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ABSTRACT BOOK

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**Nooruddin Himmat**

*Health Emergency expert at WHO,
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Assessing knowledge, attitudes, and practices in underserved communities on maternal and child health and immunization in eight provinces of Afghanistan: A KAP Survey

Abstract

Introduction

Afghanistan is among the countries where essential services, including health and education, have been affected due to decades of conflicts. Despite the efforts of international and national agencies, alongside the stewardship of the Afghan Ministry of Public Health, to deliver health services mostly through BPHS and EPHS from 2000 to 2015, Afghanistan still has an alarmingly high maternal mortality rate of 400 per 100,000 live births, compared to 320 regionally and 280 globally. Furthermore, there are over 4,000 public health facilities operating in Afghanistan. However, due to the dispersed population, geographical terrain, and environmental factors, these facilities are unevenly distributed within and among the provinces and districts. Estimates indicate that 25% of the Afghan population, or approximately 9.5 million individuals in 22,181 villages across 34 provinces, lack access to primary health services.

Methodology

A cross-sectional descriptive study using mixed-method was conducted on reproductive aged women and children who lived in the underserved in the west and north-east region of Afghanistan. Data collection took place at the community level.

Result

Of the 787 participants, the median age was 27 years old and all of our sample was

unemployed and illiterate. Overall, participants had poor knowledge and practice while the participants had positive attitude towards mother and child health.

However, participants had good knowledge and good practice but the participants had negative attitude towards children immunization.

Qualitative approach identified several underlying factors that directly or indirectly impact maternal, newborn, and child health (MNCH) and immunization programs which categorized into low access and utilization of healthcare services, and quality of care.

Conclusion

The study concluded that while participants demonstrated a positive attitude towards maternal and child health, their knowledge and practices in this area were poor. Conversely, they exhibited good knowledge of immunization, but had poor attitudes and practices related to it. Using a qualitative approach, we sought to explore the underlying factors and pathways that complement our quantitative findings. This approach not only informed the types of interventions required but also identified key factors that could impact access, utilization, and the effectiveness of potential interventions or services..

Biography

Nooruddin Himmat has completed his MPH at the age of 35 years from Taxilla American University, India. He is the Health Emergency Officer at World health emergency program of WHO, Afghanistan. He used to work in several organization in different capacities at the primary health care and health management including infectious diseases, mother and child health, Immunization and Health Information system.



Richard Hodges

*Assistant Clinical Professor, Ohio University
Executive Director, Ohio Alliance for Population Health
Executive Director, Ohio University Health Collaborative*

Partnerships for Social Determinant of Health Initiatives

Abstract

Social determinants of health (SDOH)—the conditions in which people are born, grow, live, work, and age—are the most powerful predictors of long-term wellness and health equity, far surpassing the impact of clinical care. We have overwhelming evidence that addressing factors like housing instability, food insecurity, and educational attainment is essential to reducing stark health disparities and controlling unsustainable healthcare costs.

Yet, a profound implementation gap remains. While the science is clear, securing sustained support for SDOH initiatives is our field's most critical challenge. The barriers are a triad of entrenched systems: Financially, our healthcare economy rewards procedural treatment, not proactive prevention. Payers, both public and private, often seek short-term returns and are hesitant to invest in social interventions where the payoff in lower medical costs may take years or even decades to materialize. Politically, these initiatives are frequently contentious, entangled in ideological debates. Their inherently cross-sectoral nature also clashes with rigid bureaucratic and funding silos. Finally, provider bias favors traditional clinical pathways.

Overcoming this inertia requires a new, pragmatic playbook focused on building actionable, cross-sector coalitions. It is no longer enough to diagnose the problem; we must architect the solutions. This means creating innovative public-private partnerships that can simultaneously mobilize community assets, identify and blend diverse funding streams, develop supportive policy, and engage both political leaders and the clinical provider community.

In Ohio, we have moved from theory to practice. Strategic collaborations led by Ohio University, the Ohio Alliance for Population Health, and the Ohio University Health Collaborative, have built community-based coalitions that are delivering tangible results. Our work serves as a living blueprint for breaking down silos. We have successfully obtained funding to integrate clinical practitioners with community health workers, developed policy in coordination with public agencies, and launched targeted, evidence-based interventions.

On-the-ground initiatives provide a compelling case study. These include testing at-risk populations for HepC and HIV, transforming a prison into a women's recovery center, building grocery stores in food deserts, and training local residents as care extenders in isolated Appalachian communities. These are not isolated pilot programs; they are scalable, sustainable models that demonstrate a practical pathway for translating the evidence of SDOH into transformative community action and improved population health.

Biography

Richard Hodges is Assistant Clinical Professor at Ohio University's College of Health Sciences and Professions, where he also directs the Ohio Alliance for Population Health and the Ohio University Health Collaborative.

His career began in public service as a State Representative. After the legislature, he designed population health programs in the private sector. In 2011, he joined Governor John Kasich's administration, ultimately serving as Director of the Ohio Department of Health from 2014-2017. In this role, he led value-based care initiatives and managed emergency responses, including the Ebola outbreak.

Now at Ohio University, his work focuses on linking university and public expertise with communities to address health challenges, particularly in Appalachia. He holds a BA from Oberlin College and an MPA from the University of Toledo.



Ghayyas udDin

Chinese Academy of Sciences, Shanghai, China

The value and clinical significance of the improved proof reading PCR method in the detection of influenza B virus drug resistance loci

Abstract

Background: The influenza virus poses a significant burden on global health each year. It is estimated to cause three to five million cases of severe infection and about half a million deaths globally. Therefore, the public health concern by rapidly evolving Influenza B virus (IBV) cannot be overlooked. With high infection susceptibility in children and young adults, the clinical severity of IBV is almost equivalent to IAV. From 2004 to 2013, IBV accounted for 1-56% of global influenza virus strains and 1-52% of total influenza-related pediatric mortalities. Therefore, we aim to develop an effective approach which is capable to determine the high mutations efficiency and various mutations in the IBV neuraminidase (NA) gene.

Methodology: Screening involved influenza-like children (3 months to 12 years old) from the Pediatric Department of the Nanxiang Branch of Ruijin Hospital and the Maternal and Child Health Hospital of Hubei Province in China. Pharyngeal swabs were collected, and 839 positive IBV cases were identified using the colloidal gold method. Sanger sequencing was employed for full length amplification of the NA region of IBV sequencing to detect drug-resistant sites after mutational analysis highly drug resistant mutations were selected and the novel PCR technique was developed while the improved proofreading PCR method utilized a ddNTP-blocked probe/primer and a combination of DNA polymerases, including a small amount of high-fidelity DNA polymerase and a standard amount of Taq DNA polymerase. For modified high-fidelity

probe-based proof-reading PCR, 3'-ddNTP-modified primers and four new probes, each employing quenchers (BHQ1, BHQ2, BHQ3) and fluorophores (Texas Red, HEX, FAM, Cy5) were designed.

Results: The improved PR-PCR assay employed high-fidelity DNA polymerase, primers and a 3'-ddNTP-modified TaqMan probe which selectively amplified IBV NA drug resistant mutations identified in the clinical samples. This setup enabled specific detection of mutations, with amplification occurring only in the presence of a mismatch. Furthermore, we assessed the performance of the developed PR-PCR assay which demonstrated high specificity, sensitivity, and reproducibility, with a limit of detection (LOD) of 50.6 copies of IBV RNA in a 20 µL reaction. Abstract The assay successfully identified diverse mutations (R102K, E117D, D149N, and R223K) associated with NAI resistance, with a 100% success rate. A comparative analysis with conventional PCR using 100 clinical samples revealed that PR-PCR accurately detected the selected mutations. The results of the assay were then confirmed by using the Sanger sequencing which was further compared with the conventional PCR which failed to discriminate between mutated and non-mutated samples. We evaluated the performance of both singleplex and multiplex reactions by comparing their specificity and sensitivity. An independent sample t-test analysis on mean Ct values showed no significant difference between the two assays ($p = 0.942$, $p > 0.05$), indicating comparable amplification efficiency. These findings underscore the reliability and efficacy of the IPR-PCR assay for detecting NAI resistance mutations in IBV clinical isolates while highlighting its potential as an invaluable tool for surveillance and diagnostic applications.

