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ABOUT the discipline FOR the discipline

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2022

BIOLOGICAL PSYCHIATRY CONGRESS

ABSTRACTS & INVITED SPEAKER PROFILES

PUBLISHED IN ASSOCIATION WITH THE SOUTH AFRICAN SOCIETY OF PSYCHIATRISTS

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* **PLEASE NOTE:** *Each item is available as full text electronically and as an individual pdf online.*

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WELCOME MESSAGE

CONGRESS CONVENOR

Dear colleagues and friends,

As time draws near, we welcome you to this year's Biological Psychiatry Congress in all 11 official languages - Wamukelekile (isiZulu); Wamkelekile (isiXhosa); Welkom (Afrikaans); Re a le aomgela (Sepedi); Le amogetswe (Setswana); Kena ka khotso (Sesotho); Ndzaku amukela (Xitsonga); Nemukelekile (SiSwati); Notanganezwa (Tshivenda); Siyalemukela (isiNdebele); and Welcome (English).

The organising committee is truly excited to get Biological Psychiatry 2022 off the ground. We are especially pleased, as the South African Society of Biological Psychiatry, to host colleagues from the World Federation of Societies of Biological Psychiatry (WFSBP) (Prof Lakshmi Yatham [President of WFSBP] and Prof Michael Berk [Vice-President]), together with other notable international and local speakers. Together they will cover state-of-the-art treatment approaches and emerging research findings, straddling psychiatry, psychology, neuroscience, pharmacology, and related fields. In addition to our longstanding collaborating with the South African Neuroscience Society (SANS), with a very rich scientific neuroscience track on Saturday 17th September, we are honoured to partner for the first time with the African College of Neuropsychopharmacology (AfCNP). AfCNP will be hosting a symposium on Thursday 15h September, with a superb line-up of speakers and stimulating topics.

For any congress to be successful, it needs a dynamic and committed local organising committee. This year's organising committee has been a well-oiled machine, with members working closely behind the scenes with Sonja du Plessis and the Londocor team. As we gather in person this year, 3 years since the last (pre-pandemic) Congress, the organising committee was intentional in selecting a theme that speaks to the many ways in which the pandemic has impacted, and continues to impact, on our science and practice, and that addresses new and adapted intervention and prevention approaches for dealing with post-viral psychiatric and neuropsychiatric sequelae.

Soraya Seedat

As in previous years, we have both world-renowned scientific experts and emerging researchers who, through their participation, will provide a wonderful platform for knowledge sharing, discussion, debate, networking, and collaboration. We have also infused this year's programme with new sessions, including hot topic, paper update, brainstorming, roundtable, and educational update sessions. Aside from a full scientific and fun social programme, we hope that you will have the chance to enjoy this beautiful part of the country with its scenic natural beauty, beaches and wineries, and world-class gastronomy.

Soraya Seedat
Congress Convenor

Organising committee members:
Stéfan du Plessis
Dana Niehaus
Matthew Mausling
Christine Lochner
Jacqui Womersley,
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BIOLOGICAL PSYCHIATRY CONGRESS
INVITED SPEAKERS

Professor Ole Andreassen (Norway) in-person

Ole is Professor in psychiatry at University of Oslo, and Director of Norwegian Centre for Mental Disorders Research (NORMENT). Andreassen did his PhD in psychopharmacology at University of Bergen and his post doc training in molecular neuroscience at Massachusetts General Hospital. He did his psychiatry residency at Oslo University Hospital, and is now attending psychiatrist at the Bipolar Disorder Clinic.

He applies clinical, neurocognitive, and brain imaging phenotypes and molecular genetics tools to identify causes and underlying pathophysiology of severe mental disorder, and develop multimodal stratification tools for precision psychiatry. Andreassen builds his research on the Nordic advantages, such as public health care system, large biobanks, health registries and longitudinal cohorts. He chairs international consortia in psychiatric genetics (PGC) and brain imaging (ENIGMA), and coordinates European Research Network (ECNP) and Horizon2020 projects.

Dr Alison Bentley (South Africa) in-person

Alison (MBBCh, PhD) has been involved with sleep medicine and sleep research for 30 Years. She completed an MBBCH at Wits followed by a PhD on Restless legs Syndrome also at Wits in 2007. She developed the Dial-a-Bed Sleep laboratory) in the school of Physiology at Wits into one of the leading sleep research entities in South Africa. She is still active in research having supervised over 30 Masters students and 5 Phd students in multiple topics and co-authored 35 journal articles. She left Wits to open a private practice dedicated to sleep disorders and managed a sleep laboratory including all sleep study scoring and reporting of sleep studies at Morningside Hospital from inception in 1991 to 2002. She was the founding chairperson of the South African Sleep Society in the late 1990s and is the current chairperson of the South African Society for Sleep and Health (SASSH). She has also represented Africa on the governing body of the World Association of Sleep Medicine.

Dr Bentley is nationally recognised as an expert on various sleep disorders, including adult and child insomnia and obstructive sleep apnea. Currently she has a private practice devoted to sleep disorders as well as a company which performs home-based apnea screening studies as well as CPAP titrations.

Professor Michael Berk (Australia) in-person

Michael is an NHMRC Senior Principal Research Fellow at Deakin University, where he heads the IMPACT institute. He is listed by Clarivate Web of Science as highly cited (2015-2021) and was awarded the Brain & Behaviour (NARSAD) Colvin Award for Mood Disorders in 2015, the Victoria Prize for life sciences in 2019, the International Society for Bipolar Disorders Bob Post award for mentorship in 2020 and the RANZCP Senior Research Award in 2021. On the bibliometric website Expertscape, he is ranked #1 in depression and mental disorders. He is past president of the International Society for Bipolar Disorders and current vice president of the World Federation of Societies of Biological Psychiatry. His major interests are in the discovery and implementation of novel therapies.

Dr Craig Bracken (South Africa) in-person

Craig, MBBCh(WITS) FCPSYCH(SA) PGDip(Health Sciences Education) (WITS), is a joint staff member at WITS University. Has worked as clinical head in a general hospital psychiatry unit 1997-2015. Interest

in ECT, medical education and neuropsychiatry (subspecialist neuropsychiatry registration 2016). Since 2016 has been the psychiatry consultant in a dedicated personality disorders psychotherapy treatment program (ward 4&5, Tara Hospital, Johannesburg). He teaches and does DBT groups in a program integrating evidence-based treatments of personality disorders across the severity spectrum.

Professor Kristen Brennand (USA) – virtual (SANS Symposium)

Kristen, PhD is a Professor of Psychiatry and Genetics at Yale University School of Medicine, formerly the Director of the Alper Neural Stem Cell Center and an Associate Professor in the Pamela Sklar Division of Psychiatric Genomics at Mount Sinai. Her research combines expertise in genetics, neuroscience and stem cells, in order to identify the mechanisms that underlie brain disease. Her focus lies in resolving the convergence of, and complex interplay between, the many risk variants linked to disease, towards the goal of facilitating the clinical translation of genetic findings. Dr. Brennand's work is funded by the National Institutes of Health, the New York Stem Cell Foundation, the Brain Research Foundation, and the Brain and Behavior Research Foundation.

Professor Eric Bui (France) in-person

Eric, MD, PhD, is Professor of Psychiatry at the *University of Caen Normandy* (France), and adjunct investigator at the *Massachusetts General Hospital* (Boston, MA) where he served in different leadership capacities as a *Harvard Medical School* faculty, for nearly a decade. His research focuses specifically on understanding the mechanisms and improving the treatment of anxiety and stress-related conditions, including PTSD and Complicated Grief.

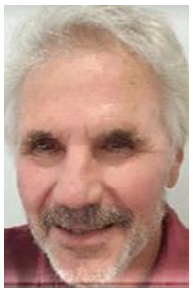
To date, he has published over 150 scientific articles and book chapters, and edited two textbooks in the field of anxiety, posttraumatic stress disorder, and prolonged grief disorder. He currently serves as the immediate past president of the *International Society for Traumatic Stress Studies*, as Associate Editor of the *European Journal of Psychotraumatology,* and as Editor-in-Chief of the *International Journal of Mental Health.*

Dr Santuccione Chadha (Switzerland) - virtual

Antonella is a medical doctor with expertise in clinical pathology, neuroscience and psychiatric disorders. She is Chief medical officer at Altoida inc. In 2016 she co-founded and pro bono CEO of the non-profit organization "Women's Brain Project" which is addressing the influence of sex and gender on mental and brain diseases. Since then, she acts the pro bono CEO of the organization. Antonella has decades of experience in preclinical research, patient treatment, clinical development, medical affairs and international regulatory framework for therapeutics. Always focused on solving the puzzles related to Alzheimer's and other psychiatric diseases, she studied possible immunotherapies for AD in the laboratory of Roger Nitsch and Christoph Hock at the university of Zurich where aducanumab, the first amyloid treatment for Alzheimer's disease was discovered. She also worked with Swissmedic, Roche diagnostic and Roche Pharma, Biogen, several European Universities, the EU Commission Directorate for Health and Food Safety, the OECD, the CEOi and several Alzheimer's' disease organizations.

Since 2018 she has been listed among the top 100 Women in Business in Switzerland and in 2019, she was elected Woman of the Year in Switzerland by the Magazine "Women in Business". In 2020, she received the World Sustainability Award for her involvement in advancing Precision Medicine. She also received the award "Premio Medicina Italia" for her contribution to the management of the pandemic. In 2021 she was acknowledged among the "Women for Innovation" in Switzerland from the University of Basel and received the N.1 award from the Italian Ambassy for her contribution to the cooperation between Switzerland and Italy.

She is the Vice-president of Euresearch and acts as scientific advisor for several start-up and scientific institutions. Dr. Santuccione Chadha is keenly interested in removing bias when developing solutions for mental and neurological diseases to achieve precision medicines and she is advocating for the first worldwide sex and gender precision medicine research institute based in Switzerland. She is the author of several scientific publication, TEDx and books, among them "Sex and Gender Differences in Alzheimer's disease" and "Una Bambina Senza Testa" which will become a TV series.



Professor Robin Emsley (South Africa) in-person

Robin is a Professor in Psychiatry in the Faculty of Medicine and Health Sciences, University of Stellenbosch, Cape Town, South Africa. He holds the Sarah Turoff Endowed Chair in Schizophrenia Research. Previously, he was Executive Head of the Department of Psychiatry for 23 years. He obtained his medical degree (MBChB) at the University of Cape Town in 1974 and his psychiatry degree (MMed) at the University of Stellenbosch in 1981. He received a Doctorate in Medicine in 1987 and a Doctor of Science degree in 2007 for studies in the psychopathology, neurobiology and psychopharmacology of schizophrenia.

His main areas of interest are in the clinical, neurobiological and pharmacological aspects of schizophrenia. Our group has published widely in this field.

Professor Felice Jacka (Australia) - virtual

Felice is Professor of Nutritional Psychiatry and Director of the Food & Mood Centre at Deakin University and founder and president of the International Society for Nutritional Psychiatry Research. Professor Jacka has been responsible for the development of a highly innovative field of research establishing diet and nutrition as of importance to common mental disorders. These include the first studies to document a role for diet quality in both adult and adolescent depression, the first study to identify both maternal and early life nutrition as important predictors of children's mental health, and the first trial to show that dietary improvement can address clinical depression.

The results of the studies she has conducted have been highly influential, and she is widely recognized as international leader in the field of Nutritional Psychiatry research.

Her current work focuses closely on the links between diet, gut health and mental and brain health. Professor Jacka is an ISI Highly-Cited Researcher (2020 and 2021). She has published 'Brain Changer' through Pan Macmillan Australia and Yellow Kite in the UK and EU. Her children's book, 'There's a Zoo in my Poo', was published in July 2020. In 2021 she was awarded a Medal of the Order of Australia (OAM) for her services to Nutritional Psychiatry.

Professor John Joska (South Africa) in-person

John is a Professor of Psychiatry, Head of the Division of Neuropsychiatry and Director of the HIV Mental Health Research Unit. He has more than 15 years of experience in research in neuroHIV.

Interests include clinical training in neuropsychiatry, mental health services and adherence, as well as behavioural and biological interventions to improve cognitive and mental outcomes in PWH. He is an amateur squash player and has now more or less given up on crayfishing.

Professor Eugene Kinyanda (Uganda) in-person

Eugene, MBChB, M.Med (Psy), PhD , is a Professor Mental Health and Head of the Mental Health Section of the MRC/UVRI & LSHTM Uganda Research Unit. He is a Senior Wellcome Trust Fellow (2017-2023) and has previously held a Senior EDCTP Fellowship (2011-2013) and an MRC/DFID African Leadership Award (2014-2016). Over the last 15 years at the MRC/UVRI & LSHTM, Eugene has undertaken research into the psychiatric disorders (PD) associated with HIV/AIDS among adults, children and adolescents and older persons looking specifically at the epidemiology of psychiatric disorders (PD) in HIV/AIDS, risk/predictor factors and its impact on clinical, behavioural and social outcomes.

He has explored the biological correlates of PD doing studies into the genetics and immunological risk factors of major depressive disorder and suicidality. He has also undertaken studies into the HIV risk among war affected populations and more recently among persons living with severe mental illness. Through the Wellcome Trust Fellowship, Eugene is developing and evaluating a model for the integration of depression management into adult HIV care in Uganda (HIV+D Trial).

His other research interests include the epidemiology of psychiatric disorders in both war affected and non-war affected communities in Africa and suicidology. He has 110 peer reviewed publications to his name.

Dr Tennyson Lee (UK) in person

Tennyson, FRCPsych FFCH(SA), is a Consultant in General Adult Psychiatry and Medical Psychotherapy based at DeanCross Personality Disorder Service in the East London NHS Foundation Trust. He is an honorary senior lecturer at Barts Hospital, and co-director of the Centre for Understanding of Personality (CUSP). Dr Lee is a supervisor in Transference Focused Psychotherapy (TFP), and is a member of the International Society of TFP certification board. Dr Lee leads a training programme in TFP in Chengdu, China and teaches TFP in a range of countries.

He is an accredited practitioner of Mentalization Based Treatment (MBT) and a candidate at the Institute of Psychoanalysis. Dr Lee trained at Groote Schuur Hospital and was a senior lecturer in the Dept of Community Health at the University at Witwatersrand, based in the Mental Health Programme of the Centre for Health Policy, before training at the Maudsley Hospital in London.

Professor Christine Lochner (South Africa) in-person

Christine is a Professor in the Department of Psychiatry at Stellenbosch University, and Co-Director of the SA MRC Unit on Risk and Resilience in Mental Disorders. She has obtained a PhD in Psychiatry and has more than 20 years of clinical, epidemiological and basic

neuroscience research experience as a clinical psychologist working in the field of obsessive-compulsive and related disorders and anxiety disorders and has existing collaborative research projects with colleagues in Europe, the United States and in the United Kingdom.

She is principal investigator of a number of research programs in the above-mentioned unit and mentors masters, doctoral and postdoctoral students.

Her Google h-index is 63, and she has published over 155+ peer-reviewed journal manuscripts and co-written 20+ book chapters to date.

Professor Suresh Muthukumaraswamy (New Zealand) - virtual

Suresh completed his PhD in Psychology at the University of Auckland in 2005 after which he joined the newly established Cardiff University Brain Research Imaging Centre as a post-doctoral fellow. While at Cardiff he started research work with the psychedelics in 2011 in collaboration with Professor David Nutt and Dr Robin Carhart-Harris investigating the neuroimaging correlates of the psychedelic drugs psilocybin and LSD. In 2014 Suresh received a prestigious Rutherford Discovery Fellowship and returned to the University of Auckland where he works in The School of Pharmacy at The Faculty of Medical and Health Sciences.

Suresh's main research interests are in understanding how therapies alter brain function and behaviour and in testing methodologies to measure these changes in both healthy individuals and patient groups – particularly in depressed patients. At The University of Auckland he has conducted clinical trials in depressed patients involving ketamine, scopolamine and transcranial magnetic stimulation.

He has received several Health Research Council of New Zealand research grants to support this work including a grant to investigate the effects of microdoses of LSD on brain and cognitive function. Suresh has published 117 papers, with his work receiving >8000 citations and has an H-Index of 42 (Google Scholar).

Dr Sihle Nhlabathi (South Africa) in-person

Sihle obtained her medical degree at the University of KwaZulu-Natal in 2006 and obtained her psychiatric qualification at Stellenbosch University (SU) in 2015. Dr Nhlabathi is a Discovery Foundation Grant holder and is currently pursuing her sub-specialty degree in Geriatric Psychiatry at SU.

Professor Dana Niehaus (South Africa) in-person

Dana Niehaus completed his undergraduate studies at the University of the Free State. After an additional two-year research stint focused on Fabry disease genetics at Mount Sinai School of Medicine in New York, he commenced his training as registrar in the Department of Psychiatry at Stellenbosch University. He has spent the last 23 years in the dual role of academic and psychiatrist at Stikland Hospital, first in Acute Female Services and later as subspecialist in Psychogeriatric Services. During this period, he completed his doctoral degrees in Psychiatry (focusing on endophenotypes in schizophrenia) and a MPhil in Geriatric Psychiatry. In collaboration with the University of Tampere (Finland), he is involved in a research study focusing on health parameters in mothers with severe mental illness and their babies.

Professor Felix Potocnik (South Africa) in-person

Prof Felix Potocnik is a sub-specialist in geriatric psychiatry and an extra-ordinary lecturer in the Department of Psychiatry, University of Stellenbosch. A former Wits graduate, he studied psychiatry at UCT becoming head of their Psychogeriatric Unit in 1984; a position he maintained on joining Stellenbosch in 1994. He is involved with individual and pharmaceutical research in Alcohol in the Elderly, Chronic Fatigue Syndrome, Zinc and Vitamins A&D, Alzheimer's disease and Vascular Dementia since 1985. As National Principal Investigator he has helped in the research of more than 80 compounds, as well as the launch of the four cognitive enhancers available globally to date. He has lectured and published widely.

Professor Christian Schmahl (Germany) - virtual

Prof Felix Potocnik is a sub-specialist in geriatric psychiatry and an extra-ordinary lecturer in the Department of Psychiatry, University of Stellenbosch. A former Wits graduate, he studied psychiatry at UCT becoming head of their Psychogeriatric Unit in 1984; a position he maintained on joining Stellenbosch in 1994. He is involved with individual and pharmaceutical research in Alcohol in the Elderly, Chronic Fatigue Syndrome, Zinc and Vitamins A&D, Alzheimer's disease and Vascular Dementia since 1985. As National Principal Investigator he has helped in the research of more than 80 compounds, as well as the launch of the four cognitive enhancers available globally to date. He has lectured and published widely.

Professor Soraya Seedat (South Africa) in-person

Soraya is a Distinguished Professor of Psychiatry and Executive Head of the Department of Psychiatry at Stellenbosch University. She holds the South African Research Chair in Posttraumatic Stress Disorder and directs the South African Medical Research Council Unit on the Genomics of Brain Disorders. She has more than 20 years of clinical, epidemiological and basic neuroscience research experience as a psychiatrist working in the field of traumatic stress and anxiety and has published over 500 peer-reviewed journal manuscripts and co-edited four books.

She has served 2 terms as the President of the College of Psychiatrists of South Africa and 3 terms as Secretary, and is currently a member of the Board of Directors and an Honorary Registrar of the Colleges of Medicine of South Africa.

Dr Maxine Taquet (UK) – virtual

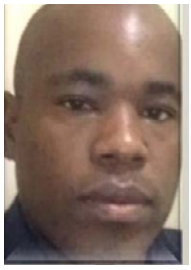
Max is a senior research fellow at the University of Oxford with background in both clinical psychiatry and engineering. He shares his time between seeing patients with severe mental illness and doing research.

