mean BP as a significant risk factor associated with cardiovascular events, and medical guidelines for managing hypertension are based on usual or mean BP. However, there is accumulating evidence that increased variability in BP measurement is associated with an excessive risk of cardiovascular outcomes and mortality independent of BP mean and other vascular risk factors.

BP variability (BPV) is a complex phenomenon that includes short-term (within a period

of 24 hours) and long-term fluctuations over time. Short-term and long-term BPV are independently associated with the development, progression, and severity of cardiac and vascular damage and an increased risk of cardiovascular events and mortality. Furthermore, results of clinical trial and cohort studies have concluded that antihypertensive drug classes differ in their effects on BPV associated risk of cardiovascular outcomes such as stroke and coronary heart disease. These results have prompted discussion on whether antihypertensive treatment should be targeted not only towards reducing mean BP levels but also to stabilizing BPV to achieve reliable control of BP gradually, which might be helpful in the prevention of morbidity and mortality in elderly adults.



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Internet of Medical Things (IoMT)-Edge machines to medical machines talk

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Vinay Kumar Nassa

Sharad Institute of Technology College of Engineering Ichalkaranji, India

Artificial Intelligence one of the forerunner emerging technology (AI) have come across with the capability to bring together vast proportion of data and technologies to create deep insights and process of optimization accuracy and efficiencies. AI present AI is contributing to both the administrative and clinical care aspects of healthcare delivery system.

The need for a better quality of life has led to revolutions in many aspects of human life. Due to the growing population of elderly people in several countries along with the need to reduce the cost of healthcare result in a big need for medical devices that can monitor and diagnose well being of individuals in their daily life and can provides alarm. To achieve this a no of devices as a wearable computing technologies are becoming as Edge devices. These in addition devices are connected in the Internet of Things (IoT) ecosystem and interact with each other to enable various solutions to the end users. The term Internet of Medical Things (IoMT) a healthcare application of IoT technology empowers a network comprises of connected devices, mobile apps that are integrated with sensors radio identification cameras (RFID) etc. The sensing system

working as edge perceives change in human parameters environment and then recognize the person location as well as changes in parameters. The Integration and habitation of Internet into our environment has paved a path for IoMT applications and systems into our lives on ground daily basis. The push to add connectivity at the Edges of Networks with devices adding data at an unmatched pace, devices enable patients to choose their application and devices where connecting medical devices are no different from connecting the devices for any other purpose. The fundamental relationship between patient and care shift 24x7 The IoT based system is responsible for the full care of the patient and these systems are flexible to the patients conditions and there parameters can be set as per patient illness. AI have some challenges, such as centralized architecture, security, and privacy, resource constraints, lack of enough training data.

In this Work, I tried to provide an overview related to IoT services and technologies in healthcare. A number of research challenges have been identified, which are expected to become major research trends in the next years.



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