Conclusion: Overall, we have successfully designed the IPR-PCR assay for detecting IBV NAI mutations within a large number of samples. The method demonstrated clinical efficacy in identifying multiple drug resistance loci patterns with a simple fast and cost effective approach.

Keywords: Influenza, Influenza B virus, Proofreading PCR, High fidelity, DNA polymerase, Neuraminidase, Neuraminidase Inhibitors.

**Betty Apio***Lira Regional Referral Hospital, Lira City, Uganda***Prevalence and Factors Associated with Unsafe Abortion Among Married Women Admitted to the Gynecology Ward at Lira Regional Referral Hospital in Lira city Northern Uganda****Abstract**

Unsafe abortion remains a major contributor to maternal morbidity and mortality globally, with over 60% of unplanned pregnancies ending in abortion and nearly half of these being unsafe. This study aimed to determine the prevalence of unsafe abortion and associated factors among married women admitted to the gynecological ward at Lira Regional Referral Hospital in Northern Uganda. A hospital-based cross-sectional study was conducted from December 2022 to April 2023 among 368 married women admitted with abortion, who were consecutively recruited. Quantitative data were collected using an interviewer-administered questionnaire and analyzed using descriptive and inferential statistics in Statistical Package for Social Sciences version 29.0. Ethical approval was obtained from Gulu University Research Ethics Committee and permission was granted by Lira Regional Referral Hospital, with informed consent obtained from all participants. Nearly half of the respondents (47.8%) had experienced unsafe abortion. Most participants were aged 15–24 years, resided in rural areas, had primary-level education, and reported low monthly income. Women aged 15–24 years were less likely to have unsafe abortion compared to those aged above 34 years, while those residing in rural settings and those with monthly incomes below 500,000 Uganda shillings were significantly more likely to experience unsafe abortion. The study demonstrates a high prevalence of unsafe abortion among married women in Northern Uganda, with rural residence, older age, and low income being key associated factors. Strengthening public education on the risks of unsafe abortion and expanding access to sexual and

reproductive health services, particularly family planning, are essential to reducing unsafe abortion and its associated complications.

**Dr. Thamra Said Al Ghafri***Oman Ministry of Health*

Behavioral change intervention to promote healthy diet and physical activity in overweight/obese adults with diabetes in primary health care: Results from a cluster randomized control trial

Abstract

Objectives: This study evaluated the effectiveness of a multi-component intervention in promoting physical activity (PA) and healthy diet, and its impact on weight, and glycemic control among obese adults with diabetes. Other metabolic and behavioral parameters were also assessed.

Study design: cluster randomized controlled trial.

Methods: Four health centers (HCs) received monthly motivational interviewing phone consultations combined with pedometer use, while four HCs provided usual care. The intervention targeted ≥ 150 min of moderate-to vigorous PA/week and gradual caloric reduction. Participants were physically inactive, overweight/obese adults with diabetes. Primary outcomes were changes in PA (MET.min/week), BMI, and HbA1c. Secondary outcomes included blood pressure, caloric intake, lipid profile, and PA behavior stages. Results: Of the 595 approached participants [59.5 % female, mean (SD) age 46 (6.3) years], 68.6 % completed follow-up. Increases in PA were significantly greater in the intervention group (IG) compared with controls+262.3 (95 % CI:66.5–458.2, $P = 0.009$). Regression analysis demonstrated that odds of meeting PA recommendations at 12 months from baseline were 3.2 times higher in the IG vs CG (95 % CI:1.4–2.6, $P = 0.004$). Between-group differences favored the IG for reductions in mean sitting time

hours/day ($P = 0.003$), BMI ($P = 0.042$), and caloric intake/day ($P < 0.001$) including lower intake of carbohydrates, proteins, and fats (all $P < 0.001$). No significant changes were observed in HbA1c, blood pressure, or lipids. At 12 months from baseline, individuals in the IG had 2.5 times higher odds of being in the maintenance stage compared to controls (95 %CI:1.8–3.5).

Conclusions: Results confirm the feasibility of integrating lifestyle technology bound promotional interventions within the routine diabetes care.

Biography

Dr. Thamra Al Gahfri stands out as a seasoned public health professional within Oman's Ministry of Health. Her journey is marked by prestigious leadership roles, including Medical Officer In-Charge, Director of Health Services, Director of Planning, and Director General of Health Services for the Muscat Region. Presently, beside her interest in applying behavior change techniques in clinical primary health care, and her role as head of research and innovation in Oman Cancer Association, Dr. Thamra is enhancing her academic contributions in Sultan Qaboos University's Public Health Unit and Oman Collage of Health Sciences. She is dedicated to mentoring the next generation, engaging in translational research through integrating innovative research projects, and cultivating a new cadre of public health leaders to enhance health promotion and disease prevention. Her publications (>40) include various public health national prioritis and she continues to raise voices for strengthening Public Health expertises in Oman.

**Aly N. Vredenburg**

*WeBelong Institute, San Diego, California,
USA*

Social Belonging as a Predictor of Depressive Symptoms: Findings from a Community-Based Sample

Abstract

Depressive symptoms remain highly prevalent despite expanded access to individual-level mental health interventions, suggesting the importance of examining broader social determinants of psychological distress. Social belonging has been theorized as a fundamental human need, yet its relative contribution to depressive symptoms remains understudied compared to friendship quality and material stressors. The objective of this pilot study was to examine social belonging as a multidimensional construct and to evaluate its association with depressive symptoms alongside friendship quality and financial stress in a community-based sample. Participants (N = 175) completed an anonymous survey assessing depressive symptoms, social belonging, friendship experiences, and financial stress. Depressive symptoms were measured using the Patient Health Questionnaire–8 (PHQ-8). Belonging was operationalized across multiple dimensions, including chronic belonging frequency, recent social exclusion, and friendship quality. Financial stress was measured as the frequency of worry about meeting basic needs over the past six months. Pearson correlations and multiple linear regression analyses were conducted. Belonging frequency demonstrated a significant negative association ($p < .05$) with depressive symptoms, exceeding associations observed for friendship quality and financial stress. In multivariate regression models, belonging frequency emerged as the strongest independent predictor of depressive symptoms, while financial stress remained a significant risk factor. Friendship quality did not remain statistically significant after accounting for belonging. These findings suggest that experiences of social inclusion and belonging may represent a central protective factor for mental health, independent of friendship quality and material stressors.

Results highlight the potential value of community and relationship-focused approaches to depression prevention and intervention.

Keywords: Mental health; Generation Z; Belonging; Community; Depression.

Biography

Aly Vredenburg is an author, researcher, and filmmaker whose work focuses on the systemic and preventative determinants of youth mental health. Her research examines how structural inequality, social fragmentation, economic precarity, and institutional design contribute to rising rates of depression, anxiety, and suicide among Generation Z. She is the author of Out of Focus: Why Gen Z's Mental Health Crisis Is More Complex Than You Think (2024), which integrates sociological theory, public health frameworks, and population-level analysis to challenge individual-level and therapy-centric models of care.

Vredenburg has published and presented her research internationally, including at the 10th International Conference on Public Health (ICOPH 2024) in Bangkok, Thailand, and the World Congress on Advances in Preventive Medicine and Public Health (2025) in Prague, Czech Republic, where her work, Advancing Generation Z's Mental Health: The Spectrum of Systemic Root Causes of the Mental Health Crisis and Innovative Solutions, examined prevention-oriented approaches aligned with global health and equity goals. She holds a B.A. in Sociology and an M.A. in Social Innovation from the University of San Diego. Her work advances a central thesis: effective mental health prevention requires structural and social redesign, not solely clinical intervention.