His research focusses on the use of large multimodal dataset (including electronic health records, mobile phone data, and brain imaging) to try and better characterise and treat mental illness and to better understand the interface between psychiatric illness and the rest of medicine. Prior to studying medicine at the University of Oxford, he was a research fellow in engineering at Harvard Medical School where he developed novel brain imaging technologies to map the brain microstructure.

Associate Professor Henk Temmingh (South Africa) in-person

Henk, FCPsych (SA), MPH, PhD, is an associate professor at the University of Cape Town and consultant psychiatrist at Valkenberg psychiatric hospital.

He leads the specialized therapeutic unit and inpatient psychotherapy service, providing treatment to patients with complex needs including personality, trauma-related, mood, anxiety and co-occurring substance use disorders (dual diagnosis). He is also consultant to the assertive community treatment team (ACTT) and the intermediate stay unit for patients with treatment resistant psychotic disorders. He has training in group analytical therapy, mentalization-based treatment, and transference focused psychotherapy. He has a special interest in the treatment of personality disorders with complex comorbidity using psychodynamic and mentalization-based approaches.



Dr Lindokuhle Thela (South Africa) in-person

Lindokuhle is a neuropsychiatrist based in Durban. He obtained his undergraduate and postgraduate medical degrees from the University of KwaZulu Natal (MBChB, FCPsych and MMed Psychiatry) and Neuropsychiatry Subspecialty (2019) at the University of Cape Town. He is currently the head of Psychiatry at King Edward VIII Hospital in Durban. His research interest includes the biological markers of neuropsychiatric disorders such as dementia and psychosis.

Professor Henning Tiemeier (USA) in-person

Henning, MA, MD, PhD, is Professor of Social and Behavioral Science and the Sumner and Esther Feldberg Chair of Maternal and Child Health at the Harvard T.H. Chan School of Public Health. Dr. Tiemeier received both his medical and sociological degree from the University of Bonn, Germany, and his PhD from the Erasmus University in Rotterdam, Netherlands. Since 2018, he leads the Maternal and Child Center of Excellence at Harvard Chan.

As one of just 13 HRSA-funded Centers of Excellence in Maternal and Child Health in the United States, the center trains future leaders in the field. Dr. Tiemeier have worked broadly in pediatric epidemiology for more than 20 years with an emphasis on child developmental research.

At Harvard his research focusses on high-risk children, such as preterm children and homeless families. Together with colleagues and non-governmental agencies he has begun a cohort of women in Boston shelters and their children. Dr. Tiemeier has published extensively on the etiology of child developmental problems with a particular focus on prenatal exposures. His other research interests include social and family environmental determinants of brain development, parental feeding and child eating behavior, and psychometric studies of child development, among others.

He is a principal investigator of the Generation R Study, a large pre-birth cohort in Rotterdam, that enrolled nearly 10,000 mothers and their children. Ongoing research projects and interests focus on genetic and early life exposures; as his previous work showed that this shapes the vulnerability to neurodevelopmental problems.

His ongoing studies include investigate how parenting and other environmental risk factors

relate to brain development as assessed by braining imaging. Dr. Tiemeier has advised numerous masters, doctoral and postdoctoral students as a mentor, academic advisor and dissertation committee member. He is also a Professor of Psychiatric Epidemiology at the Erasmus University Medical Center in Rotterdam, Netherlands. Dr. Tiemeier is an ISI Highly Cited Researcher (General Social Science).

Dr Lize Weich (South Africa) in-person

Lize is an addiction psychiatrist at Stikland Hospital and a senior lecturer in the Department of Psychiatry, Stellenbosch University. She is responsible for coordinating addiction services for the psychiatric hospitals in the Western Province. She also coordinates pre- and postgraduate training in addiction care at Stellenbosch University, including the Postgraduate diploma in Addiction Care, Masters in Addiction Care and MPhil in Addiction Psychiatry programs.

Professor Lakshmi N. Yatham (Canada) in-person

Lakshmi is a Professor and Head of the Department of Psychiatry and Director of the Institute of Mental Health at the University of British Columbia in Vancouver, Canada. He is also the Regional Head of Psychiatry and Regional Program Medical Director for Mental Health and Addictions at Vancouver Coastal Health and Providence Healthcare. He has an executive MBA in health care from the Sauder School of Business.

Dr. Yatham has held leadership positions for national and international professional organizations including the President of the International Society for Bipolar Disorders, the Secretary for the World Federation of Societies of Biological Psychiatry (WFSBP), and he is now the President of the WFSBP and the Editor in Chief for the Canadian Journal of Psychiatry. Dr. Yatham was listed in the Clarivate Analytics 2017 to 2021 reports and Thomson Reuters' reports on "World's Most Influential Scientific Minds -2014 and 2015" as one of the most highly cited researchers (publications with top 1% of citations) in psychiatry/psychology in the world based on research published since 2002.

He has won numerous prestigious national and international awards for his contributions including Mogen Schou Award for international education and advocacy on bipolar disorder from the International Society for Bipolar Disorders (ISBD), Heinz Lehman Award as well as the Canadian College of Neuropsychopharmacology Medal for his contributions to psychopharmacology, John M Cleghorn Award for excellence in research and leadership from the Canadian Psychiatric Association, Frank and Kupfer Award from the ISBD for distinctive and sustained contributions to the field of bipolar disorder, Robert Post Mentorship Award from the ISBD for mentoring and facilitating careers of junior researchers and clinicians, Gerald L Klerman Award from Depression and Bipolar Support Alliance in the USA for significant contribution towards advancing causes, diagnosis and treatment of mood disorders and the Colvin Research Prize in Mood Disorders from the Brain and Behaviour Foundation in the USA for his outstanding contributions to research in mood disorders.

Dr. Yatham's areas of interest include neurobiology and treatment of bipolar disorder. He has a google scholar h-index of 86, and he has published over 380 papers in peer-reviewed international journals including many in high impact journals.

Professor Alan Young (UK) in-person

Allan is Chair of Mood Disorders and Director of the Centre for Affective Disorders in the Department of Psychological Medicine in the Institute of Psychiatry, Psychology and Neuroscience at King's College London, where he is also Head of School and Vice-Dean for Academic Psychiatry.

Professor Young is the National Institute for Health Research (NIHR) Mental Health Biomedical Research Centre (BRC) Cluster and Theme Lead in the Translational Therapeutics Cluster. He is the clinical academic lead in the Psychological Medicine and Integrated Care Clinical Academic Group in the South London and Maudsley NHS Trust, where he is also Consultant Psychiatrist and Head of the Affective Disorders Service. Professor

Young's research interests focus on the cause and treatments for severe psychiatric illnesses, particularly mood disorders.

He has received research grants from several funding agencies and has over 600 peer-reviewed publications, including several books about psychopharmacology and affective disorders. He is past President of the International Society for Affective Disorders, past President of the British Association of Psychopharmacology and past Chair of the Special Committee for Psychopharmacology of the Royal College of Psychiatrists. He is also a trustee of the patient and family charity Bipolar UK, and of the Drug Safety Research Unit (DSRU), internationally respected for its work in Pharmacovigilance, Pharmacoepidemiology, Risk Management and Training Services for over 30 years. Professor Young is a Clarivate Highly Cited Researcher. The highly anticipated annual list identifies researchers who demonstrated significant influence in their chosen field or fields through the publication of multiple highly cited papers during the last decade. Their names are drawn from the publications that rank in the top 1% by citations for field and publication year in the Web of Science™ citation index

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BIOLOGICAL PSYCHIATRY CONGRESS

ORAL PRESENTATION ABSTRACTS

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TITLE:

Correlates and cascade of human immunodeficiency virus care in patients with psychiatric disorders in the Eastern Cape Province, South Africa.

BACKGROUND:

The cascade of human immunodeficiency virus (HIV) care in patients with psychiatric disorders is poorly understood. Aim: This study determined the prevalence of HIV and described its cascade of care among patients with psychiatric disorders in the Eastern Cape Province, South Africa. The study also examined the correlates of HIV comorbidity with psychiatric disorders in the cohort.

METHODOLOGY:

In this cross-sectional study, a total of 368 individuals attending the Psychiatric Outpatients' Department of Cecilia Makiwane Hospital in Eastern Cape were interviewed with a structured questionnaire. Relevant items on demographics and clinical information were extracted from the medical records. Virologic suppression was defined as viral load < 1000 RNA copies/mL.

RESULTS:

The HIV prevalence after the intervention was 18.8% and a significant proportion of participants already knew their status (n = 320; 87.0%). Linkage to care and antiretroviral therapy initiation occurred in 61 participants, of those diagnosed with HIV (88.4%), with 84.1% being eligible for viral load monitoring (n = 58) and 53.4% having achieved virologic suppression. Being female (AOR = 5.48; 95% CI 2.61–11.51) and black (adjusted odds ratio [AOR] = 3.85; 95% confidence interval [CI] 1.06–14.03) were independent predictors of HIV comorbidity in individuals living with psychiatric disorders.

CONCLUSION:

This study found a moderately high prevalence (close to 19%) of HIV in individuals with psychiatric disorders, with a significant correlation with being female and being black people. This study also found a significant gap in the linkage to antiretroviral therapy (ART) initiation and a low rate of virologic suppression of 53.4%. Clinicians, therefore, should monitor and provide interventions for patients with concomitant HIV infection along this cascade of care.

PRESENTER'S DETAILS

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TITLE:

Vulnerability of South Africans with self-reported insomnia to changes in sleep, depression and anxiety symptoms during lockdown measures in response to the COVID-19 pandemic.

BACKGROUND:

Changes in sleep and mental health outcomes have been observed because of COVID-19 pandemic-induced lockdowns. We hypothesized that lockdown-induced disruption to daily life would have a greater effect on sleep, anxiety and depression symptoms in people with insomnia than those without insomnia. The aim of this study was to describe the impact of lockdown on individuals with self-reported insomnia.

METHODOLOGY:

An online survey assessed behaviors before and during a stringent 5-week-long lockdown in 1048 South Africans in 2020. Participants self-identified as either currently or previously suffering or diagnosed with insomnia, depression and anxiety. Insomnia was assessed using the Insomnia Severity Index, anxiety using the Generalized Anxiety Disorder 7-item and depression severity using the Patient Health Questionnaire-2.

RESULTS:

Of the total sample, 33% reported at least one sleep disorder with 18% (n=135) reporting a previous or current diagnosis of insomnia (Insomnia group) and 700 participants reporting no sleep disorder (No-Insomnia group). Participants in the Insomnia group were more likely to be women, have a chronic medical condition, and have higher depression and/or anxiety scores. Both groups reported a significant increase in symptoms of insomnia, depression and anxiety during lockdown compared to before lockdown. However, the increase in symptoms in the Insomnia group was significantly more than the No-Insomnia group (all $p<0.001$).

CONCLUSION:

Participants with self-reported insomnia, even if currently asymptomatic, were more vulnerable to worsening symptoms of insomnia, anxiety and depression during lockdown compared to those with no insomnia as predicted by the concepts of insomnia identity and stress reactivity.

PRESENTER'S DETAILS

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TITLE:

Psychosocial predictors of anxiety and depression in a sample of healthcare workers in Botswana during the COVID-19 pandemic: A multi-centre cross-sectional study.

BACKGROUND:

COVID 19 has been associated with adverse mental health effects in the general population. Depression, anxiety, insomnia, and other stress-related symptoms have been among the most common psychological effects of COVID- 19 reported across heterogeneous studies. Some studies have reported higher rates among health-care workers than the general population.

The study aimed to investigate the prevalence and psychosocial predictors of anxiety and depression, among healthcare workers in Botswana during the COVID-19 outbreak.

METHODOLOGY:

This was a cross-sectional study in five public-funded hospitals from three districts in Botswana from June to October 2020. The study population included all medical professionals involved in patient care; support staff who have little or no contact with patients were excluded, with a sample size of 355. Neuroticism, Depression, Social support, anxiety, and resilience were assessed using the neuroticism subscale of the 44-item Big Five Inventory, Patient Health Questionnaire, the Oslo 3-item Social Support Scale, the Anxiety Rating Scale, and the 14-item Resilience Scale, respectively.

Descriptive statistics were used to describe socio-demographic variables. Independent t-tests were used to test the difference in the outcome variables' scores and the categorical variables. Pearson's correlation was applied to explore the relationship of the outcome variables with age, resilience, neuroticism. All the significant variables on the bivariate analysis were entered into multiple regression models to explore the variables that could predict the outcomes. The significance level was set at a p-value < 0.05.

RESULTS:

Majority of the 355 participants were females at 59%. Anxiety and depression were experienced by 14% and 23% of the participants, respectively. After multiple regression analyses, neuroticism predicted depression (B = 0.22; p < 0.01) and anxiety disorder (B = 0.31; p < 0.01). Lower educational status (B = –0.13; p = 0.007) predicted anxiety and younger age (B = –0.10; p = 0.038) predicted depression, while resilience negatively correlated with both disorders.

CONCLUSION:

There is a need to develop and implement interventions targeted at these identified risks and protective factors that can be easily delivered to healthcare workers during this pandemic.

PRESENTER'S DETAILS

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TITLE:

Ibogaine may be able to repair reduced white matter integrity in opioid use disorder- Evidence of opioid-induced white matter structural plasticity in humans and rats.

BACKGROUND:

Opioid use disorder (OUD) is associated with reduced white matter structural integrity. Ibogaine

is a psychedelic used in South Africa to treat OUD. Our aim was to assess specific white matter changes in OUD and whether ibogaine's treatment effect lies in its ability to repair myelin. We analyzed fractional anisotropy (FA) in the white matter of heroin users and we conducted a rodent study to assess ibogaine's effect on CNPase- a marker for myelination in the CNS.

METHODOLOGY:

Twenty-eight male heroin users and 25 healthy, matched controls were recruited from drug rehabilitation centers and the surrounding community, respectively. Diffusion- weighted MRI images were obtained using a 3 Tesla General Electric Discovery. Tract-based spatial statistics (TBSS) and voxel-wise analysis from FreeSurfer and FSLeyes were used to identify differences in white matter integrity between the two groups. Immunoblotting, enhanced chemiluminescence and densitometry was used to analyse CNPase protein in white matter tissue obtained from three groups of SD rats administered 1) a single ibogaine HCL dose (50mg/kg i.p.), 2) chronic morphine (10mg/kg s.c. for 10 days) followed by a single ibogaine HCL dose (50mg/kg i.p.) and 3) a saline control.

RESULTS:

We found significant FA reductions ($p<0.05$) in the following white matter tracts of heroin users: right cingulum, right posterior limb of the internal capsule, superior longitudinal fasciculi, posterior corpus callosum and tapetum and left posterior limb of the internal capsule. The rodent results showed that ibogaine administration following chronic morphine administration increased the amount of CNPase produced in white matter in comparison to the saline control ($p=0.04$) and in comparison to ibogaine administration alone ($p=0.01$).

CONCLUSION:

Our research indicates that heroin use is associated with compromised white matter integrity in tracts involved in executive function and that ibogaine administration may be able to increase myelination.

PRESENTER'S DETAILS

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TITLE:

Developing Virtual Reality based biofeedback for the use in acrophobia

BACKGROUND:

Exposure based therapy is one of the most well validated therapeutic approaches in psychology, yet uptake is still relatively limited, especially in low- and middle- income countries. VRET based biofeedback is still relatively unresearched. VRET is a promising approach in terms of cost and safety concerns. Here we aim to validate a biofeedback based VRET tool for the use in acrophobia in healthy volunteers.

METHODOLOGY:

Twenty-two self-reported healthy adults (ages 22 to 36 yrs) took part in a fear of heights challenge. A custom low-cost Arduino based feedback system provided electrodermal activity (EDA) biofeedback. The custom VR environment was modelled in Unreal Engine (v. 4.24.2) using off the shelf components. This single session VR simulation involved a gradually rising platform (28 meters maximum) with EDA based biofeedback being provided on an in-

environment display. Data was gathered in three 5-minute time periods, i.e. Baseline, an Exposure period while the platform was in the air and a End period. Data was pre-processed in MATLAB and entered into repeated measures ANOVAs.

RESULTS:

No participant experienced significant VR related simulation sickness or effects. Both tonic ($p = .002$) and phasic ($p < .001$) physiological arousal responses (electro-dermal activity, EDA), rose significantly during the Exposure period relative to Baseline, and returned to near Baseline levels at the End period. Similarly increased self-reported stress measures correlated significantly with elevated EDA during the Exposure period ($r = .673$, $p = .002$). Most participants reported that the EDA showed believable responses that corresponded with their own experience (n=13/22).

CONCLUSION:

The prevalence of neuropsychiatric symptoms that persisted for >6 months post-Covid in this South African cohort was alarmingly high. Psychiatrists should be alerted to the possibility that persistent post-Covid neurocognitive symptoms are common across the spectrum of severity.

PRESENTER'S DETAILS

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TITLE:

Enlarged subcortical brain volumes in young infants exposed to antenatal maternal depression: findings in a south african birth cohort.

BACKGROUND:

Several studies have found enlarged amygdala and smaller hippocampus volumes in children exposed to maternal depression. However, it is unclear whether regional brain abnormalities are detectable after exposure to antenatal maternal depression (AMD) in the infants' first weeks of life. Here, we used magnetic resonance imaging data from a South African birth cohort to assess whether alterations in hippocampus and amygdala volumes are present in 2-6 week old infants exposed to AMD, and to explore whether volumetric alterations occur in other subcortical brain regions.

METHODOLOGY:

In the Drakenstein Child Health Study, a large longitudinal birth cohort, AMD was assessed with

the Beck Depression Inventory 2nd edition (BDI-II) at 28-32 weeks of gestation. T2-weighted structural images were acquired during natural sleep in 2-6 week old infants on a 3T Siemens Allegra scanner. Subcortical gray matter volumes were obtained from segmentations based on the University of North Carolina neonatal brain atlas. The volumetric data were compared between young infants exposed to AMD (BDI-II≥20) and unexposed to AMD (BDI-II<14), using analysis of covariance.

RESULTS:

Larger volumes were observed in AMD-exposed (N=49) compared to unexposed infants (N=75) for the right amygdala (1.98% difference, p=0.039) and bilateral caudate nucleus (left: 5.78% difference, p=0.001; right: 6.06% difference, p<0.001). A significant AMD-by-sex interaction was found for the hippocampus (left: $F(1,118)=4.80$, p=0.030; right: $F(1,118)=5.16$, p=0.025), reflecting greater volume in AMD-exposed females (left: 5.09% difference, p=0.001, right: 3.53% difference, p=0.010), but not males.

CONCLUSION:

Altered volumes of subcortical brain regions can be detected in AMD exposed infants soon after birth, suggesting brain changes may occur in utero. Female infants might exhibit volumetric changes that are not observed in male infants. The findings newly implicate the caudate nucleus as an important region of interest in the context of AMD exposure. The potential mechanisms underlying these early volumetric differences, and their significance for long-term child mental health, require further investigation.

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TITLE:

The relationship between distinct compulsive-like behavioural phenotypes in deer mice and working memory: response to levetiracetam

BACKGROUND:

Deer mice (Peromyscus maniculatus bairdii) that are housed under standard laboratory conditions variably present with two distinct compulsive-like behavioural phenotypes, i.e. high motor stereotypy (HS) and large nesting behaviour (LNB). However, it remains unknown if these phenotypes might be associated with impaired working memory and deficits in cognitive flexibility. Levetiracetam (LEV), an antiepileptic agent, has demonstrated promise as a potential cognitive enhancer in patients suffering from epilepsy. Here, we aimed to explore the relationships between HS, LNB and T-maze alternation (as a measure of working memory) and how this might be modulated by chronic LEV exposure from a young age.