**Jun Wang**

*School of Basic Medicine, Qingdao University, Qingdao
266071, China*

HIF-2 α /TIM2/FPN1 axis in oligodendrocytes mediates iron homeostasis dysregulation in Parkinson's disease**Abstract**

Parkinson's disease (PD) is a neurodegenerative disorder characterized primarily by the progressive loss of dopaminergic neurons and iron deposition in the substantia nigra. Oligodendrocytes (OLs) are the cell type with the highest iron content in the central nervous system. OLs take up ferritin heavy chain 1 (FTH1) released by microglia via T cell immunoglobulin and mucin domain protein 2 (TIM2) and export iron through ferroportin 1 (FPN1). However, the role of OLs in iron deposition in the substantia nigra in PD and the underlying mechanisms remain unclear. In this study, 6-hydroxydopamine (6-OHDA) was used to establish cellular and animal models of PD to investigate the effects of 6-OHDA on iron metabolism in OLs and the underlying regulatory mechanisms. Subsequently, OL-microglia and OL-neuron co-culture systems were established to examine the central role of OLs in maintaining iron homeostasis within the glia-neuron functional unit, with the aim of providing reliable experimental evidence for elucidating the mechanisms underlying iron deposition in the substantia nigra in PD. The study reveals that 6-OHDA-induced oxidative stress activates HIF-2 α in OLN-93 OLs-like cells, thereby upregulating the expression of TIM2 and FPN1; 6-OHDA promotes FTH1 secretion in the BV2 microglial cell line, and OLN-93 cells significantly increase FTH1 uptake via a TIM2-mediated pathway; 6-OHDA also enhances iron efflux from OLN-93 cells through FPN1, leading to increased neuronal iron uptake and subsequent iron deposition in neurons; in a PD mouse model, 6-OHDA induces an increase in OLs in the substantia nigra, accompanied by elevated TIM2 expression. These findings reveal that 6-OHDA regulates iron metabolism in OLN-93 oligodendrocyte-like cells via the HIF-2 α /TIM2/FPN1 axis, and oligodendrocytes take up FTH1 released from microglia to accumulate

iron and subsequently release iron to neurons via FPN1, ultimately leading to neuronal iron deposition. These findings provide novel insights into iron homeostasis dysregulation in PD and identify potential molecular targets for its therapeutic intervention..

Biography

Jun Wang finished her PhD at 30 years old from Qingdao University and postdoctoral investigations from State University of New York at Buffalo. She is a council member of the Chinese Society of Neuroscience, currently serves as the director of the Department of Physiology and Pathophysiology in Medical College of Qingdao University.

**Junxia Xie**

*Institute of Brain Science and Disease, Qingdao University
Qingdao Medical College*

Mutualistic Probiotic -Drug Oral Delivery System Targeting Gut-Brain Axis for Alleviating Colitis-Associated Mental Disorders

Abstract

Emerging evidence indicates that individuals with inflammatory bowel disease (IBD) are particularly susceptible to psychosocial disturbances, including depression and anxiety. Unfortunately, clinical antidepressants have shown unsatisfactory efficacy in managing psychosocial disorders associated with IBD, largely due to the intrinsic nature of intestinal disease and the complex bidirectional communication between the gut and brain. Here, we armed the probiotic *Escherichia coli* Nissle 1917 (EcN) with GABA-chitosan nanoparticles (GC NPs) to form a "mutualistic probiotic–drug" oral delivery system (GC-EcN) for reshaping a healthy microbiome–gut–brain axis. The intestinal colonization ability of the probiotic facilitates targeted delivery and retention of the nanoparticles, enabling sustained GABA release and the scavenging of elevated reactive oxygen species (ROS). The resulting reduction in inflammation enhances bacterial viability, rapidly restores intestinal barrier function, and rebalances the gut microbiota. Notably, GC-EcN alleviated anxiety- and depression-like behaviors via the microbiota–gut–brain axis by reducing neuroinflammation, enhancing hippocampal neural plasticity, and modulating immune responses in the hippocampus. This study highlights the critical role of the microbiome–gut–brain axis in the progression of IBD with psychiatric comorbidities and proposes a safe, simple, and effective therapeutic approach for managing both IBD and associated mental disorders.

Biography

Professor Junxia Xie is the Founding Director of the Institute of Brain Science and Disease at Qingdao University, the Director of Shandong Provincial Collaborative Innovation Center for Neurodegenerative Disorders, Shandong Provincial Key Laboratory of Pathogenesis and Prevention of Neurological Disorders, and Qingdao Municipal Key Laboratory for Brain Function and Diseases. In 2022, she was selected as one of the world's top 100,000 scientists. Professor Xie has dedicated over 30 years to researching the pathogenesis and prevention strategies of Parkinson's disease. She has led over quite a few projects, including two key projects of the National Natural Science Foundation of China. She has published over 150 papers, and the achievements have received more than 10 awards. She is an Editorial Board Member of Neuroscience Bulletin and has authored, co-authored, or contributed to more than 10 books.

**Amelia Scott Barrett, MD***Migraine Relief Code*

Identifying Actionable Genetic Pathways in Treatment-Resistant Migraine: A Precision Medicine Approach

Abstract

Migraine is a polygenic disorder, with nearly 200 different genes identified in GWAS and related studies. However, translating those advances into clinically meaningful solutions remains challenging. The aim of this study was to identify the most prevalent genetic variants in individuals with treatment-resistant migraine, in order to better characterize the underlying biological systems involved and explore their relevance to precision medicine approaches. We performed a retrospective analysis of DNA test results for 21 people with treatment-resistant migraine. Testing was performed using a customized commercially available test panel developed by the author that evaluates 75 genes that have established associations with migraine. Results showed abnormalities of genes in biological systems known to be linked with migraine. The most common genetic variants were: MTR (100%), CYP3A4 (95%), GSTM3 (90%), TRPM8 (81%), MAO-B (76%), 5-HTTLPR (71%), and DRD3 (62%). These genes are involved with methylation, drug metabolism, glutathione conjugation, sensory modulation, dopamine metabolism, serotonin reuptake, and dopamine signaling. These results offer insight into the common variants that provide the biological substrate for treatment-resistant migraine. Precision medicine strategies informed by genetic profiling may enable more effective treatment selection, reduce reliance on trial-and-error approaches, and improve outcomes in this challenging patient population.

Biography

Dr. Barrett completed her Neurology residency at Stanford University in 1999 and treated

patients with headaches and migraine in private practice until 2023. She is the Founder of Migraine Relief Code, a platform that combines at-home migraine-specific DNA testing with AI-powered precision medicine protocols. The data enables personalized medication selection informed by pharmacogenomic considerations, while also guiding targeted lifestyle interventions, including biologically aligned supplementation and identification of dietary factors that may exacerbate migraine.

Dr. Barrett is also a TEDx Speaker and author of the upcoming book, "ALIGN: Live in Sync With Your Biology to Relieve Headaches and Migraine for Good"

**JEAN BLAISE YOBO***University of Abomey-Calavi, Zaire***Factors associated with the circulation of vaccine-derived polioviruses in children under five in Kilwa, Haut-Katanga province, Democratic Republic of Congo, 2022-2023****Abstract**

Since the World Health Organization declared the African region free of wild poliovirus in August 2020, vaccine-derived polioviruses (VDPV) have remained the only form of poliovirus still circulating on the continent, including in the Democratic Republic of the Congo (DRC). This study aimed to identify factors associated with VDPV infection among children under five in Haut-Katanga Province, specifically in the Kilwa health zone.

We conducted a case–control study based on secondary analysis of data from the National Institute of Biomedical Research and the Expanded Programme on Immunization. The dependent variable was infection with a vaccine-derived poliovirus. Independent variables included participants' vaccination and epidemiological status, as well as selected environmental factors. Associations were assessed using univariate logistic regression, with a significance threshold set at 5%.

No association was found between VDPV infection and the following variables in children under five: number of oral poliovirus vaccine doses received, number of inactivated poliovirus vaccine doses received, recent diarrhoeal episode, contact with a positive case, source of drinking water, open defecation, dwelling cleanliness, or wealth index. However, a significant association was observed with malnutrition: malnourished children were at increased risk of VDPV infection (OR = 2.33, 95% CI: 1.12–4.81).

Malnutrition appears to be a risk factor for infection with vaccine-derived poliovirus. These findings highlight the need to strengthen nutritional interventions in high-risk areas to support polio control efforts.

**Iffat Tasnim Haque**

Senior Assistant Professor, MPH Program, American International University-Bangladesh

Improving the Knowledge and Health Seeking Behavior Regarding the Sexually Transmitted Diseases among the Adolescents through Mobile App

Abstract

In Bangladesh, knowledge regarding Sexually Transmitted Diseases (STDs) among adolescents is generally poor. Factors like severe misconceptions, social stigma, and cultural taboos might be responsible for knowledge gaps which remain a critical public health challenge for youth in the country. This study evaluated the knowledge gaps among the adolescent population and based on that, an interactive mobile health (mHealth) application has been developed that might improve the comprehensive STD knowledge and health-seeking behaviors among adolescents. Cross-sectional study design was conducted to identify the knowledge and health seeking behavioral practice among 200 adolescent girls using structured questionnaire from one of the rural areas in Bangladesh. The study found 39.5% among the adolescents girls have almost no knowledge about STIs. Majority of them agreed upon the improvement of formal education might help to increase the health seeking behavior. Regarding the health seeking behavior (27.5%) identified “social norms” or “social stigma” might be one of the main barriers of not intending to take the appropriate treatment services. From the previous literature, lack of treatment facilities with proper confidentiality can be another significant barriers among many other factors. Therefore, based on the findings, a mobile health application has been developed to get the necessary knowledge, symptoms of diseases, transmission of diseases has been included along with the primary telemedicine services needed for early detection. After implementation of the mobile app among 100 adolescents, significant improvement has been found

regarding the knowledge about STDs that can help the adolescents to maximize the health seeking behavior and minimize the severity of disease with proper confidentiality and referral system.

Biography

Dr. Iffat Tasnim Haque has completed her Bachelors in Microbiology from University of Dhaka, Bangladesh, Masters in Microbiology from the same institution, completed her Masters in Public Health from James P Grant, School of Public Health from BRAC university and acquired her Doctoral Degree from Japan Advanced Institute of Science and Technology, Japan. Prior joining as a faculty, Iffat worked in the International Centre for Diarrheal Diseases Research, Bangladesh. She has published more than 11 journal, conference papers and book chapters.



Raza Ullah Asif

*Armed Forces Institute of Pathology (AFIP), Rawalpindi,
Pakistan*

Transmission dynamics of HBV and HCV in dialysis centers: An overview of standard infection control practices and their efficacy

Abstract

Background: Hepatitis B virus (HBV) and hepatitis C virus (HCV) remain major risks in hemodialysis (HD) settings, where repeated vascular access and extracorporeal blood circuits create opportunities for viral transmission. This study evaluated the efficacy of existing infection control practices in HD centers by analysing environmental contamination before and after disinfection.

Methods: A comparative cross-sectional study was conducted in two HD centers in Rawalpindi from September 2024 to December 2024). Twelve predefined surface types were sampled before and after disinfection using Dacron swabs placed in viral transport medium (VTM). Viral nucleic acids were extracted using the TANBead® Smart Extractor and amplified using Sacace® HBV/HCV Real-time PCR kits. Haemodialysis was performed using Fresenius® 4008B machines.

Routine disinfection consisted of 1 % sodium hypochlorite applied with a 15-min contact time. Data were analyzed in SPSS v27 (IBM®, USA). McNemar's test compared pre- and post-disinfection positivity while Wilcoxon signed-rank test compared paired Ct values. $P < 0.05$ was considered statistically significant.

Results: Twenty-four surface samples (12 surface types x 2 centres) were analysed. Pre-disinfection, 12/24 (50.0 %) surfaces were HBV-positive and 4/24 (16.7 %) were HCV-positive. Post-disinfection, HBV persisted on 10/24 (41.7 %) surfaces, while HCV

was undetectable. Median HBV cycle threshold (Ct) value increased from 34.80 (IQR 7.20) pre-disinfection to 37.50 (IQR 7.38) post-disinfection (Wilcoxon signed-rank test, p -value = 0.041), indicating a reduction in detectable viral nucleic acid that is statistically significant. The change in positivity by McNemar test was not statistically significant for HBV (p = 0.804) or HCV (p = 0.125). Notably, seven surfaces that were HBV-negative pre-disinfection became positive post-disinfection.

Conclusion: Routine disinfection with 1 % sodium hypochlorite (15-min contact) eliminated

Keywords: Hepatitis B virus; Hepatitis C virus; Hemodialysis; Environmental contamination;

**Prof. Dr. S.V.A.R. Sastry***Harcourt Butler Technical University*

Bio-synthesis and characterization of Plectranthus Amboinicus derived Silver Nanoparticles impregnated with zeolite : Evaluating the anti-fungal potential

Abstract

The green synthesis of silver nanoparticles (AgNPs) using plant extracts has gained significant attention due to its eco-friendly, cost-effective, and sustainable nature. The green synthesis approach not only corroborates the significance of phytochemical-assisted nanoparticle production but also aligns with sustainable nanotechnology principles. Silver possesses a remarkable physiochemical property that make it an excellent candidate for nanotechnology applications. In this study, silver nanoparticles were biosynthesized using *Plectranthus amboinicus* leaf extract, a medicinal plant known for its rich phytochemical composition. The bio-reduction of silver ions (Ag^+) to AgNPs was unequivocally confirmed through visual observation, where a color change indicated successful synthesis. The incorporation of zeolite as a supporting matrix was further explored to enhance the stability and functionality of the synthesized nanoparticles. The synthesized AgNPs were characterized using various analytical techniques, including UV-Vis spectroscopy, Fourier-transform infrared spectroscopy (FTIR). The UV-Vis spectroscopy results exhibited the absorbance in the range of 350-400 nm. The FTIR analysis revealed the presence of C-H, C=O and O-H boss present in the sample. FESEM images provided an insight into the morphology where the average particle size was confirmed within the range of 10-50 nm. This study unequivocally highlights the potential of *Plectranthus amboinicus*-mediated AgNPs impregnated with zeolite as a promising nanomaterial for water disinfection, biomedical and environmental applications. The results suggest that this bio-nanocomposite can be explored further

for its potential applications in antimicrobial coatings, drug delivery, and wastewater treatment. Future research should focus on optimizing synthesis parameters and exploring large-scale production to facilitate real-world applications.

Biography

Dr. S.V.A.R.Sastry has more than 21 years of teaching and research experience. B.Tech Gold Medalist, M.Tech Silver Medalist and Best Ph.D Thesis Awardee. Authored 15 Patents, 25 International Books, 75 Research Papers. Editor for ten International Journals. Given more than 45 Keynote lectures in various International Conferences held at Brazil, Dubai, Spain, China, Canada, Italy, France and UK. Biography published in Marquis Who's Who in the World, 31st, 32nd & 33rd editions consecutively. University Best Teacher Awardee for five consecutive years from 2008 to 2013. Recipient of International Awards from IBC, Cambridge, England. Received Pillars of the Nation Award for Excellence and Innovation in Education Sector in 2023, Outstanding Alumni Faculty Award from IIT Delhi in 2023, University Research Excellence Award for 2023, 2024, 2025, 2026. Honored with "Outstanding Leadership in Research and Innovation" Award in the 29th & 33rd World Education Summit, New Delhi.