METHODOLOGY:

80 juvenile deer mice of both sexes (aged 28 days at the onset of investigation; ethics approval number: NWU-00423-21-A5) were divided into two exposure groups (n = 39-40 per group), i.e. a control (normal drinking water) and a LEV exposed group (75 mg/kg/day; administered in the drinking water). After 56 days of uninterrupted exposure, all animals were screened for compulsive-like behaviour, i.e. nesting and stereotypical expression, followed by assessment in a T-maze.

RESULTS:

Our data indicate that HS and LNB are two distinct phenotypes in deer mice that differentially associate with performance in the T-maze. Specifically, total nesting scores did not correlate with alternation scores, while increased stereotypy scores negatively correlated with total nesting size and T-maze alternation ($p < 0.05$, where shown). Further, contrary to our hypothesis, we show that a significant increase in running stereotypy ($p = 0.008$) and a lower degree of nesting variance was associated with chronic LEV exposure.

CONCLUSION:

Here we provide evidence that HS and LNB are two distinct, though equally repetitive and persistent, behavioural phenotypes in deer mice. This is valuable, since the study of such behaviours might be a useful avenue to explore the psychobiological underpinnings of phenotypically heterogeneous compulsive-like behaviours variably respond to the current treatments. We also show that HS, but not LNB, negatively correlates with T-maze alternation and that, if administered from a young age, LEV may potentially bolster the expression of persistent behaviours in adulthood. This finding should be afforded further attention.

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ADHD, attention deficit hyperactivity disorder; SGA, second-generation antipsychotic

References: 1. Who we are. Sandoz. Accessed May 30, 2022. https://www.sandoz.com/about-us/who-we-are. **2.** Careers in Manufacturing and Supply. Novartis. Accessed May 30, 2022. https://www.novartis.com/careers/our-teams/careers-manufacturing-supply. **3.** Sandoz SA (Pty) Ltd. MEFEDINEL™. Professional information. February 2021. **4.** Sandoz SA (Pty) Ltd. ATASTRAT®. Professional information. 04 June 2021. **5.** Sandoz SA (Pty) Ltd. ARIZOFY®. Professional information. 02 November 2021. **6.** Sandoz SA (Pty) Ltd. PSYQUET® 100, 200, 300. Professional information. 02 November 2021. **7.** Sandoz SA (Pty) Ltd. PSYQUET® 25. Professional information. 02 November 2021. **8.** Sandoz SA (Pty) Ltd. ZOLPIHEXAL® 10. Professional information. 27 August 2021. **9.** Sandoz SA (Pty) Ltd. SANDOZ ZOPICLONE 7,5. Professional information. 18 February 1999.

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TITLE:

The feasibility, acceptability and preliminary efficacy of a mental health self-management app in clinicians working during the COVID-19 pandemic: a pilot randomised controlled trial.

BACKGROUND:

COVID-19 has affected healthcare systems globally, including the physical and emotional well-being of health care workers (HCWs) who have been considerably burdened and continue to be burdened by this pandemic. Appropriate and accessible interventions to support the mental health of these HCWs are needed. Mobile mental health interventions offer a possible wide reaching solution.

METHODOLOGY:

We conducted a pilot randomised control trial involving 34 clinicians working in government health care facilities in the Western Cape of South Africa. Participants were randomised in a 1:1 allocation to either a mental health app intervention (n=16) or a waitlisted group (n=18). After one month outcome assessments were repeated and the waitlisted group then crossed over to the intervention for a month, following which they again completed outcome assessments. Self-report assessments were all conducted remotely. Feasibility was assessed with the Systems Usability Scale (SUS) and acceptability with the Client Satisfaction Questionnaire (CSQ). In addition, efficacy outcomes were assessed through various mental health parameters between groups with repeated measures analysis of variance tests and paired t-tests for combined pre-post intervention.

RESULTS:

The mean SUS score was 76.6 (SD=14.6, range 0-100) and the mean CSQ score was 21.9 (SD=3.9, range 8-32), with higher scores showing greater feasibility and acceptability. Anxiety scores decreased significantly from pre- to post-intervention (t(29)=2.20, p=.036, Cohen's d= 0.40) as well as from baseline to 1 month follow up between the groups (F(1,31)=4.97, p= .033, n2p=0.14), with greater improvement in the intervention group compared to waitlisted. Symptoms of acute stress disorder also showed a significant decrease from pre- to post-intervention (t(29)= 2.72, p=.011, Cohen's d= 0.50). The groups differed in resilience (F(1,31)=2.91, p=.098) and patient related burnout (F(1,31)=2.92, p=.098) from baseline to 1 month follow up, with a trend towards significance, with greater improvements in the intervention group.

CONCLUSION:

We demonstrated adequate feasibility and acceptability, however time constraints were a barrier limiting app use. In this pilot trial, we also showed preliminary efficacy of the app, particularly on anxiety, acute stress, resilience and some aspects of burnout, findings which will need to be replicated in an adequately powered trial.

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TITLE:

The gut microbiota in Foetal Alcohol Spectrum Disorders.

BACKGROUND:

The prevalence of Foetal Alcohol Spectrum Disorders (FASD) in the Western Cape of South Africa is up to 31%, significantly higher than the global prevalence of 0.77%. Alcohol consumption alters gut microbial composition and compromises the integrity of the intestinal barrier thereby allowing bacteria to enter the bloodstream, and in doing so, be transported to the foetus. Altered foetal bacterial colonisation may subsequently alter infant gut microbiota functioning resulting in increased risk of developing a neurodevelopmental disorder. This study therefore aimed to (1) compare the gut microbial composition of women who birthed infants diagnosed with and without FASD and (2) compare the gut microbial composition of infants diagnosed with and without FASD.

METHODOLOGY:

Methodology:
16S ribosomal RNA sequencing was performed on microbial DNA extracted from 207 maternal stool samples and 211 infant stool samples. Each infant was assessed for FASD by triangulating data from infant dysmorphology examinations, neurodevelopmental assessments, and maternal interviews. The dada2 pipeline, PhyloSeq and vegan were used to process the data, calculate diversity measures and compute the statistical analyses of microbial composition.

RESULTS:

Ruminococcus was lower (p = 0.003) in women with infants with FASD, while Alloprevotella was higher (p = 0.011) in these women. Ruminococcus has similarly been found to be less abundant in individuals with inflammatory bowel disease. A recent study found higher proportions of Alloprevotella in mice subjected to early adversity.

Bifidobacteria was higher (p = 0.017) in infants diagnosed with FASD. A lower abundance of Bifidobacteria has been observed in children with Autism Spectrum Disorder (ASD), making this finding unexpected. Prevotella was higher (p = 0.003) in infants diagnosed with FASD, a finding that mirrors findings in individuals diagnosed with ASD in other low- and middle-income countries. Prevotella readily breaks down mucin - a structural component of mucus which protects the colon. Increased abundance of Prevotella may compromise the intestinal barrier, allowing bacteria and their metabolic outputs to enter the bloodstream and influence neurodevelopment.

CONCLUSION:

The microbial differences observed in this study may contribute to the neurocognitive deficits' characteristic of FASD. These findings are promising for microbe-based therapeutic interventions to reduce the extent of neurocognitive deficits and the debilitating symptoms associated with FASD.

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TITLE:

Confronting ageism and preservation of dignity and human rights in end-of-life care for older people with serious mental illness.

BACKGROUND:

There are many complex concepts to consider

during end-of-life discussions and advance care planning, especially when vulnerable populations such as older individuals with serious mental illness are involved. This presentation aims to summarise some of these important concepts, such as the effects of ageism, preservation of dignity and human rights, supported or shared decision making and palliative approaches.

METHODOLOGY:

The perspective article on which this presentation will be based emerged from a study that found 65% of 100 participants 60 years of age and older with serious mental illness had end-of-life decision-making capacity.

RESULTS:

The finding of high rates of decision-making capacity in older participants with serious mental illness highlighted the individual and contextual nature of decision-making capacity, the importance of consideration of individual values and protection of human dignity during end-of-life care.

CONCLUSION:

Healthcare providers have a duty to initiate end-of-life and advance care discussions, to optimise decision-making capacity, and to protect autonomous decision-making. Chronological age or diagnostic categories should never be used as reasons for discrimination and all patients should receive end-of-life care in keeping with their preferences and values.

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TITLE:

Rust-ed Beyond Repair?

BACKGROUND:

"Rust is one of the cruelest games on Steam, and that's what makes it so compelling" (PC Gamer). Rust is a multiplayer-only survival video game. It's full release was in 2018. The average age of a player is between 17 and 40 years. However, one must question the age group that enters the game and continues to play. This presentation will focus on adolescence, gaming addiction, and the developing brain.

METHODOLOGY:

Rust is a game of round-the-clock survival in the wilderness whereby players must manage the basic essence of human needs to "stay alive". However, it requires a player to be present for a consistent duration of time, or risk "dying". What does this mean for an adolescent, entering their final two years of school? What is their focus? How does this potentially affect the development of the young mind, still vulnerable to an immediate (real) world molding a brain from adolescence to young adulthood?

Questions regarding adolescent epigenetics, and addiction erupt in mental health when Rust and other international multiplayer survival games capture and imprison the mind of our youth.

RESULTS:

The WHO added "gaming disorder" to the 2018 International Classification of Diseases. But the APA manual, the DSM-5, did not. The University of New Mexico suggests that 6-15% of all gamers exhibit signs and symptoms consistent with addiction. In an article published in February 2019 BioPsychoSocial Medicine states: 'Across studies, the presence of International Gaming Disorder (IGD) had a negative effect on sleep and schoolwork in minors . . . Brain imaging studies indicate that impaired cognitive control in minors with IGD is associated with abnormal function in the prefrontal cortex and striatum.'

CONCLUSION:

Today we ask: of the 83.5% of online gamers and 3.9% of youth reporting problematic behaviour are we Rust-ed beyond Repair?

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TITLE:

Associations between BMI and brain structures involved in food intake regulation in first-episode schizophrenia spectrum disorders and healthy controls.

BACKGROUND:

Structural brain differences have been described in first-episode schizophrenia spectrum disorders (FES), and these often overlap with those evident in the metabolic syndrome (MetS). We examined the associations of body mass index (BMI) with brain structures involved in food intake regulation in minimally treated FES patients (n = 117) compared to healthy controls (n = 117).

METHODOLOGY:

The effects of FES diagnosis, BMI, and their interactions on our selected prefrontal cortical thickness and subcortical gray matter volume regions of interest (ROIs) were investigated with hierarchical multivariate regressions, followed by post-hoc regressions for the individual ROIs. In a secondary analysis, we examined the relationships of other MetS risk factors and psychopathology on the brain ROIs.

RESULTS:

Both FES diagnosis and BMI significantly predicted the grouped prefrontal cortical thickness ROIs, whereas only BMI predicted the grouped subcortical volume ROIs. For the individual ROIs, schizophrenia diagnosis predicted thinner left and right frontal pole and right lateral orbitofrontal thickness, and increased BMI predicted thinner left and right caudal anterior cingulate cortex thickness. There were no significant main or interaction effects for diagnosis and BMI on any of the individual subcortical volume ROIs. Secondary analyses suggest associations between several brain ROIs and individual MetS risk factors, but not with psychopathology.

CONCLUSION:

Our findings suggest differential, independent effects of FES diagnosis and BMI on brain structure. Limited evidence suggests that the BMI effects are more prominent in FES. Exploratory analyses suggest associations between other MetS risk factors and some brain ROIs.

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TITLE:

Profiling the dynamics of the active transcriptome in juvenile and adult brain using spatial transcriptomics

BACKGROUND:

The human brain is made up of a collection of distinct cell types that play specialized roles in maintaining proper brain function. The process of maturation of this complex organ can be assessed by examining the dynamics of gene expression within the various cell types. Previous studies have used single-cell RNA-sequencing (scRNA-seq) to provide vital information on gene expression at a cell-specific level. These studies, which focused on either the pre-natal or adult brain, lacked comprehensive information about the spatial dynamics of cell type-specific gene expression over the course of brain maturation. This information is important for understanding the dynamics of gene expression in the context of changing tissue architecture over the course of maturation. This study aims to contribute to our understanding of the maturing human brain by obtaining the spatial gene expression information of the antemortem brain as it matures from postnatal to adult state.

METHODOLOGY:

Samples from the human temporal cortex (4-, 15-(x2) and 31-year-old) were obtained during elective surgeries to treat epilepsy. Tissue samples were freshly frozen in OCT. H & E (hematoxylin and eosin) staining was employed for the initial screening of the tissue samples. The 10x Genomics Visium Spatial gene expression system was used to obtain genome-wide spatial gene expression patterns. The Visium FASTQ files were aligned to the human transcriptome using 10X Genomics SpaceRanger. To spatially map the brain cell types, visium data was integrated with snRNAseq data using the cell2location method. In situ hybridization chain reaction was used to validate the identified gene expression patterns.

RESULTS:

H & E staining confirmed that there were no dysmorphic neurons or balloon cells which are phenotypic signs of epilepsy. Fifty-six cell types, annotated using the current published human temporal lobe cell atlas, were spatially mapped by integrating Visium spatial gene expression and snRNA-seq datasets from the same samples. Previously identified layer-enriched genes were confirmed to be present in all the samples. Furthermore, novel layer-enriched genes that showed an increase in expression during brain maturation were identified.

CONCLUSION:

The findings of this study contribute to the human brain cell atlas through the provision of spatial gene expression information in the maturing temporal cortex.

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TITLE:

Characterization of the neuroinflammatory mechanisms underlying cognitive decline in an animal model of HIV Tat protein infection and drug abuse

BACKGROUND:

Tat has resulted in progressive neuronal

deregulation culminating in HIV related psychoactive disorders which present with varying degrees of cognitive impairments. Antiretroviral treatments have reduced HIV infection-associated morbidity and mortality by preventing the progression of HIV however, numerous side effects have been reported.

The incidence of psychoactive disorders in relation to HIV is thus increased with concomitant use of drugs. These psychostimulants exert molecular changes within the brain impairing neuronal survival. We aim to Investigate the underlying molecular mechanisms by which cocaine exacerbates HIV pathology through immune activation and inflammation in the presence of HAART by investigating a cascade of neuro inflammatory cytokines and to study its combined effects on brain CYP enzymes (CYP11B1) and associated oxidative stress, immune activation, and inflammation.

METHODOLOGY:

Sprague-Dawley rats (250g) underwent stereotaxic surgery, where 10µg/10µl of Tat protein was injected bilaterally into the dorsal hippocampus. Behaviour was assessed using the Morris water maze, Conditioned place preference tests. Animals were treated with TDF and Nevirapine and dosed with 0.3mg/kg cocaine to evaluate drug seeking behaviour. ELISA, Bioplex and a Western blot analysis were conducted, followed by statistical analysis of the results.

RESULTS:

Increased latency, anxiety-like behaviour and reduced preference for quadrant 1 was observed amongst the Tat; HAART + Cocaine; Tat + Cocaine and Tat + Cocaine + HAART groups and is indicative of impaired learning and diminished memory. Animals treated with HAART showed reduced latency to find the platform, reduced anxiety-like symptoms and preference for quadrant 1, which signified improved memory and learning capacity. The Tat; HAART + Cocaine; Tat + Cocaine and Tat + Cocaine + HAART groups showed increased corticosterone production and increased IL-1ß, IL-10, IL-6, TNF-α, Dopamine, GABA and CYP11B1 levels in the hippocampus and prefrontal cortex as opposed to the groups treated with HAART.

CONCLUSION:

Cocaine compromises ARV treatment in HIV infected individuals and further exacerbates neurological and cognitive impairments brought about by psychoactive disorders by impairing the innate immune system and exacerbating inflammatory responses. Results from this study may help discover therapeutic interventions for attenuating chronic inflammation-associated co morbidities as well as restoring/improving HAART efficacy in HIV-infected drug-abusing populations.

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TITLE:

The Ultimate Betrayal-missed pandemic-intimate partner violence among females with mental illness during the COVID-19 pandemic.

BACKGROUND:

Adverse childhood experiences (ACEs) and interpersonal violence (IPV) in women with severe mental illness (SMI) is neglected and needs review in light of the suggested increase in IPV during the COVID-19 pandemic.

OBJECTIVES:

To assess prevalence of ACEs and IPV in women living with SMI attending an outpatient psychiatry service at a public hospital in KwaZulu-Natal, South Africa during the pandemic.

METHODOLOGY:

A cross-sectional survey comprising of socio-demographic and clinical questionnaire, WHO Adverse Childhood Experiences International Questionnaire (ACE-IQ) for ACEs and the Women abuse screening tool (WAST) for IPV, was completed by 154 women with SMI. The study was conducted

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from January 2020 to April 2020, of the COVID-19 pandemic.

RESULTS:

104 (67.5%) participants had experienced three or more ACEs. The most prevalent forms of ACEs were, emotional neglect 72 (46.8%), one or no parents, parental separation, or divorce 104 (67.5%), contact sexual abuse 67 (43.5%) and witnessing a household member treated violently 67 (43.5). Sixty-one (46.6%) participants reported IPV with scores ≥ 13 (indicative of abuse). On logistic regression, experience of three or more ACEs was significantly associated with IPV in adulthood (aOR 3.3, 95% CI: 1.2-9.6).

CONCLUSION:

The high prevalence of IPV and association of IPV with cumulative ACEs reflects firstly the hidden epidemic of IPV and secondly the vulnerability of those with SMI and ACEs to become victims of abuse later. This highlights the need to screen for IPV and include psychosocial interventions to empower women to report and address IPV.

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TITLE:

Experiences of Xhosa women providing Kangaroo Mother Care in a Tertiary Hospital in the Western Cape, South Africa.

BACKGROUND:

Kangaroo mother care (KMC) has been recognized as one of the interventions to improve preterm birth outcomes by the World Health Organization. KMC requires high user engagement and consists of continuous skin-to-skin contact between the mother and infant and exclusive breastfeeding. The aim of the study is to explore the experiences of Xhosa mothers providing continuous kangaroo mother care to their preterm infants in the kangaroo mother care ward at Tygerberg hospital.

METHODOLOGY:

We conducted a qualitative study of Xhosa women (n=10) practicing KMC in a tertiary hospital in the Western Cape, South Africa. All interviews were conducted in IsiXhosa, audio recorded, and transcribed.

The transcribed data were analysed using thematic analysis and Atlas.ti v22 as a data management tool.

RESULTS:

Four themes emerged: (1) KMC, a beneficial but foreign concept; (2) distress in the KMC ward; due to factors like poor milk supply, uncomfortable nursing positions and sleep deprivation; (3) the missing umbilical cord: experiences of mothers in the KMC ward reflecting on respect for cultural and traditional practices but having limited knowledge of its significance themselves; and (4) the KMC village: interpersonal relations in the ward that oscillates between staff and fellow patient mothers.

CONCLUSION:

Our study showed that cultural practices still pose a challenge to fully accepting KMC.

We suggest more studies on cultural sensitivity to encourage acceptance of interventions that affect culturally diverse groups.

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TITLE:

Beaten, broken and behind bars: A story of female inmates with a lifetime history of mental illness and trauma in Durban, South Africa.

BACKGROUND:

The high prevalence of lifetime trauma among female inmates is well documented internationally. However, there is a dearth of such research on the African continent, and specifically in South Africa. In addition, there remains a gap in the literature with respect to the impact this trauma has on the development of mental illness and the trajectory towards criminality in female inmates. This study aimed at an in-depth exploration of the lived experiences of trauma in female inmates' lives, in a South African cultural setting.

METHODOLOGY:

The findings of this study emanate from the second phase of a two-phased, mixed methods, sequential, explanatory design study. Fourteen women with a lifetime history of trauma and mental illness, were purposively selected to participate in semi-structured, in-depth interviews, from the initial pool of 126 women who had participated in the quantitative first phase.

RESULTS:

The major themes that were developed with respect to the trauma were: abuse is common; women endured many different types of abuse; they often suffered multiple traumas during their lifetime; abuse was experienced as a cycle which was difficult to escape; and the context in which the abuse occurred was described. The women also described the pervasive and lasting emotional, psychological, interpersonal and behavioural impact of the abuse.

CONCLUSION:

All the female inmates who participated in this phase of the study reported traumatic experiences during their lifetime; the majority of whom had suffered complex trauma. They reported that their experiences of trauma contributed to their development of mental illnesses, including substance use disorders, as well as to their trajectories into crime. Trauma screening on admission to, and discharge from, correctional services is imperative. Correctional services should address this unmet need in order to improve mental health outcomes and to decrease recidivism among female inmates.

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TITLE:

Genome-wide differentially methylated genes associated with posttraumatic stress disorder and longitudinal change in methylation in rape survivors.

BACKGROUND:

Rape is associated with a high risk for posttraumatic stress disorder (PTSD). DNA methylation changes may confer risk or protection for PTSD following rape by regulating expression of genes implicated in pathways affected by PTSD. We aimed to: (1) identify epigenome-wide differences in methylation profiles of a demographically and ethnically similar group of rape-exposed women, drawn from a low-income setting and; (2) longitudinally investigate PTSD symptom changes over time (baseline, 3-months and 6-months post-rape) in relation to methylation changes in selected gene regions identified from the epigenome-wide association study (EWAS) results (BRSK2 and ADCYAP1).

METHODOLOGY:

Epigenome-wide differentially methylated CpG sites between rape-exposed women with (n = 24) and without (n = 24) PTSD at 3-months post-rape were investigated using the Illumina MethylationEpic BeadChip. Longitudinal change in methylation of BRSK2 and ADCYAP1 in relation to PTSD symptom change was investigated using EpiTYPER technology (n = 96).

RESULTS:

At 3-months post-rape, one differentially methylated CpG site (chr10: 61385771/ cg01700569, adjusted for multiple comparisons p = .049) and thirty-four differentially methylated regions were associated with PTSD. Increased methylation of ADCYAP1 was associated with decreased PTSD symptom scores from baseline to 3-months post-rape.

CONCLUSION:

Decreased methylation of BRSK2 may result in abnormal neuronal polarisation, synaptic development, vesicle formation and disrupted neurotransmission in individuals with PTSD at 3-months post-rape. PTSD symptom change may be mediated by change in methylation of the ADCYAP1 gene, which is involved in regulating the stress response. Replication of these findings are required to provide support for ADCYAP1 and BRSK2 as biomarkers and potential therapeutic targets of PTSD.

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TITLE:

Fluoranthene induced neuronal degeneration, impaired behaviour and activated upregulation of SKN-1 expression in Caenorhabditis elegans

BACKGROUND:

Fluoranthene is a polycyclic aromatic hydrocarbon (PAH) and has been identified as a ubiquitous environmental pollutant. Most PAHs including fluoranthene are produced via incomplete combustion of fossil fuels such as coal, fuel and wood. Fluoranthene is present in air, surface and drinking water, smoked foods, exhaust emissions, cigars, and smokes of cigarettes and edible aquatic organisms. In this study, we investigated the neurotoxic potential of Fluoranthene via its effects on cholinergic, dopaminergic and GABAergic neurons, behaviour and genes linked to antioxidant defense system in Caenorhabditis elegans.

METHODOLOGY:

Wild-type worms and worms expressing green fluorescent protein (GFP) in either cholinergic, dopaminergic or GABAergic neurons were treated with Fluoranthene (50 – 1000 µM) for 48 h at the fourth larval (L4) stage and survival rate was determined. The median lethal dose obtained was used for further experiment. Neurodegeneration were monitored in the worms after treatment with fluoranthene using confocal microscope and scored for both treated and untreated groups. Alteration in behavioural activities were monitored using the basal slow response and locomotion speed assays and compared to the control (untreated group). Data obtained were analysed using worm lab software. Quantitative polymerase chain reaction was used to assess the expression of genes (skn-1, gst-4 and cat-1) linked to neurodegeneration in treated and untreated worms.

RESULTS:

Fluoranthene (50 – 1000 µM) significantly ($P < 0.05$) reduced the survival of the worms after 48 h with a median lethal dose (LD50) of 223.4 µM compared to the control. Fluorescent micrographs revealed that fluoranthene induced degeneration of cholinergic, dopaminergic and GABAergic neurons with increasing concentrations. Fluoranthene also reduced locomotor behaviour (basal slowing response and locomotion speed via forward speed) of the worms. Real-time polymerase chain reaction data showed a significant increase in skn-1 (a homolog of Nrf2), gst-4 and cat-1 expression after exposure to Fluoranthene.

CONCLUSION:

Our findings revealed that Fluoranthene induced upregulation of associated with oxidative stress which may contribute to degeneration of cholinergic, dopaminergic and GABAergic neurons and altered locomotor behaviour. Hence, exposure to polluted air, smoke or aquatic animals with high concentration of fluoranthene may induce neurodegeneration

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TITLE:

Female FSL rats display depressive-like phenotype during the postpartum period, regardless of fluoxetine and/or low intensity exercise interventions.

BACKGROUND:

Postpartum depression is one of the most common psychiatric disorders, adversely affecting the entire household. Peripartum hormonal fluctuations may significantly increase the risk to develop depression, particularly in women with a history of psychiatric disorders. Although fluoxetine (FLX) is considered an effective treatment option, fear of potential side effects in the breastfeeding infant, render women sceptic about pharmacological treatments during this period. Therefore, non-pharmacological strategies, such as exercise is often preferred or prescribed, based on the perceived improved safety profile. We therefore investigated and compared the antidepressant-like properties of these interventions during the postpartum period of an approved animal model of depression.

METHODOLOGY:

Starting on postpartum day 5 (PPD05), female Flinders sensitive (FSL; n= 47) and resistant line (FRL; n= 38) rats (mean age = 83 ± 7 days) were exposed to low intensity exercise (EXE) with or without FLX (10 mg/kg/day) for fourteen days, and compared to vehicle (H2O) and/or sedentary controls. Depressive-like parameters were analysed in the open field (OFT), forced swim (FST) and social interaction (SIT) tests between PPD 19 and PPD21. Following behavioural analyses, animals were euthanized, and brain tissue harvested for neurochemical analyses.

RESULTS:

Irrespective of intervention, female FSL rats displayed significantly more depressive-like behaviour (i.e., increased immobility time) in the FST ($p \leq 0.0005$), relevant to their FRL counterparts. Swimming behaviour was, however, increased by FLX (regardless of EXE) only in FSL rats ($p = 0.007$). Moreover, female FSL rats (irrespective of treatment) displayed reduced nose-tail interactions with male counterparts in the SIT ($p = 0.02$), indicative of decreased sexual interest. Time spent together was also increased by FLX treatment, across both strains and regardless of EXE ($p = 0.002$).

CONCLUSION:

The investigated treatment strategies were both unsuccessful in reversing depressive-like behaviour in the postpartum period. Still, that the female FSL rats, irrespective of oestrous cycle, displayed a characteristically depressive-like phenotype, in relation to FRL controls during the postpartum period, strengthens the validity of this animal model for future studies.

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TITLE:

Safety and effectiveness of multiple-unit pellet system delivered extended-release methylphenidate in patients with ADHD in the real-world clinical settings: PACER studycognitive symptoms in a cohort of SARsCOV2 PCR positive patients in Cape Town, South Africa.

BACKGROUND:

Methylphenidate is a central nervous system stimulant indicated for the treatment of attention deficit hyperactive disorder (ADHD). The aim of this study was to evaluate the effectiveness of Multiple-Unit Pellet System Delivered Extended-Release Methylphenidate (Contramyl XR), on symptom control, functionality and reported outcomes in patients with ADHD, either as a de novo therapy or as a switch therapy in methylphenidate-experienced patients, in a real-world setting.

METHODOLOGY:

This was an open label, flexible dose, prospective, observational study to evaluate the effectiveness of Contramyl XR. Patients (children: aged 6-17 years; adults: aged 18-65 years) with a primary diagnosis of ADHD and who met the DSM-IV/V criteria were included. Patients were either initiated on (18 mg or 36 mg once daily, respectively) or switched to (18 – 72 mg once daily) Contramyl XR.

Primary efficacy variables were symptom and functionality improvements, assessed by patient-reported Weiss Functional Impairment Rating Scale (WFIRS) composite score and clinician reported CGI-I and CGI-S scale scores over 12 weeks.

RESULTS:

Totally, 119 participants from 6 study sites completed the study, of which 46% (n=55) were newly diagnosed ADHD patients and 54% (n=64) were treatment-experienced patients who switched to Contramyl XR.

Satisfaction with treatment was observed in treatment-naïve ADHD patients, indicated by significant improvement in WFIRS scores over 12 weeks.

Comparable effectiveness was also demonstrated in switch-over patients. For changes in WFIRS vs. CGI-S the correlation coefficients were statistically significant at visits 2 ($p=0.041$) and 3 ($p=0.006$). In treatment-naïve patients, the changes in total WFIRS vs. CGI-S and CGI-I were statistically significant ($p<0.001$) at visit 2.

At visit 3, similar significance was observed except for change in total WFIRS vs. CGI-I. In switch-over patients, the changes in total WFIRS vs. CGI-S and CGI-I were statistically significant ($p<0.001$) at visits 2 and 3. Contramyl XR was well tolerated, and all patients chose to continue with Contramyl XR.

CONCLUSION:

Contramyl XR is found to be clinically effective in all age groups either as initial therapy or as switch therapy. This study further supports the interchangeability of Contramyl XR as a generic formulation compared with the reference methylphenidate.

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TITLE:

The impact of prenatal tobacco exposure on brain structure and function in 2-3-year-old children: a Drakenstein Child Health Study.

BACKGROUND:

Although prenatal tobacco exposure (PTE) is a risk

factor for child development with previous work showing adverse clinical and neurodevelopment outcomes, few neuroimaging studies have assessed the impact of PTE on neurodevelopment in toddlers. Effects may persist into adulthood and be as deleterious as prenatal exposure to alcohol and illicit substances. This study explored early brain structure and associated cognitive and behavioral outcomes following PTE in 2-3-year-old children.

METHODOLOGY:

Structural MRI data were acquired using a 3T Siemens Skyra scanner in a subset of children (mean age=34 months) enrolled in the Drakenstein Child Health Study situated in South Africa. The level of PTE was defined by maternal urine cotinine level determined antenatally (> 499 ng/mL active smoker; 10-499 ng/mL passive exposure). The sample included 28 active PTE (54% boys), 51 passive PTE (63% boys) and 27 unexposed control children (63% boys). Structural measures were derived using FreeSurfer v6 and compared between groups using general linear models controlling for biological sex and age. Regions with significant group differences were associated with cognitive function as assessed at 24 months with the Bayley Scales of Infant Toddler Development III using linear regression.

RESULTS:

Children with active PTE had greater cortical thickness in sub-regions of the frontal gyrus and certain occipital (including left latero-occipital) and temporal (including right temporal pole) regions in contrast to the other groups (all p 0.0588).

CONCLUSION:

Our findings on the impact of PTE concur with previous findings of cortical thickness alterations in older children. Greater cortical thickness of frontal, occipital and temporal regions may underlie alterations in adaptive behavior in children affected by PTE. Ongoing analysis will center on the added effect of postnatal tobacco smoking on neurodevelopment in toddlers. Longitudinal studies are needed to investigate the impact of PTE on brain development trajectories and the longevity of changes.

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TITLE:

Long term effectiveness of Prolonged Exposure for adolescents with PTSD, in a task-shifted intervention in South Africa: Comparative trial of supportive counselling.

BACKGROUND:

There is a need for a longer term follow-up (FU) on the effectiveness of task-shifted psychotherapeutic treatments for adolescents with posttraumatic stress disorder (PTSD) in low- and middle-income countries (LIMICs). Few studies internationally include a 5-year follow-up, especially of adolescents.

Their is to report on the comparative effectiveness of prolonged exposure (PE-A) and supportive counselling (SC) for PTSD in adolescents at 1-. 2- and especially at 5-years follow-up.

METHODOLOGY:

Sixty-three adolescents were randomly assigned to receive either intervention and completed 7-14 treatment sessions. Nurses previously naive to PE-A and SC provided these treatments at the high schools of adolescents. Data were analysed as intention to treat.

The primary outcome, PTSD symptom severity, was independently assessed with the Child PTSD Symptom Scale-Interview (CPSS-I). Some of the secondary measures, such as depression severity (BDI), PTSD diagnosis with the MINI-Kid, are also reported.

RESULTS:

Participants receiving PE-A experienced greater improvement in PTSD symptom severity than those receiving SC (between group differences at post-intervention, mean 12.49, 95% CI 6.82-18.17, p<0.001; d=1.22).

A similar pattern was observed with the above mentioned secondary measure and at FU (3-, 6-, 12-, 24-months) And now the 60-month results will be included.

CONCLUSION:

The maintenance of treatment gains at longer term FU of adolescents receiving treatment for PTSD from non-specialist health workers within a community setting in Cape Town, South Africa are reported.

Comparing these longer-term outcomes with the limited available 5-year or longer FU data available will guide us on implementation of interventions for PTSD in children and adolescents within community settings. Lessons learnt from this study interns of community-based implementation is discussed.

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TITLE:

Distinct anxiety-like behaviours in normal and large nesting deer mice (Peromyscus maniculatus bairdii): towards an understanding of compulsive-like behavioural persistence.

BACKGROUND:

Although obsessive-compulsive disorder (OCD) is not classified as an anxiety disorder, compulsive symptom expression is related to intrusive anxiety-provoking stimuli. Naturalistic large nesting (LNB) expression in deer mice is proposed as a model of compulsive-like behavioural expression. However, its psychobiological underpinnings remain unclear. To this end, we aimed to broaden our understanding of the potential relationship between anxiety-related behaviour and LNB by exploring the open field behaviour of LNB, compared to normal nesting (NNB) deer mice.

METHODOLOGY:

Forty-nine (49) deer mice of both sexes (aged 12 weeks at the onset of investigation; ethics approval number: NWU-00422-21-A5) were singly housed and screened for nesting behaviour over one week. From this, two groups of mice, i.e. NNB and LNB (n = 10 per group; as far as possible equally distributed between sexes), were identified. Since these groups constituted the respective control groups for other drug-exposed groups still to be completed, they were left undisturbed for 21 days, after which the nesting assessment was repeated. All animals were then assessed in an anxiogenic, white-floored mirrored open field arena (MA). However, ambulation in the anxiogenic open section of the MA was optional, since animals could opt to remain in a separate dark compartment in the arena.

RESULTS:

Data from the present investigation show that NNB and LNB expressing animals present with distinct anxiety-like profiles in the MA test. Notably, LNB-expressing animals spent significantly more time in the proximity of the mirrored walls, compared to NNB-expressing mice ($p = 0.01$). Further, compared to NNB-expressing mice, LNB-expressing mice spent more time in the border zone during each open field visit, than in the centre zone of the arena ($p = 0.036$).

CONCLUSION:

In support of earlier work from our laboratory, we show here that when introduced into an anxiogenic environment, i.e. the MA, LNB animals present with a lower degree of open field anxiety which is likely reminiscent of increased boldness. Our findings thus highlight a potentially unique anxiety-related signature in LNB mice that might underlie the expression of inflated, as opposed to normal behaviours that might be valuable for further therapeutic investigation.

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TITLE:

COVID-19 and serious mental illness: Experience from a psychiatric hospital in Cape Town, South Africa.

BACKGROUND:

Several factors make patients admitted to specialist psychiatric units more vulnerable and susceptible to infections like SARS-COV-2. This includes psychiatric hospital infrastructure and service design, the

mental health profiles of patients, and the medical competency of staff employed. We aimed to describe the psychiatric and medical profile as well as clinical outcomes of patients with serious mental illness (SMI) and COVID-19 admitted to a specialist psychiatric hospital in South Africa.

METHODOLOGY:

Demographic and clinical information was collected on all Valkenberg hospital in patients who tested positive for SARS-COV-2 for the period1 April 2020 to 30 September 2021. All patients who tested positive were included in the study.

RESULTS:

Two hundred and fifty-seven (257) participants tested positive for SARS-COV-2 over the study period. The sample included 75%(n=194) male and 25%(n=63) female patients with a mean age of 35,7 years old. Most patients were diagnosed with schizophrenia 37%(n=96), bipolar disorder 21%(n=55) and schizoaffective disorder 19%(n=49). Comorbidities reported were smoking 64%(n=164), other 20%(n=51), hypertension 11%(n=28), HIV 7%(n=18), previous tuberculosis 6%(n=15), chronic lung disease 5%(n=14), diabetes mellitus 4%(n=10), BMI>30 4%(n=10) and cardiovascular disease 2%(n=4).

The most common substance used was nicotine 71%(n=183) followed by cannabis 59%(n=151), methamphetamine 36%(n=92) and alcohol 18%(n=45).

Most of the patients 62%(n=159) were symptomatic for COVID-19, however only 7%(n=17) required transfer to a medical ward. Almost all patients 99%(n=255) recovered and 1%(n=2) demised.

CONCLUSION:

A large portion of our sample were symptomatic with only 4% presenting with anosmia, initially thought to be indicative of SARS-COV-2. The majority of symptoms were elicitable through history taking. Despite the concerns that poor social and lifestyle factors, and high comorbidity of substance use would worsen outcome, most of the patients had mild illness and recovered (n=255, 99%). This contrasts with concerns that were raised early in the pandemic that institutionalised patients with severe mental illness were at increased risk of mortality and an increased rate of hospitalisation.

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TITLE:

PANDAS: a "difficult" child, or difficult diagnosis

BACKGROUND:

Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS) is a childhood syndrome thought to be triggered by streptococcal bacteria – especially throat infections. It is suggested that PANDAS may affect as many as 1 in 200 children, yet the controversy related to underdiagnosis, misdiagnosis, and overdiagnosis remains.

METHODOLOGY:

In this presentation, the author will present a case of a young adult with a sudden onset of psychiatric symptoms at the age of 10 and the convoluted and complicated road the patient and his parents have traveled. Many psychiatric diagnoses (which include juvenile-onset schizophrenia, bipolar mood disorder, autism, and OCD – amongst others) were made and many treatments were offered.

Yet, although PANDAS appears to be a suitable diagnosis, it cannot be confirmed retrospectively, and the final word is not out. The author will also provide a narrative review of the current evidence for and controversies surrounding the diagnosis of PANDAS syndrome.

RESULTS:

The author will present a narrative review of the literature on PANDAS, with a specific focus on the 2013 PANS Consensus Conference and recommendations for assessment and diagnosis. The author will critically review the case presented accordingly.

CONCLUSION:

PANDAS is a diagnosis of exclusion. Therefore, a comprehensive evaluation is needed to eliminate disorders presenting with similar neuropsychiatric symptoms.

The individual PANDAS symptoms overlap with a variety of psychiatric disorders, such as OCD, Tourette's syndrome, ADHD, depression, and bipolar disorder. However, the acuity of onset and simultaneous presentation of these symptoms differentiate PANS from these psychiatric conditions.

In some instances, children with PANS experience visual or auditory hallucinations; these cases deserve special note, as symptoms can appear identical to the psychotic symptoms seen in conditions such as schizophrenia, bipolar disorder, and lupus cerebritis.

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TITLE:

Falling through the cracks: Maternal mental health and neonaticide in the context of forensic psychiatry.