Ning Song

School of Basic Medicine, Institute of Brain Science and Disease, Qingdao University Qingdao Medical College

Pallidal iron deposition in ageing mice and Parkinsonian mice: comparison with nigral iron deposition

Abstract

Iron plays essential physiological roles in the central nervous system and exhibits pronounced regional heterogeneity in the brain, with particularly high levels in the globus pallidus (GP) and substantia nigra (SN). Iron deposition occurs in these two regions during aging; pallidal and nigral iron content was further increased in Parkinson's disease (PD) patients when compared to age-matched healthy controls. However, how these two regions differ in iron transporters expressions and cell type-specific deposition, remain unclear. And pallidal iron deposition in PD mouse models was not reported before. In this study, we observed that external GP (GPe) exhibited comparable iron transporters levels with SN in mice, although there were relatively higher H-ferritin levels in GPe. GPe and SN also showed similar adaptive responses to iron deposition and ferroptosis during aging. However, a much greater neuronal iron deposition, rather than glial iron deposition, was observed in the GPe than in the SN, although iron accumulated in both neuronal and glial cells. Notably, unlike nigral iron deposition, which is consistently observed in PD models, pallidal iron deposition was only observed in 6-OHDA MFB injection and nigral PFFs injection-induced PD mouse models, with the presence of nigral dopaminergic neurons loss and the absence of pallidal glial activation. While pallidal iron deposition was not observed in mice with MPTP, rotenone, nigral PFFs injection or striatal PFFs injection. These findings reveal pallidal and nigral iron deposition are largely similar during aging, while with a distinct cell-specific distribution. Pallidal iron was not as readily reproducible in several PD mouse models as nigral iron, suggesting iron deposition in PD exhibits distinct temporal and spatial characteristics.

Biography

Professor Ning Song is a professor in Department of Physiology, Qingdao University Qingdao Medical College. She has dedicated over 20 years to researching the pathogenesis and prevention strategies of Parkinson's disease. She has led a few projects and has published over 50 papers. She is also serving as a Youth Editorial Board Member of Neuroscience Bulletin.



Poku-Adusei Elvis

Department of Biochemistry and Biotechnology, College of Science, KNUST, Kumasi, Ghana

Pharmacogenetics and pharmacogenomics insights from whole genome sequencing of orofacial clefts case-parents trios

Abstract

Orofacial clefts (OFCs) are common congenital malformations complicated by adverse drug reactions (ADRs), underscoring the need for pharmacogenomic insights. This study investigates rare genetic variants of drug-metabolising and transporting enzymes in sub-Saharan OFC caseparents trios. A cohort of 130 families with orofacial clefts (OFCs) from Ghana and Nigeria was recruited, and DNA was extracted from saliva and cheek swab samples. DNA was quantified using a Qubit fluorometer. Whole genome sequencing (WGS) generated 390 datasets from 130 caseparent trios for analysis. The GATK workflow was used for variant calling from WGS data, followed by prioritisation and annotation of gene variants using other bioinformatics tools. HOPE in-silico modelling analysed structural impacts of these variants on protein function. PyRx molecular docking assessed how gene variations influence the ability of these proteins to bind and metabolise drugs effectively. Pathogenic variants were detected in genes that encode proteins responsible for drug metabolism. These include CYP1A2 (NP_000752.2:p.Gly73Arg; NP_000752.2:p.Arg90Pro), CYP2C18 (NP_000763.1:p.Val330Leu; NP_000763.1:p.Thr299Ile), CYP27A1 (NP_000775.1:p.V368L; NP_000775.1:p.Val522Met), CYP2B6 (NP_000758.1:p.Arg434Gln; NP_000758.1:p.Arg98Gln); SLC6A2 (NP_001034.1:p.Thr283Arg), and ABCC3 (NP_003777.2:p.Arg1297His; NP_003777.2:p.Arg1166Cys; NP_003777.2:p.Ser314Ile). HOPE analysis revealed that mutations altered amino acid properties, affecting protein structure and function, especially in conserved domains. These changes likely impair protein activity, reducing interactions with ligands. PyRx docking demonstrated that the mutations altered the binding affinities of the proteins to various drugs, with some mutations increasing binding affinity,

whereas others decreased it. Pathogenic variants were identified in genes involved in metabolising common over-the-counter and prescribed drugs in Africans, such as ketoconazole, carbamazepine, diclofenac, clotiazepam, efavirenz, nevirapine, artemether, acetaminophen and chloramphenicol, which may be associated with adverse drug reactions (ADRs). These findings underscore the need for pharmacogenetic screening to personalise treatment and reduce ADRs in Ghana and Sub-Saharan Africa in general.

**Huamin Xu**

*Institute of Brain Science and Disease, Qingdao University,
Qingdao, China*

Iron overload promoted synaptic dysfunction and mediated excitotoxicity in dopaminergic neurons**Abstract**

Accumulating evidence highlights iron deposition in the substantia nigra (SN) as a critical factor in Parkinson's disease pathogenesis. However, the specific effects of iron overload on dopaminergic neuron degeneration, synaptic function, and the underlying molecular mechanisms remain poorly understood. Our results showed that in iron dextran-treated rats, iron overload reduced the expression of NMDAR subunits (GluN1, GluN2A, GluN2B), the AMPAR subunit GluA1, and several synaptic plasticity-related proteins in both the SN and striatum. In ventral midbrain (VM) neurons, FAC elevated intracellular free iron and reactive oxygen species, reduced mitochondrial membrane potential, and significantly decreased protein levels of GluN1, GluN2A, GluN2B, GluA1, phospho-GluA1, and activity-regulated cytoskeleton-associated protein. Notably, iron overload upregulated the expressions of PSD-95 and NOS and increased membrane expression of GluN2B and GluN2A. These results indicated that iron overload promoted synaptic deficits and NMDAR-mediated excitotoxicity. This provides a novel protective target against iron-induced neuronal injury.

Biography

Huamin Xu finished her PhD from Qingdao University. She is now a professor and the chief of the Pathophysiology Discipline in Qingdao University, a Taishan Scholars Young Expert of Shandong Province and the head of the Youth Innovation Technology Support Plan Team of Shandong Province. She has published in excess of 40 papers in the field of Parkinson's disease etiology and prevention strategies.



Khushi Adhitya

All India Institute of Medical Sciences, Jodhpur, India

Hospital-acquired infections pose major public health concerns, contributing to increased patient illness, death rates, and healthcare expenses

Abstract

Summary: Hospital-acquired infections pose major public health concerns, contributing to increased patient illness, death rates, and healthcare expenses. Common types of HAIs include Ventilator-Associated Pneumonia, Catheter-Associated Urinary Tract Infections, Catheter-Related Bloodstream Infections, and Surgical Site Infections many of which are linked to multidrug-resistant organisms. Mobile phones, which are widely used by healthcare professionals, may serve as carriers for harmful microorganisms.

Objective: To assess the incidence of hospital-acquired infections among ICU, to isolate and identify microorganisms present on the mobile devices of healthcare workers in the ICU, and to determine whether these devices serve as potential sources for the spread of hospital-acquired infections.

Methodology: A longitudinal study was conducted. ICU patients admitted for over 48 hours were monitored for HAIs based on CDC criteria to assess incidence of HAI. To isolate microorganisms from mobile devices of healthcare workers, mobile devices were swabbed and cultured. Organisms were identified via microscopy and MALDI-TOF MS.

Results: Among 177 ICU patients, 23.7% developed HAIs, predominantly VAP (27%). Common pathogens included *Acinetobacter baumannii*, *Escherichia coli* and *Klebsiella pneumoniae*. Of 62 mobile devices analysed, skin and environmental flora were most

frequently isolated.

Conclusion: This suggests that although mobile devices can serve as potential fomites, objects capable of carrying infectious agents, they do not appear to have a direct role in the transmission of hospital-acquired infections in this context. Keywords: Hospital acquired infection, Ventilator Associated Pneumonia, Mobile device, public health.

**Priscille FOKAM**

*University of Douala, Cameroon
Cheikh Anta Diop Academy Society
PREZODE-AFRICAM*

Endemicity of salmonellosis and local One Health prevention strategies in the Kribi health district (Cameroon)**Abstract**

This study raises the issue of the ineffectiveness of local prevention of salmonellosis, an annual transmission disease, in a One Health context in the Kribi health district in southern Cameroon. The aim here is to profile the factors behind this ineffectiveness, with a view to contributing to a better understanding of the levers of salmonellosis endemicity. The study is based on the mixed method, with a particular focus on the geoqualimetric method of scientific research. As a result, local prevention strategies in the study area revolve around two tandems: conventional and endogenous. Conventional preventive strategies, lacking human, financial and material resources, are mainly focused on human beings, and therefore come under the heading of human health. A few rare preventive actions on the pathogen have been identified, and thus come under animal health. On the other hand, no conventional actions have been recorded in relation to ecosystem health. Conventional prevention strategies are therefore dysfunctional in their One Health articulation. Endogenous devices suffer from a lack of traceability of their processes, a lack of scientific mastery of dosages and a lack of measured efficacy. This is why they have not been integrated into conventional strategies. This marginalization reinforces the malfunctioning of the One Health approach, which should logically integrate endogenous prevention mechanisms. All in all, the ineffectiveness of local prevention against salmonellosis is a response to the combination of several intertwined factors. The study calls for the integration of endogenous strategies, capacity-building of stakeholders and triangulation of actions on both humans and pathogens (animals), as well as on the living environment of these agents (ecosystems), in order to achieve genuine One Health prevention with a high potential for effectiveness.