BACKGROUND:

In many parts of the world mentally ill women who commit infanticide may receive long prison sentences or even the death penalty (Razali S et al., 2019). England, Canada, Australia, and more than 20 European countries have "infanticide laws" which provide more humane treatment and psychiatric care for mentally ill mothers who kill (Spinelli 2019). South Africa does not have an infanticide law and is characterized by a constitution that is human rights focused and laws that are much more progressive in many instances. However, there it has a high rate of perinatal mental illness. As with other LMIC, there is limited epidemiological data regarding perinatal depression, but more recent studies indicate percentages of up to 47% (This was one study conducted at a primary health care facility in rural KwaZulu Natal, where HIV rates are high). Beyond antenatal depression, other psychiatric disorders often worsen in the perinatal period, with some index presentations as well. Methods: The author will discuss a review of perinatal psychiatric illness that come to the attention of forensic psychiatry and illustrate, by means of case reports the dire consequences of untreated perinatal mental illness in the postpartum period.

METHODOLOGY:

The author will discuss a review of perinatal psychiatric illness that come to the attention of forensic psychiatry and illustrate, by means of case reports the dire consequences of untreated perinatal mental illness in the postpartum period.

RESULTS:

3 cases of neonaticide will be presented, within the context of perinatal mental illness, referral for observation in terms of the criminal procedures act (CPA), outcomes and finally their rehabilitation as state patients.

CONCLUSION:

Prevention of the tragic crime of neonaticide is often rooted in management of maternal mental health in a holistic manner, with attention to a biopsychosocial approach, particularly in women at risk. As well, the context of a health system that went awry is emphasised in these cases.

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TITLE:

Exploring Trauma histories among forensic state patients charged with murder.

BACKGROUND:

South Africa has a high rate of violence and abuse, evidenced by its inclusion in the country's quadruple disease burden (Bradshaw, et al., 2003). It is already well established that physical, sexual and emotional abuse (henceforth, collectively referred to as "trauma") has a profound, detrimental impact on an individual's psyche. Studies have shown links between adverse events and mental illness such as depression, anxiety, PTSD and schizophrenia, especially in those already predisposed to mental illness (Radmanoviü, 2020). Research has also demonstrated that the risk for violent and antagonistic behaviour is closely associated with a history of exposure to traumatic abuse (Wolff & Shi, 2012). Mental illness has also been linked to more extreme forms of violence, specifically murder (Valenca & de Moraes, 2006). However, there remains a paucity in research on the intersection between the three elements – trauma exposure, mental illness and homicide. This research study examined exposure to trauma among forensic state patients who had committed murder.

METHODOLOGY:

A 21-year review of the records of state patients at Sterkfontein hospital charged with murder was conducted. Data was analysed using descriptive statistics, The Chi^2 test was employed to assess the associations between types of trauma and mental illnesses, Mental illness and substance abuse at the time of the murder and childhood vs adult trauma.

RESULTS:

High rates of trauma (up to 40%) were found. More

females experienced both childhood trauma exposure and sexual trauma histories than men. Substance use was more prevalent in males, who killed more strangers than their female counterparts, where more victims were family members, often their own children.

CONCLUSION:

The interplay between trauma, mental illness and the commission of violent offences deserve further interrogation, with larger studies using a longitudinal method of study. as well, in addition to the neurobiology of serious mental illness, contextual factors such as environmental and other adverse events might serve as mediating factors for the commission of violent acts such as murder.

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TITLE:

Assessing the impact of paediatric atopic dermatitis on the mental health and quality of life of their caregiver at a tertiary hospital in Cape Town, South Africa.

BACKGROUND:

Atopic dermatitis (AD) is a chronic and often debilitating illness for children but also has a significant effect on caregiver quality of life (QOL) and mental health. We aimed to explore the relationship between AD in children on the QOL and the mental health of their caregivers in a South African population.

METHODOLOGY:

We conducted a cross-sectional study of patients and their caregivers attending the Dermatology Clinic at Tygerberg Hospital in Cape Town, South Africa. Of the 65 patients accessing treatment between February 2021 and August 2021, 54 participants met the inclusion criteria and were recruited. Caregiver QOL and mental health were measured using the Dermatitis Impact Family (DFI) questionnaire and the Kessler Psychological Distress Scale (K10) questionnaire, respectively. The Scoring Atopic Dermatitis (SCORAD) index was completed by the attending dermatology registrar or consultant seeing the patient and was used to measure the severity of AD symptoms experienced by the patient.

RESULTS:

For most caregivers having a child with AD had a moderately negative effect on their QOL (mean (SD) DFI score = 12.78 (7.48)) and the majority of caregivers experienced mild psychological distress (mean (SD) K10 score = 22.07 (9.68)). Most of the children in this study experienced mild AD symptoms (median (IQR) SCORAD score = 14.15 (5.67-32.88)). Almost 90% of the children had an identifiable trigger, with the most common triggers being an environmental temperature change (n=36, 66.7%) and stress (n=31, 57.4%). We noted a weak but significant correlation between QOL and AD severity ($r_s = 0.395$, $p = 0.003$) and a strong positive correlation between the caregivers' QOL and their mental health ($r_s = 0.650$, $p < 0.001$).

CONCLUSION:

The use of easy and fast screening tools for caregiver mental health and QOL should be implemented when treating patients with AD. Understanding the burden and allowing room for mitigation of these modifiable factors will play a large role in ensuring a better therapeutic outcome for those children with a chronic illness like AD.

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TITLE:

The interaction between the gut microbiome and host genome in posttraumatic stress disorder.

BACKGROUND:

Stress-related disorders, such as anxiety, depression, and posttraumatic stress disorder (PTSD), often develop following exposure to a traumatic event. However, not all individuals exposed to trauma develop these disorders, indicating that there must be a degree of susceptibility/resilience among individuals. This is partly explained by underlying genetic risk. Recently, alterations in gut microbial composition have been observed in relation to psychiatric disorders, which may explain some of the variation in susceptibility to stress-related disorders. In addition, the host genome has been found to regulate certain aspects of the gut microbiome. There is much to be understood about the role of the gut microbiome, and genome, in human brain function and behaviour. By investigating the association between characteristics of the gut microbiome and host genetic components, this study aims to provide insight into the interaction between the gut microbiome and host genome in the context of stress-related disorders, specifically PTSD.

METHODOLOGY:

As part of the SHARED ROOTS project, genome-wide genotype data and 16S rRNA gene (V4) sequence gut microbiome data from 56 trauma-exposed controls and 78 PTSD patients of self-reported mixed-ancestry, will be used in an exploratory analysis to examine the association between host genotype and gut microbiome traits, such as α-diversity, β-diversity, and relative abundance profiles. The relative abundance analysis will focus on four previously identified genera (Mitsuokella, Odoribacter, Catenibacterium, and Olsenella), for which the total relative abundance positively correlated with the severity of PTSD symptoms and was higher in PTSD participants compared to trauma-exposed controls. In addition, available GWAS summary statistics from the Psychiatric Genomics Consortium will be used to calculate the polygenic risk scores for PTSD and major depressive disorder, two highly comorbid disorders, to investigate if the genetic predisposition towards developing a stress-related disorder is associated with gut microbial composition.

RESULTS:

The above analysis is currently underway.

CONCLUSION:

Results from this investigation intends to provide valuable insight into the complex relationship between the gut microbiome and host genome, in the context of PTSD.

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TITLE:

The Point Prevalence of Co-Morbid Mental Ill-Health in Tuberculosis Patients under Treatment in a Rural Province of South Africa.

BACKGROUND:

Tuberculosis remains prevalent despite the availability of effective anti-TB medications. South Africa is among the top eight countries that account for two-thirds of the global TB infections. Evidence suggests a high rate of mental disorders in people with TB. Psychiatric disorders and tuberculosis share several risk factors, such as homelessness, HIV/AIDS, substance use, stigma, malnutrition, and poor socioeconomic status. Psychiatric comorbidities in tuberculosis patients are associated with poor treatment outcomes and treating comorbid psychiatric disorders can improve tuberculosis outcomes. This study explored psychiatric comorbidity and its clinical correlation in individuals receiving tuberculosis treatment.

METHODOLOGY:

A cross-sectional survey was conducted at two primary care clinics at King Sabata Dalindyebo District, Mthatha, Eastern Cape, South Africa. Patients receiving TB treatment in these two clinics were interviewed between September 2020 and June 2021 by a trained interviewer using the Mini-International Neuropsychiatric Interview to screen for psychiatric disorders.
All descriptive and inferential statistics were performed with STATA/SE "(version 16.1 for Mac)," and the significance level was $p < 0.05$.

RESULTS:

In a sample of 197 participants, most patients were male (62%), had HIV diagnosis (65%), and screened positive for a mental disorder (82%) with anxiety (48%), depression (38%), and substance use disorders (43%) being the most common psychiatric conditions. On average, individuals had 4 (SD 2) lifetime mental disorders, excluding substance use disorders. Females had higher rates of depression ($p = 0.005$) and nonadherence to tuberculosis treatment ($p = 0.003$). Alcohol use disorder was more common in males ($p< 0.001$) and those nonadherent to tuberculosis treatment. Low education levels and unemployment were also associated with depressive and anxiety disorders ($p < 0.05$).

CONCLUSION:

There is a high burden of mental disorders in patients with tuberculosis, and mental health services must be integrated into the management of patients with tuberculosis. Routine screening of common psychiatric disorders, including depression, anxiety, and substance use disorders, using already available easy-to-use screening tools amenable for use at the primary care level could aid the early detection, referral, and treatment of those with mental illness and tuberculosis.

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TITLE:

Resilience and reward functioning in PTSD and metabolic syndrome.

BACKGROUND:

Higher rates of metabolic syndrome (MetS) are observed in patients with posttraumatic stress disorder (PTSD). Reward system dysfunction has been observed in both PTSD and MetS. Resilience, through its effects on the reward system, may play a role in the comorbidity of MetS and PTSD.

METHODOLOGY:

In a case-control study of 88 patients with PTSD (30.7% with MetS) and 85 trauma exposed controls (TEC, 31.8% with MetS) we investigated the role of resilience, as measured with the Connor-Davidson Resilience Scale (CD-RISC), on the function of the reward system using a functional MRI (fMRI) monetary incentive delay (MID) task. We utilised repeated measure analysis of variance (RMANOVAs) to assess change in activation in the ventral striatum (VS) during reward anticipation and in the orbitofrontal cortex (OFC) during reward outcome, controlling for age.

RESULTS:

The mean age of participants was 43.3 years (SD 14.1) and 73.4% were female. There were no significant differences in reward anticipation in the VS and reward outcome in the OFC in relation to PTSD and MetS. Resilience was significantly

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associated with activation in the VS during reward anticipation (F (1, 168) = 12.83, p < 0.001) and activation in the OFC during reward outcome (F (1, 168) = 6.34, p = 0.013).

CONCLUSION:

Resilience was significantly associated with altered reward system function, with higher resilience associated with decreased activation in the VS during reward anticipation and increased activation in the OFC during reward outcome. Although reward function was not altered in relation to PTSD and MetS, resilience appears to play a role.

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TITLE:

Electroporation: a cost-effective method to validate putative enhancers in the context of the maturing human brain.

BACKGROUND:

Spatiotemporal differential gene expression throughout human brain maturation is tightly regulated by a complex gene regulatory network (GRN). Understanding this GRN can help elucidate the pathophysiology of neuropsychiatric disorders, infections or diseases that affect the brain.

The identification of putative enhancers and their targets is essential for building a comprehensive GRN. Once these putative enhancers have been identified, their activity needs to be verified. This study aims to develop a cost-effective system to test enhancer activity in a model that mimics the in vivo human brain.

METHODOLOGY:

An electroporation system was optimised to transfect enhancer-reporter vectors into mouse and human organotypic brain slices. 7-day old mouse hippocampal slices were used to optimise the system. The human tissue was access tissue from the temporal cortex removed during surgeries to treat epilepsy.

Ubiquitously expressed reporter constructs, pCI-H2B-GFP/RFP and pCAG-DsRed, served as positive electroporation controls. A published enhancer (MEC-13-123), that drives reporter expression in the mouse hippocampus and cortex, was cloned into the Stagia3-GFP-PLAP enhancer-reporter vector to be used as a positive enhancer control.

Tissue slices were transferred on culture membranes to an agarose bed atop a positive electrode. The reporter construct solution was added to the negative electrode which would be lowered down on to the slice.

Immunohistochemistry (IHC) at 2-days post electroporation was used to assess the overlap of reporter genes with known cell type markers. PLAP activity was assessed by staining with NBT/BCIP.

RESULTS:

Effective electroporation of the positive control vectors was achieved after 7 days in culture using 60 and 100 volts on the human and mouse slices respectively.

Preliminary IHC analysis showed that both neurons and astrocytes were targeted. Analysis of PLAP activity to visualise MEC-13-123 enhancer activity revealed that the electroporation of the enhancer control vector was a success.

CONCLUSION:

An electroporation system for testing enhancer activity has been successfully optimised for mouse and human organotypic brain tissue slices. This

system is cost-effective, safe to use and does not require genetically modified organisms, making it attainable to most labs.

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TITLE:

Persistent (>6 months) neuropsychiatric and cognitive symptoms in a cohort of SARsCOV2 PCR positive patients in Cape Town, South Africa.

BACKGROUND:

SARS-CoV-2 is a neurotrophic and pro-inflammatory virus. Several acute and more persistent neuropsychiatric and neurocognitive sequelae have been reported. Very limited psychiatric and neurocognitive longitudinal data from African cohorts of asymptomatic and hospitalised COVID19 patients is available.

OBJECTIVES:

To determine the prevalence of anxiety, fatigue, memory and cognitive symptoms in a cohort of South African SARS-CoV-2 PCR positive patients across the disease severity spectrum from asymptomatic to critical, >=6 months following infection/hospitalisation.

To examine the relationship between Covid19 illness severity (WHO and FDA severity stratifications), biochemical markers at the time of acute illness, and post-Covid symptomatology.

METHODOLOGY:

Prospective SARS-CoV-2 PCR positive patients were recruited from two parent studies in Cape Town, South Africa – the UCT FHS COVID19 biorepository, that sampled hospitalised patients across the first three Covid waves; and the BCG vaccine study, that identified asymptomatic or mild SARS-COV-2 infection through seroconversion data.

Participants from these cohorts were approached for this Post-Covid study, and if consenting completed a Case Report Form, WHO Self-Report Questionnaire (SRQ-20), Generalized Anxiety Disorder Scale (GAD-7), Chalder Fatigue Scale (CFS-11) and tele-MoCA (Montreal Cognitive Assessment).

RESULTS:

Ninety-nine participants completed telephonic questionnaires. Fifty-four (54.5%) were female, with a mean age of 50.5 years. SARS-CoV2 infection severity included: asymptomatic 13.8%, mild 25.5%, moderate 19.1%, severe 24.5%, and critical 17%. Most participants (79.3%) had never struggled with mental health concerns pre-Covid19.

A total of 37 (37.3%) reported experiencing mental health problems post-Covid, of which only 13 (35%) saw a doctor and/or were prescribed medication for mental health reasons post-Covid.

Overall, self-reported mental health symptoms experienced by participants to persist > 6 months post-Covid as measured with screening tools included: anxiety (24.2%), fatigue (54.5%), headaches (34.3%), and memory and cognitive problems (58.6%). Tele-MoCA scores revealed that delayed recall was the domain most frequently affected.

CONCLUSION:

The prevalence of neuropsychiatric symptoms that persisted for >6 months post-Covid in this South African cohort was alarmingly high.

Psychiatrists should be alerted to the possibility that persistent post-Covid neurocognitive symptoms are common across the spectrum of severity.

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TITLE:

Pre-pubertal low intensity exercise is unable to reverse the depressogenic effects of maternal separation and early weaning in FSL rats.

BACKGROUND:

Juvenile depression is a debilitating disorder with immediate and long-lasting health effects. Childhood and adolescence are developmental periods, sensitive to early-life insults.

Mitochondrial function is proposed as a novel treatment target for juvenile depression and is influenced by both early-life adversity and exercise.

We investigated whether maternal separation and early weaning (MSEW) exacerbates depressive-like behaviour in an animal model of depression, and whether pre-pubertal, low intensity exercise (EXE) could reverse this.

METHODOLOGY:

Male and female Flinders sensitive (FSL) and resistant line (FRL) pups were either subjected to an early-life stressor (i.e., MSEW) between postnatal days (PND) 2 and 17, or not. MSEW animals were maternally separated for three hours per day and weaned on PND17, instead of 21.

Early-life depressive-like behaviour was analysed in the open field (OFT) and tail suspension test (TST) on PND21. From PND22, FSL rats were also subjected to EXE (or not, i.e., sedentary; SED) from PND22 to 35. On PND36, depressive-like behaviour was screened with the forced swim test (FST), whereafter animals were euthanised and brain tissue harvested for neuro and biochemical analyses

RESULTS:

Although MSEW reduced time spent immobile in the TST, compared to non-MSEW controls (main effect; $p = 0.002$), this reduction was only significant in FRL rats ($p = 0.0008$). FRL rats, regardless of MSEW also covered less distance moved in the OFT, compared to FSL counterparts (main effect; $p \leq 0.0005$).
Later in life, non-MSEW FSL rats spent more time immobile (and less escape-directed behaviour), compared to non-MSEW FRL controls ($p < 0.05$). MSEW increased FST immobility time (main effect; $p \leq 0.0005$), yet this increase was only significant in FRLs ($p \leq 0.0005$). EXE was unable to reverse the behavioural effects of MSEW in the FST. Still, only MSEW/SED (and not MSEW/EXE) rats were more immobile, compared to non-MSEW controls ($p = 0.02$).

CONCLUSION:

Constant and predictive early-life stress induced a transient antidepressant-like effect early in life, that worsened during puberty. With these effects being more prominent in "healthy" subjects, suggests different response mechanisms. Regardless, low intensity exercise, during pre-pubertal development was unable to reverse these effects.

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TITLE:

The Contributions of Non-Human Apes in Clinical Research

BACKGROUND:

Neural systems, such as the cholinergic, catecholaminergic, serotonergic, and orexinergic systems, are essential for memory, cognition and emotional regulation. In addition, dysfunctions in their neurotransmission are often associated with neurodegenerative and neuropsychiatric disorders.

Despite the clinical significance of this research, there are limited studies on the anatomy of these neuromodulatory systems in a range of primates, including humans. Given the close phylogenetic relationship between non-human apes and humans, we examined the anatomy of these four neural systems in the brains of two apes, the lar gibbon (Hylobates lar) and chimpanzee (Pan troglodytes), using immunohistochemical methods.

The current study thus aims to provide further insight into the anatomy and evolution of the neural mechanisms underlying clinically important processes in the brain of apes, including humans.

METHODOLOGY:

The brains of two apes, a lar gibbon (Hylobates lar) (brain mass: 112 g) and chimpanzee (Pan troglodytes) (brain mass: 388.1 g) were used in this study. No behavioural or neurological impairments were observed in either of these two apes.

The brains were perfusion-fixed and cut into 50 µm thick serial coronal sections, using a microtome. A one-in-twenty series of serial sections were immunohistochemically stained for Nissl substance and myelin (to identify the architectural borders), choline acetyltransferase (ChAT) (to identify the cholinergic system), tyrosine hydroxylase (TH) (to identify the catecholaminergic system), serotonin (5HT) (to identify the serotonergic system), and orexin-A (OxA) (to identify the orexinergic system).

Both positive and negative controls were performed prior to the IHC runs. The stained sections were then mounted on gelatin-coated slides, cover-slipped, and photomicrographs were taken, using a Zeiss axioskop. In addition, neuronal numbers and volumes were quantitatively examined with stereological methods.

RESULTS:

For the most part, the neural systems observed in the ape brains studied are similar to those found in a range of mammals studied to date, including other species of primates, especially humans.

Despite the similarities, some unique anatomical features were observed that appear to be exclusive to Hominoidea (lesser and greater apes, including humans). For example, the retrorubral (A8) nucleus of the locus coeruleus (i.e., implicated in emotional processing), was greatly expanded in the two ape brains studied, especially the common chimpanzee. Interestingly, it is also present in humans.

In addition, multipolar neurons in the lateral subdivision of the dorsal raphe were observed only in the common chimpanzee studied, and thus it appears to be unique to Hominidae (great apes, including humans).

These larger serotonergic neurons appear to be the most vulnerable to neurodegenerative diseases, such as Parkinson's disease, in humans.

CONCLUSION:

The current study comprehensively describes the anatomy of the cholinergic, catecholaminergic, serotonergic and orexinergic systems in the brains of the apes, the lar gibbon and the common chimpanzee.

The main findings from this study reveal that anatomical organisation is generally similar to those observed in a range of Eutherian mammals, including other primates studied to date, especially humans.

Despite the similarities, unique neuroanatomical features were observed that appear to be unique to Hominoidea and Hominidae. The study thus provides significant contributions to the field of comparative anatomy and evolutionary neuroscience.

It also reveals important clues regarding evolutionary variations in primates, especially humans. Given the overall consistencies across mammals, including primates, it can be argued that animal models play an important role in understanding (clinically significant) neuromodulatory systems in humans at a systems level ■

BIOLOGICAL PSYCHIATRY CONGRESS

POSTER PRESENTATION

A G E N D A

FRIDAY 16 SEPTEMBER 2022

12:15 - 13:15 **Session 1 (A)**

1 Akeem Adedolapo
Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch, University, Cape Town, South Africa
Xenophobic experiences and association with mental health in African students at a South African university

2 Fatima Ahmed
Department of Psychiatry, Stellenbosch University
Effect of brief coping skill training on alcohol use in high-risk student drinkers

3 Alison Bentley
Department of Family Medicine, University of Witwatersrand
Symptom assessment by questionnaire and narratives of insomnia disorder in a South African population

4 Kimberly Blake
Neuroscience Institute, Department of Psychiatry and Mental Health, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa
Advanced brain ageing in adult psychopathology: A systematic review and meta-analysis of structural MRI studies

5 Judith Boshe
Kilimanjaro Christian Medical Centre
Psychometric properties of the Isi-Xhosa version of the Subjective Wellbeing Under Neuroleptic Treatment scale

6 Erine Bröcker
Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa
Feasibility, acceptability, and effectiveness of web-based and mobile PTSD Coach: A systematic review and meta-analysis

7 Belinda Bruwer
Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa
The role of social-cognitive processes in mother-infant bonding

8 Fatima Dangor
Department of Psychiatry and Mental Health, Faculty of Health Sciences, University of Cape Town, South Africa
Psychiatric disorders and suicidal behaviour seen at a Transgender Clinic in South Africa

9 Michelle Veronica Daniels
Department of Psychiatry, University of KwaZulu Natal
A retrospective chart review on clozapine monitoring at a tertiary psychiatric hospital in Durban

10 Morne Du Plessis
Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa.
Evaluating the performance of polygenic risk score- and machine learning-based classification for the prediction of PTSD in a South African population

11 Evan Eiselen
University of Pretoria
Attitudes of final year medical students toward the legalisation of cannabis

FRIDAY 16 SEPTEMBER 2022

12:15 - 13:15 **Session 1 (B)**

1 Jean-Paul Fouche

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South AfricaSAMRC Genomics of Brain Disorders Unit, Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Abnormal cortical gyrification morphology in PTSD and association with symptom severity and metabolic parameters

2 Ezethu Gaxo

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Pandemic anxiety and stress: COVID-19 pandemic stress and anxiety among South African parents and their children

3 Sisikelelwe Gwanya-Mdletye

Department of Psychiatry, Walter Sisulu University

Psychotropic treatment and risk of Covid-19 adverse outcomes in patients with serious mental illness

4 Chanellé Hendrikse

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Fronto-limbic white matter microstructural changes in healthy adults with childhood trauma

5 Chanellé Hendrikse

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

White matter changes in 6-year-old children with prenatal alcohol exposure: Preliminary findings from a South African birth cohort

6 Georgina Spies

NRF/DSI South African Research Chair in PTSD (SARChI), Department of Psychiatry, Stellenbosch University, Cape Town, South AfricaSAMRC Genomics of Brain Disorders Unit, Department of Psychiatry, Stellenbosch University, Cape Town, South Africa

Screening for HIV-associated neurocognitive impairment: Development and validation of an abbreviated neuropsychological test battery

7 Lianna Kapp

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South AfricaSouth African Medical Research Council/Stellenbosch University Genomics of Brain Disorders Research Unit, Stellenbosch University

The association between pituitary adenylate-cyclase-activating polypeptide plasma levels and symptoms of post-traumatic stress disorder in a sample of rape-exposed women over 12 months

8 Anusha Lachman

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Child, adolescent, and caregiver mental health difficulties and associated risk factors early in the COVID-19 pandemic in South Africa

9 Catherine Lohrentz

South African Medical Research Council / Stellenbosch University Genomics of Brain Disorders Research Unit, Faculty of Medicine & Health Sciences, Stellenbosch University, Cape TownDivision of Molecular Biology and Human Genetics, Department of Biomedical Science, Faculty of Medicine and Health Science, Stellenbosch University

The role of oxytocin receptor gene variants in appetitive aggression: A study in a South African population

10 Hilmar Luckhoff

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Sexual dysfunction in first-episode schizophrenia spectrum disorders

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SATURDAY 17 SEPTEMBER 2022

12:15 - 13:15 **Session 2 (A)**

1 Kabelo Maloka

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South AfricaSouth African Medical Research Council/Stellenbosch University Genomics of Brain Disorders Research Unit, Stellenbosch University, South Africa

Genetic differences in the ADCYAP1, ADCYAP1R1 and BRSK2 genes in rape exposed women with and without PTSD

2 Lucy Mgopa

Muhimbili University of Health and Allied Sciences

Clinical care of victims of interpersonal violence and rape in Tanzania: A qualitative investigation

3 Khanya Mona

University of Kwa-Zulu Natal, School of clinical medicine, College of Health sciences

A retrospective chart review of cannabis use in people living with psychosis at a psychiatric hospital in KwaZulu-Natal Province, South Africa

4 Creeshen Muddapah

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Assessing the Revised Clinical Institute Withdrawal for Alcohol Scale (CIWA-Ar) use at Stikland Hospital

5 Dorothy Mushi

Department of Psychiatry and Mental Health, Muhimbili University of Health and Allied Science, Dar es Salaam TanzaniaDepartment of Psychiatry, School of Medicine, College of Health Sciences, Addis Ababa University, EthiopiaCentre for Innovative Drug Development and Therapeutics Trial for Africa (CDT-Africa) College of Health Science, Addis Ababa University, Addis Ababa Ethiopia

Missed opportunity for alcohol use disorder screening and management in primary health care facilities in northern rural Tanzania: A cross-sectional survey

6 Rivona Harricharan

University of KwaZulu-Natal

Outcomes of patients with diffuse traumatic brain Injuries at a quaternary hospital in Durban – A retrospective study

7 Mbalenhle Pearl Nompumelelo Mwelase

Discipline of Psychiatry, School of Clinical Medicine, College of Health Sciences, University of KwaZulu-Natal, South Africa

HIV prevalence and access to HIV testing and care among patients with recent onset psychosis

8 Jani Nöthling

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Gender and Health Research Unit, South African Medical Research Council, Cape Town

The relationship between FKBP5 intron 7 methylation and posttraumatic stress disorder in rape-exposed women

9 Jani Nöthling

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Gender and Health Research Unit, South African Medical Research Council, Cape Town

Risk and protective factors affecting the symptom trajectory of posttraumatic stress disorder post-rape

10 Amanda Sibanyoni

University of Pretoria

Are female bipolar patients of reproductive age aware of the teratogenic risk of sodium valproate? A qualitative study

11 Retha Smit

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Predictors of relapse other than treatment non-adherence in first-episode schizophrenia spectrum disorders: A 24-month follow-up study

SATURDAY 17 SEPTEMBER 2022

12:15 - 13:15 **Session 2 (B)**

1 Tarina Steenkamp (presented by Carla Kotze)

University of Pretoria

Clinical factors associated with longer admission in elderly patients with major neurocognitive disorder at Weskoppies psychiatric hospital between 2015 and 2019.

2 Sharain Suliman

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Using the Child Depression Screening Tool in Children at Risk of Depression: South African Findings

3 Patricia Cathryn Swart

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, *South AfricaGenomics of Brain Disorders Unit, South African Medical Research Council, Cape Town, South Africa*

Identifying genetic loci associated with a change in gene expression (eQTLs) in PTSD patients a South African cohort.

4 Kester Tindi

Department of Immunology and Molecular Biology, School of Biomedical Sciences, College of Health Sciences, Makerere University

Unravelling the genetic risk associated with major depressive disorder among an ethnically diverse African ancestry population

5 Estmia Van der Walt

Centre of Excellence for Pharmaceutical Sciences, North-West University, South Africa

Schizophrenia in black Africans: The influence of antipsychotics on psychiatric symptoms and tryptophan metabolism

6 Alberta SJ van der Watt

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Factors associated with distress following a romantic relationship breakup: The moderating role of attachment style among emerging adults

7 Christof Ziaja

Institute of Stress Diagnostic and Intervention Fatigue Science, Prof Stark, Beim Schlump 29, 20144 Hamburg

Autonomic Nervous System functioning in patients with Post Viral Syndrome: A case-series study of a healthy control subject: A long Covid patient and a ME-CFS patient

8 Christof Ziaja

Institute of Stress Diagnostic and Intervention Fatigue Science, Prof Stark, Beim Schlump 29, 20144 Hamburg

Childhood trauma as a risk factor for a dysfunctional heart rate variability in patients with CFS/ME

9 Pamela Zungu

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

A multiple case of perinatal women's experience of non-fatal suicidal behaviour in South Africa

10 Yanga Thungana

Walter Sisulu University

Evaluation of psychometric properties of the Montreal Cognitive Assessment Tool administered in a memory clinic at Groote Schuur Hospital, Cape Town, South Africa

BIOLOGICAL PSYCHIATRY CONGRESS

POSTER PRESENTATION ABSTRACTS

SESSION 1 (A)

PRESENTER'S DETAILS

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Author 3: Merga Belina Feyasa
Division of Epidemiology and Biostatics, Department of Global health, Faculty of Medicine and Health Sciences, Stellenbosch, University, Cape Town, South Africa

TITLE:

Xenophobic Experiences and Association with Mental Health in African Students at a South African University.

BACKGROUND:

Xenophobia is a global phenomenon and has been previously documented in African countries. Higher educational institutions (HEIs) are spaces for knowledge generation and liberal discourse where a high degree of objectivity is expected. Xenophobia directed at African international students (AISs) at HEIs in South Africa (SA) has been documented. However, there have been no studies specifically assessing the association between xenophobia and perceived mental health (MH) outcomes in this population.

Aims: To describe xenophobic experiences and their association with MH outcomes of AISs at a SA University.

METHODOLOGY:

This is a descriptive cross-sectional study involving postgraduate students studying at a SA University. Participants were invited through a university email distribution list to participate in an online survey between December 2020 and March 2021. Data were analysed using Stata (version16). Associations between xenophobia and MH outcomes (depression, anxiety, posttraumatic stress [PTS], and alcohol use), were assessed using Mann-Whitney U tests.

RESULTS:

A total of 208 students were invited to participate in the survey, of these, 161 (77.40%) responded. Nearly half of the respondents (72; 44.52%) reported xenophobic experiences in SA. There were statistically significant associations between reported xenophobic experiences and depression ($p = 0.021$), anxiety ($p = 0.009$), and PTS symptom scores ($p = 0.001$) but not with alcohol use ($p = 0.687$). Social support had a significant moderating effect on the association between self-reported xenophobia and PTS severity (p-value = 0.008).

CONCLUSION:

This study found that xenophobic experiences were common among AISs and that xenophobic experiences were also probably associated with the presence of MH issues. This emphasises the need for additional research to better understand

the MH health issues associated with xenophobia, discrimination, and other multicultural issues affecting AISs, refugees, and other immigrants in SA.

Findings from this study can inform interventions such as enhanced social support to address xenophobia among AISs at HEIs. Such programs can help AISs to cope with xenophobia, discrimination, and rapidly adapt to university life. These may encourage other students from their countries to study in SA. This could foster more international relations, attract more AISs, and contribute to HEIs academy and research entrepreneurship of SA.

PRESENTER'S DETAILS

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Author 4: Lee Hogarth
School of Psychology, University of Exeter, UK
Author 5: Soraya Seeda
Department of Psychiatry, Stellenbosch University, SA

TITLE:

Effect of brief coping skill training on alcohol use in high-risk student drinkers.

BACKGROUND:

Negative life events have been associated with an increase in alcohol use in adolescents. The hazardous levels of alcohol consumption in South Africa (SA), especially in the Western Cape have been documented.

Studies have demonstrated the high levels of alcohol dependence that can begin very early in life. Given that research has shown older adults in South Africa have demonstrated moderate to high rates of risky drinking (Peltzer et al, 2013), including high rates of binge drinking (Vellios & van Walbeek, 2018), it is therefore important that useful coping strategies are learnt from an early age to limit the effects of alcohol abuse later in life.

METHODOLOGY:

Participants were 51 hazardous student drinkers who drink to cope with negative affect. Participants in the active group (n=25) were trained online over two weeks to respond to personalised negative drinking triggers by retrieving a personalised adaptive strategy they might use to mitigate negative affect. Participants in the control group (n=26) received standard risk information about binge drinking at university. Measures of daily drinking quantity, drinking motives, self-efficacy and use of protective behavioural strategies were obtained at baseline and four-week follow-up.

RESULTS:

SPSS version 27 was used to run Two-Way mixed ANOVAs to determine the difference between baseline and follow-up drinking habits in the intervention and control groups, and a one-way ANOVA was further used for the main effect. There was a decrease in social and coping drinking motives and in depressive symptoms from baseline to four-week follow-up in the active intervention group, relative to the control group. Exploratory mediation analysis showed that the intervention effect on reduced coping drinking motives was achieved through reduced depressive symptoms.

CONCLUSION:

These findings show that this online negative affect focused intervention can improve drinking-related outcomes in hazardous, negative affect student drinkers in SA, potentially through increased resilience to negative affect. The findings support the utility of an interventions for substance use in low- and middle-income countries and over an extended follow-up period.

PRESENTER'S DETAILS

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Author 2: Michelle Baker
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TITLE:

Symptom assessment by questionnaire and narratives of insomnia disorder in a South African population.

BACKGROUND:

When assessing a new patient with insomnia symptoms can be obtained from questionnaires or a narrative interview. Both approaches have strengths and weaknesses but very few studies have compared the information gathered from both in the same patients and whether there are any gender differences. The aim was to investigate the expression of insomnia symptoms by sleep questionnaires and intake narratives in a group of South African adults with insomnia.

METHODOLOGY:

A mixed-methods retrospective design was applied. The records of patients who had attended the private practice of a Clinical Psychologist in Kwa Zulu-Natal, South Africa were used. Patients had previously completed questionnaires before an intake interview for treatment for insomnia. Instruments were two selected, validated questionnaires (the Sleep Symptoms Checklist (SSC), the Insomnia Severity Index (ISI)) and content analysis of documented patient intake narratives. Symptoms expressed by ≥50% of the participants on the questionnaires were included for analysis.

RESULTS:

A total of 12 males and 13 females responded. Subjects selected significantly more sleep symptoms on the questionnaires compared to the narrative. Core symptoms of insomnia including difficulty in falling asleep, often due to worry, daytime dysfunction and physical symptoms were common to both techniques. There were no significant gender differences either in demographics nor basic sleep measures nor on the number of symptoms expressed either on the questionnaires or narratives.

CONCLUSION:

While the use of questionnaires for insomnia may provide a more comprehensive picture it is likely that the narratives reveal the most concerning symptoms to the patient. With no gender differences a combination of both approaches would be recommended in all patients presenting with insomnia.

PRESENTER'S DETAILS

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TITLE:

Advanced brain ageing in adult psychopathology: a systematic review and meta-analysis of structural MRI studies.

BACKGROUND:

Evidence suggests that psychopathology is associated with an advanced brain ageing process, typically mapped using machine learning models that predict an individual's age based on neuroimaging data (Ballester et al., 2021; Han et al., 2020; Kaufmann et al., 2019). The brain predicted age difference (brain-PAD) captures the deviation of brain age from chronological age. The magnitude

of the brain-PAD in adult psychopathology is unclear due to substantial heterogeneity between studies.

METHODOLOGY:

The present meta-analysis aimed to quantify the structural MRI-based brain-PAD in adult psychotic and mood disorders, while addressing possible sources of heterogeneity related to diagnosis subtypes, segmentation method, age and sex. We systematically reviewed clinical factors influencing brain ageing in axis 1 psychiatric disorders. Thirty-three studies were included for review.

RESULTS:

A random-effects meta-analysis revealed a brain-PAD of +3.21 (standard error=0.49) years in psychotic disorders (n=16 studies), +2.04 (0.10) years in bipolar disorder (n=5), and +0.90 (0.20) years in major depression (n=7). An exploratory meta-analysis found a brain-PAD of +1.57 (0.67) in first episode psychosis (n=4), which was smaller than that observed in psychosis and schizophrenia (n=10, +3.87 (0.61)).

Further, patient mean age significantly explained heterogeneity in effect size estimates in psychotic disorders, but not mood disorders. The systematic review found that clinical factors, such as higher symptom severity, may be associated with a larger brain-PAD in psychopathology.

CONCLUSION:

In conclusion, larger structural MRI-based brain-PAD was confirmed in adult major psychiatric disorders. Preliminary evidence was obtained that brain ageing is greater in those with prolonged duration of psychotic disorders. Although most included studies are cross-sectional in nature, these results imply advanced brain ageing.

PRESENTER'S DETAILS

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Rhodes University

TITLE:

Psychometric properties of the Isi-Xhosa version of the Subjective Wellbeing Under Neuroleptic Treatment scale.

BACKGROUND:

Subjective well-being when on neuroleptic treatment (SWBN) has been established as a good predictor of adherence, early response and prognosis in patients with schizophrenia. The 20-item subjective well-being under neuroleptic treatment scale (SWN-K 20) is a self-rating scale that has been validated to measure SWBN. However the SWN-K20 has not been previously used in a Low and Middle income country (LMIC). This study explored the psychometric properties of this scale in a sample of Xhosa speaking African patients with schizophrenia.

METHODOLOGY:

As a part of a large genetic study, 244 study participants with a confirmed diagnosis of schizophrenia completed the translated SWN-K 20 scale. Internal consistency analysis as well as convergent analysis were performed, and exploratory analysis and conducted using Principal Component Analysis (PCA).

RESULTS:

The PCA extracted 4 components which cumulatively explained 52.21% of the total variance. The internal consistency of the SWN-K 20 was 0.86 and those of the sub scales ranged between 0.47 and 0.59. The total scores of the SWN-K 20 demonstrated moderate correlation r= 0.44 with GAF scores. The sub scale scores had lower correlations ranging between r=.41 and r=.30 with the GAF scores.

CONCLUSION:

The Isi-Xhosa version of the SWN-K 20 scale can be used for clinical and research purposes in LMICs. The sub-scales on their own however, were less reliable when translated into Isi-Xhosa and hence not meaningful measures of specific domains of wellbeing. These findings merit further evaluation to determine whether cultural and linguistic specific sub-scales might provide further insight and recommendations for use in the South African context.