Key words: Endemicity, Prevention, Salmonellosis, local prevention strategies, One Health, Kribi health district..

Biography

Priscille FOKAM is a young doctoral student in health geography at the University of Douala in the Geography, Territory and Environment Laboratory. She is conducting research on the endemo-epidemiogenesis of zoonoses in One Health context in Kribi (Cameroon). Through her thesis, she deciphers the complexity of the environmental and health interactions that precede zoonoses. She critiques the concrete operationalisation of the One Health approach by questioning the effectiveness of triangulation (human, animal and ecosystem health) in strategies to fight against zoonoses. She then analyses how endogenous knowledge can be integrated in a relevant way into these dynamics, with a view to sustainable and contextualised health. She is also a fellow with the CIRAD research team as part of the international PREZODE-AFRICAM project, where she contributes to the production of scientific knowledge on zoonotic risk prevention and multisectoral health governance. author of seven scientific publications, she is interested in territorial dynamics of health and human-animal-environment relationships.

**Abram Roesner**

*Wright State University Boonshoft School of Medicine,
Dayton, Ohio*

Gastric Cancer Risk Characterization and Stage Disparities in the United States General Population: A NHANES-SEER Transportability Analysis

Abstract

Background

Gastric cancer remains a leading cause of cancer mortality in the United States and disproportionately affects racial and ethnic minority populations. Surveillance, Epidemiology, and End Results (SEER) registry data characterize diagnosed patients but reflect geographically selected populations rather than the US general population, limiting the applicability of existing stage-at-diagnosis and survival estimates to national policy contexts.

Methods

We linked ten cycles of the National Health and Nutrition Examination Survey (NHANES, 1999–2018; n=49,915 eligible adults aged 20+) to SEER gastric cancer incidence rates across 114 demographic cells defined by age group, sex, and race/ethnicity. A fixed-coefficient gastric cancer risk model was developed using published effect estimates for *H. pylori* infection, cigarette smoking, obesity, sex, and age, calibrated to SEER-observed rates via race-stratified intercepts. SEER case-level data (n=129,365) were transported to the NHANES-represented US general population using inverse odds of selection weighting (IOSW), with covariate balance assessed via standardized mean differences. Racial disparities in transported distant-stage presentation were decomposed using Oaxaca-Blinder methods. Bootstrap confidence intervals were derived from 1,000 iterations.

Results

The risk model achieved a Spearman rank correlation of 0.964 between predicted and SEER-observed cell-level incidence rates. All 19 demographic covariates achieved standardized mean differences below 0.10 after IOSW weighting (selection model AUC 0.777). After transportability weighting, the proportion presenting at distant stage increased from 36.6% (SEER observed) to 40.9% (95% CI 40.3–41.5%) in the general population estimate. Hispanic Americans showed the highest transported distant-stage proportion at 51.0% (95% CI 49.6–52.5%), substantially exceeding non-Hispanic White patients at 37.5% (95% CI 36.8–38.3%). Asian Americans showed a transported distant-stage proportion of 46.6% (95% CI 44.1–49.3%), with non-overlapping confidence intervals relative to non-Hispanic White patients. Oaxaca-Blinder decomposition revealed that age and sex differences explained only 4.5% of the 13.4 percentage point Hispanic–non-Hispanic White disparity in distant-stage presentation. Adding cell-level *H. pylori* burden produced negative explained fractions, indicating that differential infection biology does not mediate the disparity.

Conclusions

Transportability methods demonstrate that the US gastric cancer burden, particularly late-stage presentation among Hispanic and Asian Americans, substantially exceeds registry estimates alone. The finding that 95.5% of the Hispanic late-stage disparity is unexplained by demographic composition and *H. pylori* burden implicates structural barriers to early detection as the primary driver, with implications for targeted screening program design in high-risk minority communities.

Biography

Abram Roesner is a medical student at Wright State University Boonshoft School of Medicine. He holds a Master of Science in Bioinformatics from Johns Hopkins University and completed four years as an Epic Analyst at Cincinnati Children's Hospital Medical Center, where he developed expertise in clinical data systems and health informatics infrastructure. His research interests focus on cancer epidemiology, health disparities, and the application of population-level statistical and causal inference methods to characterize disease burden in underserved communities. This study applies transportability methodology to link nationally representative survey data with cancer registry outcomes, generating population-representative estimates of gastric cancer risk and stage distribution by race and ethnicity in the United States. He is working toward his first peer-reviewed publication.

**Tania Islam***PhD Scholar*

Menstrual Hygiene Practices and Associated Factors Among Women in Murshidabad District, West Bengal, India: A Cross-Sectional Study

Abstract

Background: Menstrual hygiene management continues to be an overlooked area of reproductive health in rural India. In border districts, such as Murshidabad, West Bengal, even more. Few studies are available on menstrual hygiene in this region, especially on socioeconomic determinants.

Objective: To assess menstrual hygiene practices and to find out the factors associated with good menstrual hygiene among women in Murshidabad district. Study design: Cross-sectional study.

Methods: A cross sectional study was conducted among 402 women through structured questionnaire. A composite hygiene score was developed using product use, frequency of change, method of disposal, cycle regularity, duration and flow. The wealth index was created using the Principal Component Analysis. Logistic regression and forest plots were used to identify and visualize factors associated with good hygiene.

Results: The prevalence of good menstrual hygiene was 48.3%. Wealth was the most important predictor, with women in the richest quintile having 6.58 times higher odds of good hygiene than the poorest (OR = 6.58, 95% CI: 2.49, 17.39, $p < 0.001$). Education was also significant, with graduation+ education showing 5.39 times higher odds than

illiteracy (OR = 5.39, 95% CI: 2.18, 13.33, $p < 0.001$). Muslim women were less likely to have good hygiene (OR=0.66, 95% CI: 0.45, 0.98, $p=0.039$). Husband's income was important in unadjusted analyses but became non-significant when controlling for wealth. In the combined variables analysis, illiterate women had the lowest odds of good hygiene (OR = 0.05, 95% CI: 0.01, 0.43, $p = 0.006$).

Conclusion: Wealth and education are the strongest predictors of good menstrual hygiene. Interventions should prioritize educational access and economic empowerment, particularly among marginalized groups.

Keywords: Menstrual Hygiene, Wealth Index, Education, Caste, Religion, Murshidabad, West Bengal.

Biography

Tania is a PhD scholar in India, researching child marriage and menstrual hygiene practices among adolescent girls in Murshidabad district, West Bengal. Her academic interests include adolescent health, maternal wellbeing, gender inequality, and public health. She uses qualitative and quantitative methods to understand the social and economic factors influencing early marriage and menstrual hygiene. Her work aims to contribute to evidence-based policy and improve health outcomes for adolescent girls in rural India.

**Evagle, Valentin, EV***ORBITE Cameroun, Cameroon*

Community-Based Mobile Eye And Oral Health Care To Improve Access In Underserved Populations In Cameroon

Abstract

Background: Limited access to eye and oral health services remains a major public health challenge in underserved and remote communities in Cameroon, contributing to avoidable blindness, oral diseases, and reduced quality of life.

Aims/Objectives: This project aimed to improve access to basic ophthalmological and oral health services through mobile, community-based care integrated within the primary health care approach.