PRESENTER'S DETAILS

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Author 4: Miranda Olff
Department of Psychiatry, Academic Medical Centre, University of Amsterdam

TITLE:

Feasibility, acceptability, and effectiveness of web-based and mobile PTSD Coach: A systematic review and meta-analysis.

BACKGROUND:

Timely and effective interventions have the potential to either alleviate or prevent the development of clinical symptomatology in trauma exposed individuals. However, many trauma-exposed individuals do not receive this due to limited access to appropriate resources, and/or stigma around accessing mental health services. Internet-based interventions are increasingly used as a treatment alternative in response hereto.

OBJECTIVE:

This review aims to (1) provide an overview of the available research on 'PTSD Coach', inclusive of the feasibility, acceptability, and effectiveness for trauma exposed individuals (2) assess the quality of this research, and (3) identify challenges and recommendations related to PTSD Coach intervention delivery.

METHODOLOGY:

Searches will be conducted in PubMed/MEDLINE, PsycINFO, EMBASE, PLoS, Web of Science, PTSDpubs, Scopus, and clinical trial databases (ClinicalTrials.gov; International Clinical Trials Registry Platform; Pan-African Clinical Trials Registry; International Standard Randomised Controlled Trial Number).

Review inclusion will be based on predefined inclusion criteria, and study quality assessed with three tools (the risk-of-bias tool for randomized trials, the risk of bias in non-randomized studies of interventions, and the mixed methods appraisal tool) depending on study type. Where feasible meta-analytical pooling of results will be conducted.

RESULTS:

Data collection in progress.

CONCLUSION:

The results of this review are expected to further support the feasibility, acceptability, and effectiveness of PTSD Coach as an intervention for trauma exposed individuals at risk for developing posttraumatic stress symptomatology. The results of this systematic review will contribute towards recommendations for future research.

PRESENTER'S DETAILS

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Author 2: Professor Daniel J H Niehaus
University of Stellenbosch
Author 3: Professor Jukka M Leppänen
University of Tampere, Finland

TITLE:

The role of social-cognitive processes in mother-infant bonding.

BACKGROUND:

Humans have an inherent need to foster a close emotional bond with other humans. In infants, this bond is usually with the primary caregiver and provides a sense of safety and reassurance for the baby.

It is known that the quality of this mother-infant bond influences the child's future relationships and mental health.

The mother requires the ability to identify her baby's facial expressions so that she can respond appropriately to the infant's needs.

Facial affect recognition (FAR) may be influenced by various factors such as socio-economic status and psychiatric illness. The association between impaired FAR and the quality of mother-infant bonding in mothers with 6-week-old infants warrants clarification.

METHODOLOGY:

This investigation, embedded in a larger prospective observational study, used cross-sectional data from visit 1 (6 weeks postpartum) to respond to this literature gap by investigating the associations between maternal FAR, maternal mental illness, and other maternal factors, as well as whether impaired FAR associates with poorer quality bonding of a mother with her infant.

This study was conducted at 2 maternal health clinics in the Western Cape, South Africa, and included heterogenous mother-infant dyad participants.

Various measurement tools were used, including a psychiatrist-administered Mini-International Neuropsychiatric Interview (MINI), Edinburgh Postnatal Depression Scale (EPDS), Postpartum Bonding Questionnaire (PBQ), Mother-to-Infant Bonding Scale (MIBS), Maternal Postpartum Attachment Scale (MPAS), Recent Life Events

Questionnaire (RLEQ), maternal FAR ability and physiological measurements of pupil dilatation in response to pictures depicting a range of positive and negative infant facial expressions.

Descriptive statistical analysis, likelihood ratio tests (LRT), and a 3-step latent class analysis (LCA) model was performed.

A post-doc analysis examining the effect of maternal pupillometric responses to distressed infant faces was performed to find an objective measure of the autonomic nervous system (ANS) response when identifying facial emotional expressions when compared to the mother's subjective response.

RESULTS:

Findings suggest an association between impaired FAR in low socio-economic status participants with increased adverse life events and depression scores. Maternal FAR deficits influenced mother-infant bonding quality.

CONCLUSION:

Study findings offer ways to identify and intervene in high-risk mother-infant dyads to improve mother-infant bonding quality and outcomes.

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TITLE:

Psychiatric Disorders and Suicidal Behaviour Seen at a Transgender Clinic in South Africa.

BACKGROUND:

International research indicates that due to the impact of stigma, marginalisation and discrimination, transgender individuals are a vulnerable population at risk of psychiatric disorders and suicidal behaviour.

Despite this, there is a lack of research on the prevalence of mental health conditions and suicidal behaviour amongst transgender individuals in South Africa.

OBJECTIVE:

This study aimed to assess the prevalence of psychiatric disorders and suicidal behaviour in transgender individuals seen at the Transgender Clinic at Groote Schuur Hospital.

METHODOLOGY:

The study was a retrospective folder review of individuals attending the clinic from November 2018 until December 2019. This study was conducted at the multidisciplinary Transgender Clinic at Groote Schuur Hospital, South Africa.

RESULTS:

Forty-four (44) individuals attended the clinic during the study, all of which were included in the analysis. Depression was the most commonly self-reported symptom (n=13, 29.5%). Other common symptoms included those of panic and generalised anxiety (n=10, 22.7%).

After assessment at the TGC, thirty-one (70.5%) individuals met the criteria for a psychiatric disorder. Mood disorders were the most common DSM–5 diagnoses (n=28, 63.6%).

Thirteen (41.9%) individuals with a current psychiatric disorder were on treatment. Almost three-quarters of the individuals (n=32, 72.7%) reported alcohol consumption, of which only 2 individuals (4.5%) reported regular daily consumption.

Twenty-one individuals were tobacco smokers (47.7%), and approximately one-third used cannabis (n=16, 36.4%). Eighteen (40.9%) individuals reported suicidal behaviour, and fourteen (31.8%) non-suicidal self-injury.

CONCLUSION:

Transgender individuals attending the GSH Transgender Clinic had a high prevalence of psychiatric disorders and suicidal behaviour.

Our improved understanding of the mental health needs of individuals attending the Transgender Clinic will better inform future gender affirming care.

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TITLE:

A retrospective chart review on clozapine monitoring at a tertiary psychiatric hospital in Durban.

BACKGROUND:

Clozapine is a second-generation anti-psychotic, and the only FDA- and NICE-approved drug for treatment-resistant schizophrenia. Its potentially life-threatening haematological side-effects of neutropaenia and agranulocytosis mandate rigorous monitoring of neutrophil counts according to international norms and practices. Despite its benefits, its use presents a set of local challenges, unique to a third-world population.

OBJECTIVE:

The aim was to describe a local Clozapine white cell monitoring practice and ascertain the frequency of Clozapine-induced neutropaenia and/or agranulocytosis to establish the relevance of the international monitoring guidelines in the local context, whilst considering benign ethnic neutropaenia.

METHODOLOGY:

This was a descriptive, retrospective chart review, conducted at a specialist Psychiatry unit in Durban, KwaZulu Natal, in which 120 medical records of all patients who had received Clozapine treatment from 1 July 2018 to 31 December 2020 were accessed and reviewed. Their demographic and clinical information was captured in an online Redcap database.

RESULTS:

The demographics indicated that the study population were from a low socioeconomic background, with low levels of education and employment. Contrary to NICE guideline recommendations, only 48.3% of files had recorded a baseline neutrophil count. Despite 87.5% of the sample being non-Caucasian, there were only three patients (2.5%) who developed neutropaenia based on NICE guidelines, and 0% developed agranulocytosis.

CONCLUSION:

The haematological monitoring of patients receiving Clozapine was sub-optimal at this hospital. Clinicians were non-compliant with NICE guidelines and there is a need to review and standardise local guidelines to prevent premature discontinuation of Clozapine, especially in non-Caucasian patients.

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TITLE:

Evaluating the performance of polygenic risk score- and machine learning-based classification for the prediction of PTSD in a South African population.

BACKGROUND:

Posttraumatic stress disorder (PTSD) is a complex psychiatric disorder characterised by symptoms of intrusive thoughts, avoidance behaviours, hyper-arousal and negative alterations in cognition and mood. PTSD is unique among psychiatric disorders in that its identification is conditional upon exposure to a traumatic incident. While 50-85% of individuals will encounter a traumatic event in their lifetime, the prevailing prevalence of PTSD lies approximately between 1.3 and 12.2%. This discrepancy serves to highlight the existence of factors granting individuals contingent resilience or vulnerability to developing PTSD. While the biological underpinnings elemental to PTSD remain largely unknown, prior heritability estimates have suggested that the disorder presents a genetic component that interacts with non-genetic factors to confer risk of or resilience to PTSD.

METHODOLOGY:

This study aims to elucidate the molecular mechanisms underlying PTSD by comparing the predictive performance of a series of PTSD-risk proxies in a uniquely admixed South African population. Polygenic risk score- and machine learning-based predictive approaches will be used to construct, optimize and subsequently validate models tailored to assess genetic risk. In addition, we will explore the utility of genetically supported predictor variables by utilising transcriptome analysis to test the generated risk proxies against potential molecular contributors.

RESULTS:

Data will be presented on preliminary polygenic risk score models attempting to identify the optimal method to predict PTSD status in our sample population.

CONCLUSION:

These findings will add to the growing knowledge base on polygenic risk score- and machine learning-based methods in psychiatric studies, supplement our current research on the genetic mechanisms underlying PTSD, as well as help improve existing analytical capabilities associated with interrogating complex datasets in resource-limited environments.

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TITLE:

Attitudes of Final Year Medical Students toward the Legalisation of Cannabis.

BACKGROUND:

Recreational and Medicinal use of Cannabis is very topical in the light of more permissive legislation regarding the substance worldwide. The primary purpose of this study is to determine the attitudes that final year medical students at the University of Pretoria hold with regard to recreational and medicinal use of Cannabis.

An important secondary objective is to assess the students' perception about the adequacy of their medical school training in this regard.

METHODOLOGY:

The study followed a cross-sectional, comparative, quantitative study design.

Data was collected by means of a structured questionnaire filled out by participants. The research was conducted at Weskoppies Psychiatric Hospital, a specialist psychiatric hospital located in Pretoria West and affiliated with the University of Pretoria.

Final year medical students rotating at Weskoppies Hospital were identified as participants via a convenience sampling technique. Participation was voluntary, anonymous, and dependent on the ability to provide informed consent.

RESULTS:

A total of 57 valid responses were included in the study. The study shows that the majority of medical students had relatively permissive views about cannabis. It also shows that most medical students feel that they aren't being adequately trained to advise patients on the topic of medical cannabis in a lecture setting (64.9%, n=37) or clinical setting (68.4%, n=38). Results also illustrated that students who had previous personal experience with cannabis, are more likely to have more permissive views about cannabis.

CONCLUSION:

This study illustrates the already established need for more academic research with regards to medicinal cannabis, but more interestingly shows that medical students want more training and guidance from their training institution with regards to the topic.

SESSION 1 (B)

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TITLE:

Abnormal cortical gyrification morphology in PTSD and association with symptom severity and metabolic parameters.

BACKGROUND:

Cortical gyrification is an indication of the folding of gyri and sulci. Cortical gyrification is associated with the functional efficiency of neuronal wiring and is a potential neural marker for neuropsychiatric disorders.

To date there is a paucity of literature on gyrification in PTSD and comorbid MetS with previous work that demonstrated higher gyrification in regions of the parietal and occipital lobes in PTSD patients compared to trauma-exposed controls (TEC).

The aim of this study was to investigate cortical gyrification in PTSD patients and further assess for any associations with PTSD symptom severity and metabolic parameters indicative of cardiovascular disease risk.

METHODOLOGY:

317 adult participants (n=160 with PTSD; n=147 TEC) from the "Shared Roots" study, conducted in Cape Town, South Africa, were included in the analysis. MRI data acquired on a Siemens 3T scanner underwent processing in Freesurfer to calculate the local gyrification index (LGI), a quantification of gyrification in the brain.

Data were analysed with Freesurfer's QDEC application using general linear models to investigate group differences between PTSD and TEC, and associations with PTSD symptom severity and MetS status.

RESULTS:

There was a significant ($p < 0.05$) between-group difference in LGI in PTSD patients and TEC. Higher LGI was found in temporal and middle frontal regions for the PTSD group compared to TEC.

In addition, there was a significant positive association of LGI and PTSD severity in the left frontal region and positive associations of MetS status in clusters of the parietal, temporal and frontal regions.

When controlling for MetS status as a covariate in the model, only the clusters in the left frontal region were signficant at $p < 0.05$.

CONCLUSION:

The results in this study are an indication that abnormal gyrification, ie. higher LGI in the frontal cortices, could be a neural marker for PTSD.

In addition, abnormal gyrification of the prefrontal cortex seem to be associated with PTSD symptomatology, whereas gyrification in other more widespread regions of the brain seem to be associated with metabolic syndrome. Cortical gyrification could be a biological risk factor for PTSD, however longitudinal studies are needed to confirm this.

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TITLE:

Pandemic anxiety and stress: COVID-19 pandemic stress and anxiety among South African parents and their children.

BACKGROUND:

We determined levels of stress and anxiety among parents and their children during the COVID-19 pandemic. Sources of stress for parents/carers as well as worries children and adolescents encountered and how they spent their time during COVID-19 lockdown were elicited through a survey that was completed by parents/carers, who self-reported as well as reported on behalf of their children.

METHODOLOGY:

Two hundred and fifty-seven parents/carers of children in school, Grades R to 12 (aged 4 – 20 years), in South Africa filled out an online survey about the mental health and wellbeing of a child in their care.

The survey included a 7-item Pandemic Anxiety Scale (PAS) plus questions about the children's worries and how these children spent their time. The PAS consists of two subscales, disease anxiety and consequence anxiety.

RESULTS:

Covid-19 lockdown had a negative impact on both parents and children. The top three sources of stress among parents/carers were i) their work (56.8%), ii) their child's future (53.8%), and iii) their child's education (51.6%). Anxiety levels of children and adolescents were (11.60 ± 6.14) and (14.62 ± 5.56), respectively, and factors significantly associated with high anxiety levels included a child's age, household income, and family composition.

CONCLUSION:

The findings indicate that the lockdown negatively impacted on levels of stress and anxiety and was associated with high levels of these for both parents and their children. Identifying vulnerable groups affected by the pandemic and understanding the factors that contribute to their mental health is crucial in delivering effective strategies to manage mental health difficulties that are a direct result of COVID-19.

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TITLE:

Psychotropic treatment and risk of Covid-19 adverse outcomes in patients with serious mental illness.

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BACKGROUND:

Some psychiatric medications are known to have cardio-metabolic and immune system related side-effects. Psychiatric patients are also known to carry increased risk of adverse Covid-19 outcomes, and it is common to find patients with serious mental illness being treated with a combination of psychotropic medications. The interaction of Covid-19 with these aspects of psychiatric medications has not been sufficiently studied in this population.

The aim of this study was to explore association between outcomes of Covid-19 disease and psychiatric treatment.

METHODOLOGY:

To identify relevant published literature for review, a systematic search was conducted between 27 April 2022 and 22 May 2022 in the PubMed, Cochrane Library and Google Scholar databases. Relevant literature focused on the topic were selected for review. The reference list of each selected paper was checked to identify any missing studies. Narrative review of the literature was written up by the presenter under supervision by the second author.

RESULTS:

38 studies were identified and 29 were included for final review. The excluded studies were not relevant to the study question and one was not available in English. The studies found were conducted primarily in Europe, America, and Asia, and there were no relevant African studies found on the search. Serious mental illness was not associated to risk of Covid-19 infection but when infected with SARS Co-V-2, patients with serious mental illness have poorer outcomes and higher mortality rates. Psychiatric medications which have been studied have not been convincingly identified as causal, nor have they been conclusively linked to the poorer outcomes. While some of the medications have been found to have antiviral properties, they have not demonstrated a reproducible protective effect in the face of Covid-19 infection.

CONCLUSION:

Further studies are necessary to reproduce the findings in Africa, and to explore the interaction of psychotropic drugs with Covid-19 infection. Moreover, studies are required to establish the non-treatment-related factors which render this patient group prone to adverse Covid-19 outcomes, and thus a high-risk population.

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TITLE:

Fronto-limbic white matter microstructural changes in healthy adults with childhood trauma.

BACKGROUND:

Childhood trauma may influence the developing brain in ways that increase the risk of developing several psychiatric disorders later in life. Excessive secretion of stress hormones during early-life may alter white matter development by inhibiting the proliferation of glial cells required for myelination.

However, few studies have examined the association between childhood trauma and

white matter microstructure in healthy adults living in a developing country. We investigated the association between childhood trauma and white matter fractional anisotropy (FA) of limbic tracts involved in emotional regulation, memory, and executive function.

METHODOLOGY:

A total of 143 healthy controls participating in a cross-sectional study ("Shared Roots") conducted in Cape Town, South Africa, underwent diffusion tensor imaging (DTI) on a 3T Siemens Skyra MRI scanner, and completed the Childhood Trauma Questionnaire (CTQ). We excluded participants with significant medical or psychiatric diagnoses, psychiatric medication use, or poor-quality imaging data. DTI scans were processed using Tortoise software and FA values were extracted using the FSL Tract-based Spatial Statistics pipeline.

This was followed by a hypothesis-driven investigation of the associations between childhood trauma (measured as a continuous variable) and five bilateral limbic white matter tracts (fornix, stria terminalis, uncinate fasciculus, anterior limb of the internal capsule (ALIC), cingulum) entered simultaneously as dependent variables in a multivariate analysis of covariance.

RESULTS:

The final sample comprised 69 healthy adults (age 47 ± 17 years; 70% women; mean CTQ-total score 44 ± 15 out of 125). Childhood trauma had a statistically significant effect on FA for the regions of interest, adjusting for age, sex, and educational level. Higher CTQ-total scores were associated with lower FA for the stria terminalis and ALIC. The effect of childhood trauma on the ALIC remained significant after correction for multiple comparisons.

CONCLUSION:

Childhood trauma is associated with white matter microstructural changes in healthy adults. The ALIC predominantly carries fibres connecting the thalamus with prefrontal cortical regions. Damage to the microstructural integrity of the ALIC may be associated with functional brain changes which, in turn, may increase the risk of a range of psychiatric disorders, including depression and substance abuse.

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TITLE:

White matter changes in 6-year-old children with prenatal alcohol exposure: Preliminary findings from a South African birth cohort.

BACKGROUND:

Prenatal alcohol exposure (PAE) remains one of the most common preventable risks to brain health and development. Nevertheless, evidence remains limited on the impact of PAE on white matter integrity in early life. Previous studies have shown widespread changes in white matter microstructure in infants and 2-3-year-old children following PAE. This study addresses the question of whether these changes persist to age 6 years in a South African birth cohort.

METHODOLOGY:

Diffusion weighted images (DWI) were acquired during a quiet, awake scan on a 3T Siemens MRI scanner on a subset of 6-year-old children from

the Drakenstein Child Health study, previously scanned as neonates and at 2-3 years of age. After exclusions, the final sample consisted of 130 children (75 ± 5 months); PAE (n=43, 49% boys) and unexposed controls (n=87, 54% boys).

Diffusion data was processed using Tortoise software and standard diffusion tensor parameters were extracted using Tract-based Spatial Statistics. This was followed by exploratory between-group comparisons of brain stem, limbic, association, and commissural tracts that may associate with PAE. Statistical analysis was performed using SPSS and a p-value smaller than 0.05 was considered statistically significant.

RESULTS:

PAE was significantly associated with increased FA in the right inferior cerebellar peduncle and left superior cerebellar peduncle, and decreased FA in the right cingulum projecting to the hippocampus, controlling for sex and age at scanning.