Methods: ORBITE Cameroun implemented mobile outreach activities delivering prevention, screening, basic treatment, and health education in vulnerable communities. The project emphasized community participation, health education sessions, strengthening human resources, and collaboration with existing health structures. Information, education, and awareness sessions promoted oral hygiene practices and early care-seeking behavior.

Results: The intervention increased service coverage in hard-to-reach areas, improved early detection of eye and oral conditions, and strengthened community awareness of hygiene and preventive practices. The approach helped reduce barriers related to distance, cost, and lack of information while reinforcing links between communities and formal health services.

Conclusions and Recommendations: Mobile community-based eye and oral health care is a practical strategy to reduce inequalities in access to

care. Strengthening political commitment, workforce training, infrastructure, and supply systems is essential to sustain and scale up such initiatives in low-resource settings.

Keywords: Community health, eye health, oral health, mobile clinics, primary health care.

Biography

Dr. Valentin Evagle, born February 1, 1990, in Mbalmayo, Cameroon, is an eye-health leader trained at IOTA, the African Institute of Tropical Ophthalmology in Bamako. Since 2016, he has led Orbite Cameroon, delivering mobile eye and dental care nationwide, partnering with the Ministry of Public Health to expand access for underserved communities.

**Dr. Muhammad Muneebullah Siddiqui**

Department of Community Health Sciences, Aga Khan University, Karachi

Healthcare Providers at the Frontline of Climate Change: Knowledge, Attitudes, and Practices

Abstract

Climate change is an increasing threat to public health, with implications for both population health and healthcare delivery. Healthcare providers (HCPs), as trusted sources of health information, have an important role in communicating climate-related health risks, promoting preventive behaviors, and advocating for climate action. However, evidence regarding their preparedness and capacity to address climate change, particularly in Pakistan, remains limited. The aim of this study was to assess the knowledge, attitudes, practices, and perceived responsibilities of HCPs regarding climate change and its associated health effects in Karachi, Pakistan.

A cross-sectional study was conducted among 486 HCPs from two tertiary care hospitals, one public and one private. Data were collected using a structured questionnaire assessing knowledge, attitudes, practices, and perceived responsibilities related to climate change. Composite scores were calculated for each domain, with scores above 50% classified as adequate knowledge, positive attitudes, or good practices. Data were analyzed using Stata 16.0, and multivariable linear regression was used to assess associations between KAP scores and participant characteristics.

Overall, 51% of HCPs demonstrated adequate knowledge, 68% had positive attitudes, and 50% reported good climate-related practices. Most participants recognized that climate change adversely affects general health (96.7%) and patient health (89%). However, major barriers to discussing climate change with patients included time constraints (82.9%) and insufficient knowledge (78.2%). In adjusted analyses, HCPs

working in private hospitals had significantly lower practice scores than those working in public hospitals ($\beta = -0.84$; 95% CI: -1.25 to -0.43). Postgraduate education and House Officer designation were associated with higher knowledge scores, while higher income was associated with better knowledge and attitudes. Despite generally positive attitudes toward climate change, substantial gaps in knowledge and practices were identified among HCPs.

Targeted climate-health training, integration of climate change into medical curricula, and institutional support are needed to strengthen the capacity of healthcare providers to respond to climate-related health challenges.

Biography

Dr. Muhammad Muneeb Ullah Siddiqui is a physician and public health researcher with postgraduate training in Community Medicine (FCPS). He is currently a Senior Instructor in the Department of Community Health Sciences at The Aga Khan University, Karachi, Pakistan, where he is involved in teaching and research in public health, epidemiology, occupational health, climate change and health, and nutrition. His research interests include climate change and health, environmental and occupational health, antimicrobial resistance, maternal and child health, and health equity. He has experience in quantitative epidemiological research and has contributed to research publications and academic activities in public health. His current work includes investigating healthcare providers' knowledge, attitudes, and practices regarding climate change and its health impacts, with a focus on strengthening the capacity of health systems and healthcare professionals to respond to emerging climate-related health challenges.

**Hala Aldahshan**

Department of Clinical Laboratory Sciences, College of Applied Medical Sciences, King Saud University, Riyadh 11451, Saudi Arabia

Association of IL-10 Promoter Polymorphism rs1800896 with Type 2 Diabetes Mellitus in a Saudi Population**Abstract**

Type 2 Diabetes Mellitus (T2DM) is a multifactorial metabolic disorder influenced by genetic, inflammatory, and environmental factors. Interleukin-10 (IL-10) is an anti-inflammatory cytokine involved in immune regulation and metabolic homeostasis, and variations within the IL-10 promoter region may influence susceptibility to T2DM through altered cytokine expression. However, data regarding IL-10 promoter polymorphisms in the Saudi population remain limited. The aim of this study was therefore to investigate the association between the IL-10 promoter polymorphism rs1800896 (–1082 T/C) and susceptibility to T2DM in a Saudi cohort.

A case-control study was conducted including 108 Saudi patients diagnosed with T2DM and 105 healthy controls. Genomic DNA was extracted from peripheral blood samples, and genotyping of IL-10 rs1800896 was performed using PCR-based methods. Genotype and allele frequencies were compared between diabetic and control groups using chi-square analysis and odds ratios (OR) with 95% confidence intervals (CI). Genotype distribution differed significantly between T2DM patients and controls ($\chi^2 = 10.17$, $p = 0.006$). The heterozygous T/C genotype was significantly less frequent among diabetic patients compared with controls (9.3% vs. 24.8%, $p = 0.009$) and was associated with reduced odds of T2DM susceptibility (OR = 0.332, 95% CI: 0.149–0.736). No significant association was observed for the C/C genotype ($p = 0.408$), and allele frequency analysis showed no statistically significant difference between groups ($p = 0.972$).

This study demonstrates a significant genotype-specific association between IL-10 rs1800896 and T2DM in a Saudi population. The lower frequency of the heterozygous T/C genotype among diabetic individuals suggests a potential protective effect against T2DM susceptibility. These findings support a possible role for IL-10-mediated immune regulation in T2DM pathogenesis and provide preliminary data for future larger-scale studies incorporating cytokine expression and functional immune analyses in Saudi populations.

Biography

Dr. Hala Aldahshan is an Assistant Professor in the Department of Clinical Laboratory Sciences at King Saud University, Riyadh, Saudi Arabia, and serves as the Head of the Biomedical Animal Research Unit. She obtained her PhD in Cell and Gene Therapy from University College London (UCL), where her research focused on allogeneic CAR-T cell therapy and CRISPR-based genome editing technologies for T-cell leukemia. She also completed research training at leading international institutions, including Harvard Medical School and the University of Cambridge.

Her research interests include cell and gene therapy, immunology, genome editing, cytokine genetics, and advanced molecular diagnostics.

**Dr. Aamir Shahzad**

*Department of Mathematics, Baba Guru Nanak University,
Nankana Sahib, Punjab, Pakistan*

Exploring synergistic therapeutic potential of Erlotinib and artemisinin in non-small cell lung Cancer (NSCLC) using pharmacological networking and mathematical modeling

Abstract

Lung cancer remains one of the most aggressive malignancies worldwide, with non-small cell lung cancer (NSCLC) constituting the major subtype. Resistance to targeted therapies poses a persistent challenge in precision medicine, emphasizing the need for more effective therapeutic strategies.

This study explored the synergistic potential between Erlotinib (ERL) and Artemisinin (ART), a phytochemical compound, using network pharmacology, differential gene expression (DGE) analysis, and mathematical models of potential drug synergy and conceptual interaction modeling. Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway enrichment analyses were conducted to identify potential key molecular targets and biological pathways involved in NSCLC treatment response. Key potential targets such as HSP90AA1, SRC, ABL1, and JAK2 were identified, with significant modulation of the PI3K-Akt, Rap1, Ras, and VEGF signaling pathways contributing to therapeutic outcomes. Exploratory synergy modeling using the Bliss, Loewe, and simplified ZIP models revealed potential synergistic trends between Erlotinib and Artemisinin, indicating enhanced anti-tumor potential compared to Erlotinib monotherapy. Mathematical evaluation of drug conceptual interaction modeling provided further insights into Predicted drug–target interactions and pathway-level complementarity. This integrative computational and mathematical approach elucidates the putative mechanistic

interplay between drugs and phytochemicals, highlighting the potential of Artemisinin–Erlotinib (ART-ERL) combination therapy in overcoming drug resistance in NSCLC. The findings offer a promising framework for rational design of future combination strategies to improve clinical outcomes in lung cancer therapy.

Biography

Dr. Aamir Shahzad is a mathematician, educator, and researcher specializing in computational mathematics. He earned his PhD from the University of Sargodha, where his research focused on subdivision curves and surfaces. He currently serves as a Lecturer at Baba Guru Nanak University and holds several academic and administrative responsibilities within the Department of Mathematics. With extensive teaching experience at undergraduate and postgraduate levels, he has taught subjects including numerical analysis, mathematical modeling, data science, and machine learning. Dr. Shahzad has published numerous research papers, presented at national and international conferences, and contributed as a journal reviewer and academic resource person.

**Enwuchola Goodness Ojofuche,**

*Faculty of Pharmaceutical Sciences, Department of
Pharmacology and Toxicology, University
of Ibadan, Nigeria*

Global Patterns in Personalized Malaria Therapy Research: Insights from a Prospective Bibliometric Review

Abstract

Introduction: Malaria remains a major public health challenge in sub-Saharan Africa, with substantial morbidity and mortality despite decades of intervention. While considerable research has advanced antimalarial drug development and treatment strategies, the integration of personalized medicine leveraging genomics, proteomics, transcriptomics, and epigenomics to tailor therapies remains underexplored. In contrast to oncology and other infectious diseases, personalized malaria therapy has not been systematically characterised.

Methods

This study employed a bibliometric analysis of online scholarly outputs to assess the scope of personalized medicine in malaria therapy. Articles were retrieved over a six-month period using Google Scholar, with automated keyword tracking and descriptive review applied for screening. Publications were classified by thematic direction and geographic origin, with multi-country contributions counted separately for each nation.

Results

A total of 462 articles were reviewed. Of these, 9 (~2%) directly addressed personalized antimalarial approaches, 18 (~4%) explored personalized antimalarial concepts indirectly, and 435 (94%) focused on general malaria therapy. Findings indicate that while malaria therapy research is abundant, personalized approaches remain scarce and fragmented. Regional analysis

yielded 25 country contributions: 13(52%) from malaria endemic countries and 12 (48%) non endemic regions. A country wide economy analysis revealed the number of low-income countries that produced publications as 3, as opposed to 9 high and 13 middle-income countries (both lower-middle and upper-middle income) based on the World Bank classifications. This distribution shows that the high-income countries still dominate precision- and genomics-based malaria research, but low-income countries have a minimal influence on the picture.

Conclusion

This analysis highlights a critical gap in malaria research. Despite modest progress from endemic regions, personalized antimalarial therapy has yet to be integrated into mainstream malaria research. Bridging this gap could improve drug efficacy, reduce resistance, and align malaria control strategies with global precision medicine efforts. Expanded research and investment are urgently required to consolidate emerging gains and ensure equitable advancement in personalized malaria therapy

Biography

Enwuchola Goodness Ojofuche is a recent pioneer Pharm.D graduate of the Faculty of Pharmaceutical Sciences at the University of Ibadan, Nigeria. She has demonstrated outstanding leadership and communication skills, serving as President of the Faculty's Literary and Debating Society and as a host for the Faculty's Symposium, where she facilitated scholarly dialogue and engagement. Her research interests span precision medicine, malaria therapeutics, and genomics, with a particular focus on translating scientific insights into locally relevant, patient-centered solutions. Passionate about advancing healthcare in Africa, Enwuchola has developed a flair for grant writing and fundraising, supporting initiatives that strengthen research capacity and innovation across the continent. Her career ambition is to lead personalized medicine research and training in Africa, fostering the integration of genomics and precision approaches into healthcare systems, and empowering the next generation of African scientists to drive sustainable, high-impact healthcare solutions.



Anahita Ranjbar

Department of Community Oral Health, School of Dentistry, Kashan University of Medical Sciences, Esfahan 8715981151, Iran

Sample records for instrumental analysis experiment

Abstract

Effective insurance management and financial planning are critical for the sustainability and growth of dental practices. Navigating the complexities of dental insurance reimbursement systems, optimizing revenue cycles, and managing patient payment plans significantly influence a practice's financial health. With increasing insurance coverage diversity and evolving reimbursement policies, dental practitioners must adopt strategic financial planning to balance operational costs, invest in technology, and improve patient care services. Additionally, integrating insurance billing with proactive financial strategies helps practices reduce claim denials, enhance cash flow, and expand patient access through affordable payment options. This study reviews current challenges and best practices in insurance management and financial planning, emphasizing their vital role in achieving economic stability and competitive advantage in modern dental care.

Biography

I finished my DDS in dentistry in 2020. I have been in the Department of Community Oral Health, School of Dentistry, since 2022. I have published 4 papers, and the others are coming.

**Feifei Ma**

Department of Neurology, Beijing Tiantan Hospital, Capital Medical University, Beijing, China

Non-invasive pulsed ultrasound enhances hematoma clearance and neurological recovery in experimental intracerebral hemorrhage

Abstract

Intracerebral hemorrhage (ICH) is a devastating stroke subtype with limited effective treatments. Accelerating hematoma clearance is a critical therapeutic goal. This study evaluated whether non-invasive pulsed ultrasound enhances hematoma clearance, edema resolution, and neurological recovery post-ICH. Twenty-nine rats with autologous blood-induced ICH were randomized into control (n=11), 2 MHz ultrasound (n=7), and 8 MHz ultrasound (n=11) groups. Ultrasound treatment (60 min/day) was applied for 7 consecutive days. Hematoma volume and perihematoma edema (PHE) were assessed by T2-weighted imaging and susceptibility-weighted imaging at days 1 and 7. Neurological function was assessed by corner turn and cylinder tests at baseline and days 1, 3, and 7. Non-invasive pulsed ultrasound significantly enhanced hematoma clearance (2 MHz: 47.7%; 8 MHz: 47.8% vs. control: 20.4%, $p < 0.01$) and PHE resolution (2 MHz: 53.9%; 8 MHz: 71.8% vs. control: 31.1%, $p < 0.05$). Behavioral tests showed reduced right-turn bias and forelimb asymmetry in ultrasound groups ($p < 0.05$). No frequency-dependent difference was found between 2 MHz and 8 MHz for most outcomes. The study concludes that non-invasive pulsed ultrasound significantly enhances hematoma clearance, reduces edema, and improves functional recovery post-ICH, supporting its translational potential as a novel therapeutic strategy for ICH.

Biography

Feifei Ma is a researcher at the Department of Neurology, Beijing Tiantan Hospital, Capital Medical University, Beijing, China. She completed her medical training and research focus on cerebrovascular diseases, particularly intracerebral hemorrhage and ultrasound-based therapies. Her work involves preclinical models to investigate non-invasive neuromodulation and hematoma clearance mechanisms. She has contributed to several studies in the field of stroke and neurological recovery and has published her findings in peer-reviewed journals. As the first author of this work, she has been actively involved in conceptualization, methodology, investigation, data curation, and writing of the manuscript.



Thank You

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To address this limitation, we performed lesion-matched molecular profiling of MRI-targeted prostate biopsies obtained from both suspicious and non-suspicious regions within the same prostate. Protein Kinase A (PKA) subunit expression and pathway activity were analyzed using quantitative immunofluorescence with a custom image-analysis pipeline, Western blotting of paired biopsy samples, and re-analysis of publicly available proteomics datasets from diagnostic (n=116) and recurrence (n=306) prostate cancer cohorts.

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Dr. Ronit Ilouz is an Assistant Professor at the Azrieli Faculty of Medicine, Bar-Ilan University. Her research focuses on spatial signaling mechanisms in cancer and neurodegeneration, combining quantitative imaging, proteomics, and structural biology to identify clinically relevant biomarkers. She has contributed to defining Protein Kinase A (PKA) dysregulation in human disease, including lesion-specific biomarkers in prostate cancer.

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