These associations remained significant when further adjusting for prenatal tobacco exposure, and additional associations were evident between PAE and increased FA of the left uncinate fasciculus and left anterior corona radiata, and decreased FA in the left cingulum.

CONCLUSION:

PAE is associated with white matter microstructural changes in 6-year-old children. Our findings are consistent with prior studies showing altered FA of brain stem and limbic tracts in young children following PAE.

PAE-related limbic white matter changes across these critical years of development may be a particularly relevant marker of impairment in functional areas of emotion regulation and memory domains, known to be impaired in children with foetal alcohol spectrum disorders.

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TITLE:

The association between pituitary adenylate-cyclase-activating polypeptide plasma levels and symptoms of post-traumatic stress disorder in a sample of rape-exposed women over 12 months.

BACKGROUND:

Rape is associated with a high risk of post-traumatic stress disorder (PTSD) compared to other trauma types. One biological mechanism mediating the interaction between rape exposure and PTSD risk is dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis. The adenylate cyclase-activating polypeptide 1 gene (ADCYAP1), along with its protein product PACAP, is a master regulator of the HPA-axis and stress response.

In an epigenome-wide analysis study (EWAS) we found that ADCYAP1 was differentially methylated in relation to PTSD status in the Rape Impact Cohort Evaluation (RICE) study. As a second step, we investigated changes in PACAP plasma levels in relation to PTSD symptom trajectories and status over 12 months. Increased PACAP levels have been associated with increased PTSD symptom severity in women.

METHODOLOGY:

In vitro quantitative PACAP plasma levels were investigated in a subset of 30 rape-exposed isiZulu speaking women residing in and around the eThekwini region of South Africa, using an enzyme-linked immunosorbent assay (ELISA). PTSD symptoms were measured using the Harvard Trauma Scale.

PTSD symptom scores and PACAP levels were assessed at baseline (within 20 days post-rape), 3-, 6-, and 12-months post-rape. The data will be analysed using mixed regression models to investigate the covariance between PTSD symptoms and PACAP plasma levels over 12 months.

RESULTS:

We will present findings related to PACAP plasma levels and PTSD symptom changes over time at the conference. We hypothesise that higher levels of PACAP plasma levels will be associated with higher PTSD symptom scores over time.

CONCLUSION:

This study may contribute to understanding the role of PACAP and the HPA-axis in PTSD development and recovery. These findings may also provide support for PACAP as a potential therapeutic target and biomarker of PTSD pathogenesis.

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TITLE:

Child, adolescent, and caregiver mental health difficulties and associated risk factors early in the COVID-19 pandemic in South Africa.

BACKGROUND:

At the onset of the COVID-19 pandemic in early 2020 in South Africa, many safety measures were implemented to protect the lives of the population. Ironically, these same safety measures have negatively impacted on the lives of children and their caregivers resulting in increased mental health problems.

This study forms part of the multicountry Co-SPACE (COVID-19: Supporting Parents, Adolescents and Children during Epidemics) study that explores how families are coping during the COVID-19 pandemic, and what caregivers can do to help support their children's mental health.

This paper aims to gain a better understanding of the mental health status of families specifically in South Africa in the early onset of the pandemic during restrictive lockdown measures, and identify certain risk factors that might contribute towards deteriorating mental health.

METHODOLOGY:

Two hundred and fifty-four South African parents and carers of children and adolescents completed an online survey about their child's mental health as well as their own mental health during and post-hard lockdown in South Africa. Data collection took place over the period of the first and second waves of the COVID-19 pandemic in South Africa.

RESULTS:

Results showed that children experienced significantly higher mental health problems than adolescents ($p = .016$).

Younger children were particularly negatively affected by lockdown and had more mental health problems than adolescents ($p = .023$); including emotional problems ($p = .017$), misconduct ($p = .030$), and hyperactivity ($p = .001$). Additionally, the presence of special educational needs/ neurodevelopmental disorders (SEN/ND) was associated with more mental health problems ($p = .001$).

Surprisingly, single parent households, which is another well-known risk factor showed no differences in mental health problems compared to nuclear families.

There was also a reciprocal relationship between parental/carer mental health and child/adolescent mental health, with higher level of endorsement of mental health problems in children by parents/ caregivers associated with higher levels of depression, anxiety and stress in parents/careers (all p's $< .001$).

CONCLUSION:

These results highlight the dramatic impact that COVID-19 had on children, adolescents and parents in South Africa early in the pandemic, and emphasises the need for specific support structures to be implemented within the SEN/ND community, as well as for younger children and single parent households.

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TITLE:

The role of oxytocin receptor gene variants in appetitive aggression: A study in a South African population.

BACKGROUND:

Exposure to childhood trauma, continuous stress and violence can negatively impact psychological development and promote the development of aggressive behaviour.

Appetitive aggression, a sub-category of instrumental aggression, is characterised by the enjoyment of participating in violent behaviour towards others. Oxytocin has been suggested to play a role in the aetiology of aggressive behaviour.

Research has shown that variants in the oxytocin receptor (OXTR) gene are associated with poor social behaviour, specifically in terms of actively aggressive behaviour.

Whilst studies have investigated the role of OXTR variation in aggressive behaviour, no studies have investigated the interactions between OXTR genotypes and childhood trauma, and their role in appetitive aggression.

OBJECTIVE:

The aim of the current study was to explore interactions between genotypic variants in OXTR SNPs rs2254298 and rs53576 and childhood trauma exposure on appetitive aggression in a high-risk cohort of adult Xhosa males.

METHODOLOGY:

This research is an extension of a recent study conducted by Hinsberger et al. where the same study sample was used to investigate attraction to violence in the context of continuous trauma exposure. This investigation found that appetitive aggression scores were predicted by experienced and witnessed traumatic events.

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The sample group comprised of 250 adult male Xhosa participants, recruited from the townships of Khayelitsha and Gugulethu in Cape Town, South Africa. OXTR SNP variants were determined using a PCR and restriction enzyme digest genotyping approach and were investigated for their association with levels of appetitive aggression (as measured by the Appetitive Aggression Scale (AAS)) using a Poisson regression analysis.

RESULTS:

OXTR rs2254298 G/G and A/G genotypes were found to be significantly associated with lower AAS scores ($p < 0.001$) compared to participants with the A/A genotype. There were no significant associations between OXTR rs53576 genotypes and AAS scores.

CONCLUSION:

This study needs to be viewed in light of several limitations, however it is one of the first studies to suggest that OXTR OXTR rs2254298 genotype may be associated with appetitive aggression, providing insight into the genetic aetiology of appetitive aggression.

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TITLE:

Sexual dysfunction in first-episode schizophrenia spectrum disorders.

BACKGROUND:

Sexual dysfunction (SD) is common in patients with first-episode schizophrenia spectrum disorders (FES). We examined the prevalence and correlates of SD in a sample of patients with FES (n = 77).

METHODOLOGY:

Sexual functioning was examined using the Arizona Sexual Experiences Scale. Clinical measures of interest included duration of untreated psychosis, psychopathology, depressive symptoms, level of functioning, and quality of life. Biochemical testing was also performed to measure prolactin, lipid profiles, and fasting glucose levels.

RESULTS:

In total, 27 (35%) patients met the criteria for SD, which was significantly more prevalent in females than males ($p = 0.027$). Higher depression scores, poorer social and occupational functioning, and lower high-density lipoprotein cholesterol levels predicted overall SD. Female sex, more pronounced global psychopathology, and poorer quality of life were also predictors of domain-specific impairments in sexual functioning, adjusting for the extent of antipsychotic exposure.

CONCLUSION:

SD has a high prevalence in patients with FES, particularly females. There is a need for a more nuanced understanding of SD in new-onset schizophrenia, and to establish its relevance in terms of comorbid depressive symptoms and poor quality of life. SD may require specific attention and tailored treatment in females with FES.

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TITLE:

Screening for HIV-associated neurocognitive impairment: Development and validation of an abbreviated neuropsychological test battery.

BACKGROUND:

The HIV Neurobehavioral Research Center International Neurobehavioral Battery is a culturally valid battery sensitive to the neurocognitive (NC) effects of HIV-infection.

The battery assesses multiple cognitive domains and has proved to be culturally sensitive in South African settings. However, its lengthy administration time makes the battery impractical in resource-limited settings, like South Africa, which are often faced with an overwhelming disease burden, a lack of neurological and neuropsychological expertise, and staff shortages.

The present study therefore sought to develop an abbreviated version of the HNRC Battery and validate this battery in a sample of people with HIV (PWH) in South Africa.

METHODOLOGY:

Six measures, each assessing ability domains most likely affected by HIV infection, were selected for the abbreviated battery. Test selection was based on the NC test performances of 103 PWH and 135 HIV-negative South African adults.

For the validation, a sub-group of 103 PWH completed the full version of the battery, while the other sub-group of 52 PWH completed the abbreviated version. Deficit scores of each participant was calculated. These scores were used as the gold standard against which the abbreviated battery was compared.

RESULTS:

The final shortened screening battery takes an average of 28 minutes to administer - a reduction of 81% in administration time when compared to the full version of the battery.

The abbreviated battery demonstrated good sensitivity (75.0%) and excellent specificity (94.9%) when compared with the full version. The abbreviated battery showed good diagnostic accuracy in identifying NC impairment in an HIV-positive South African sample with a significant reduction in administration time, making it a more practical option in busy South African clinic settings.

CONCLUSION:

The results of this study may facilitate the growth of neuroAIDS research and aid initial identification of HIV-related NC impairment in resource-constrained settings.

SESSION 2 (A)

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TITLE:

Outcomes of Patients with Diffuse Traumatic Brain Injuries at a Quaternary Hospital in Durban – A Retrospective Study.

BACKGROUND:

Traumatic Brain Injury (TBI) is a leading cause of death and disability. TBIs are classified into focal and diffuse injuries. Diffuse TBIs encompass diffuse axonal injury and damage. Diffuse TBIs are underreported in Low- and Middle-Income Countries including South Africa. The aim of this study was to describe the profile and outcomes of patients with diffuse TBIs managed at a quaternary level hospital.

METHODOLOGY:

Study setting: Neurosurgery Department, Inkosi Albert Luthuli Central Hospital.

Study population: All patients with diffuse TBI managed in the Unit.

Study design: Retrospective analysis of patients with TBI from October 2015 to January 2020. Data analyzed included demographics, aetiology, grade of injury, management, and outcome. surgical outcome and mortality.

RESULTS:

Of 217 patients identified, 190 (88%) were male (M:F ratio 7:1). Mean age was 25.6 years. The common mechanisms of injury were assault (30%), PVA (26.3%), MVA (19.4%), and falls (12.4%). Patients with grade III (23%) and IV (24%) TBIs had raised intracranial pressure.

The GCS at the base hospital was significantly higher than the GCS at IALCH ($p<0.0001$). The GCS at discharge had significantly improved compared to the GCS on admission ($p<0.0001$). All patients underwent surgical intervention with a mortality rate of 15.7%. Postoperative sequelae included 1/217(0.46%).

CONCLUSION:

Diffuse TBIs were male predominated. GCS was higher in base than quaternary hospitals. Marshall Grade II had the highest mortality rate. GCS improved during admission in the majority. Mortality rate was 15.7%.

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TITLE:

Genetic differences in the ADCYAP1, ADCYAP1R1 and BRSK2 genes in rape exposed women with and without PTSD.

BACKGROUND:

Rape and sexual assault are associated with a high risk for the development of post-traumatic stress disorder (PTSD) compared to other trauma types.

Genetic differences in genes encoding components of the hypothalamic-pituitary-adrenal (HPA) axis, such as the adenylate cyclase activating polypeptide 1 (ADCYAP1) gene and its receptor 1 (ADCYAP1R1) potentially contribute to the risk of developing PTSD.

Few studies have investigated the longitudinal course of PTSD following rape exposure and none, to our knowledge, have investigated genetic differences as predictors of PTSD symptom trajectory and risk post-rape. An epigenome-wide association study (EWAS) from the parent project found that ADCYAP1 (chr18:905177-905180) was differentially methylated in relation to PTSD in rape-exposed women (n=48) at 3-months post rape. As a second step, we will investigate ADCYAP1 and ADCYAP1R1 polymorphisms in relation to PTSD status and symptom scores over time.

METHODOLOGY:

Single nucleotide polymorphisms (SNPs) in ADCYAP1 (rs1893154, chr18:905124 and rs2856966, chr18:2856966) and ADCYAP1R1 (rs2267735, chr7:31095890) will be investigated using Kompetitive allele specific PCR (KASP) genotyping in women with (n=206) and without (n=248) PTSD (measured using the Harvard Trauma Scale) at 3-months post-rape.

The SNPs will also be investigated in relation to PTSD symptoms at baseline (within 20 days of the rape), 3-, 6-, 9-, 12-, 18- and 24-months post-rape. The data will be analyzed using mixed linear regression models.

RESULTS:

We will present findings related to the interaction between SNPs and PTSD status/symptom trajectory at a conference. We hypothesize that genetic differences in the ADCYAP1 and ADCYAP1R1 genes are potential mediators between rape-exposure and PTSD symptom trajectory over 24 months.

CONCLUSION:

The findings may provide support for ADCYAP1 and ADCYAP1R1 as potential therapeutic targets and biomarkers of PTSD pathogenesis and course.

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TITLE:

Clinical care of victims of interpersonal violence and rape in Tanzania: A qualitative investigation.

BACKGROUND:

Africa has high rates of interpersonal violence and rape, although little is known about how these cases are handled in the clinical setting.

METHODOLOGY:

We enrolled 121 health care professionals and students in Tanzania from the fields of midwifery, nursing and medicine, and conducted 18 focus group discussions stratified by both professional and clinical experience.

Two clinical scenarios were presented across all groups and participants were asked to give their opinions on how the hospital they worked in would manage the cases.

Case 1 focused on how to address a case of an injured woman beaten by her husband (and whether the perpetrator would be reported to the police). Case 2 focused on how to handle a rape victim who is brought to the hospital by the police.

RESULTS:

Participants considered both cases as emergencies. There was a similarity in the clinical care procedures across both scenarios. This included building rapport with the patient, prioritization of the medical care, history taking, and referring to other specialties for follow-up.

Participants differed in how they would handle the legal aspects of both cases, including whether and how to best follow mandated reporting policies. Providers wondered if they should report the husband in case study 1, the criteria for reporting, and where to report. Providers displayed a lack of knowledge about resources needed for sexual violence victim and the availability of resources.

CONCLUSION:

These findings indicate that cases of intimate partner violence and rape are likely to be under-reported within hospitals and clinics in Tanzania. Health care providers lack training in their required obligations and procedures that need to be followed to ensure victim's safety. The findings confirm that there is a need for health care students in Tanzania (and possibly Africa) to receive comprehensive training in how to handle such cases.

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TITLE:

A retrospective chart review of cannabis use in people living with psychosis at a psychiatric hospital in KwaZulu-Natal Province, South Africa.

BACKGROUND:

Patients diagnosed with schizophrenia spectrum and other psychotic disorders have a high prevalence of cannabis use. Co-morbid cannabis use in this population of patients is associated with poorer long-term outcomes.

OBJECTIVE:

The aim of the study is to determine the prevalence of cannabis use in patients with schizophrenia spectrum and other psychotic disorders who were attending a psychiatric hospital in KwaZulu-Natal Province, South Africa.

METHODOLOGY:

A retrospective chart review of clinical files of patients admitted to the hospital from the 01 June 2018 till 31 June 2020 was conducted. Inclusion criteria, inpatients, aged 13 years or older, and admitted to King DinuZulu hospital between 01 June 2018 till 31 June 2020.

A structured clinical data questionnaire was used to extract clinical data from the files. Clinical data collated included socio-demographic information, family history of mental illness and substance use, age of index presentation to psychiatry, DSM 5 diagnosis, chronic medical illnesses including HIV, current and lifetime cannabis use history, and other substance use history as reported by the patient or as obtained from family members, number of hospitalizations.

RESULTS:

370 clinical files were reviewed of which 48,9% reported current and 57,9% lifetime cannabis use. Male gender was significantly associated with current and lifetime cannabis use (OR = 4.90, 95% CI 2.49-9.62 and OR = 6.27, 95% CI 3.28- 11.95 respectively). Current alcohol use was associated with current cannabis use (OR = 0.30, 95% CI 1.78-5.28). Age 45 years and older was associated with lower odds of cannabis use (OR = 0.30, 95% CI 0.09-0.96). 48% of the participants had three or more admissions and re-admissions were associated with cannabis use (p=0.01).

There was a lack of association between cannabis use, readmission and HIV status, after controlling for variables such as alcohol use and gender.

CONCLUSION:

Close to 50 % of people admitted with schizophrenia spectrum disorder and other psychotic disorders have co-morbid current cannabis use. There is an urgent needs to develop more dual diagnosis units to address co-morbid substance use in people with psychosis as it is associated with poorer long-term outcomes.

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TITLE:

Assessing the Revised Clinical Institute Withdrawal for Alcohol Scale (CIWA-Ar) use at Stikland Hospital.

BACKGROUND:

Alcohol use disorder is a major public health concern in South Africa. Abrupt cessation or reduction of alcohol intake in the chronic user can result in withdrawal symptoms.

Benzodiazepines are recognised as the treatment of choice but need to be used cautiously in patients with a lifetime history of substance abuse given their highly addictive potential. Symptom-triggered prescription of benzodiazepines during alcohol withdrawal using the Revised Clinical Institute Withdrawal for Alcohol Scale (CIWA-Ar) has been associated with improved safety and reduced benzodiazepines use.

OBJECTIVE:

To investigate if implementation of the CIWA-Ar during alcohol detoxification impacted the amount

of benzodiazepines used and withdrawal-related outcomes in a specialized alcohol rehabilitation unit at Stikland Psychiatric Hospital in the Western Cape, South Africa.

METHODOLOGY:

We conducted a retrospective cohort study of 135 admissions over a six month period before (2015) and after (2017) implementation of the CIWA-Ar.

RESULTS:

We noted no differences in sociodemographic and alcohol-associated variables at admission between the two groups and there were no recorded complications in either group.

The 2017 group had a lower percentage of patients that required benzodiazepines (33.8% vs 51.4%, p=0.04) and a lower median total amount of benzodiazepines used during alcohol withdrawal (0mg vs 5mg, p=0.01).

CONCLUSION:

The findings indicate that using the CIWA-Ar rating scale to determine benzodiazepines requirements in the specialised alcohol rehabilitation unit was a safe and effective alternative to pro re nata benzodiazepines prescribing in the South African setting and decreased the amount of benzodiazepines used during alcohol withdrawal.

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TITLE:

Missed opportunity for alcohol use disorder screening and management in primary health care facilities in northern rural Tanzania: A cross-sectional survey.

BACKGROUND:

The study aimed to identify the missed opportunity for detection and management of alcohol use disorder by primary health care workers.

METHODOLOGY:

Design, A cross-sectional survey

Setting, Outpatient services in the six governmental primary health care facilities in Moshi district council in Tanzania. Participants, A total of 1604 adults were screened for alcohol use disorder (AUD) using the Alcohol Use Disorder Identification Test (AUDIT).

Participants scoring eight or above then provided details about their help-seeking behavior and barriers to seeking care. Participants' records were reviewed to assess the screening and management of AUD.

RESULTS:

In the last 12 months, 60.7% reported alcohol use, and heavy episodic drinking (HED) was reported by 37.3%. AUD (AUDIT ≥8) was present in 23.9%. Males were more likely to have HED (aPR= 1.43;95% CI:1.3 to 1.4) or AUD (aPR=2.9; 95% CI 1.9 to 4.2). Both HED and AUD increased with age. Only one participant (0.3%) had documented AUD screening and management. Only 5% of participants screening

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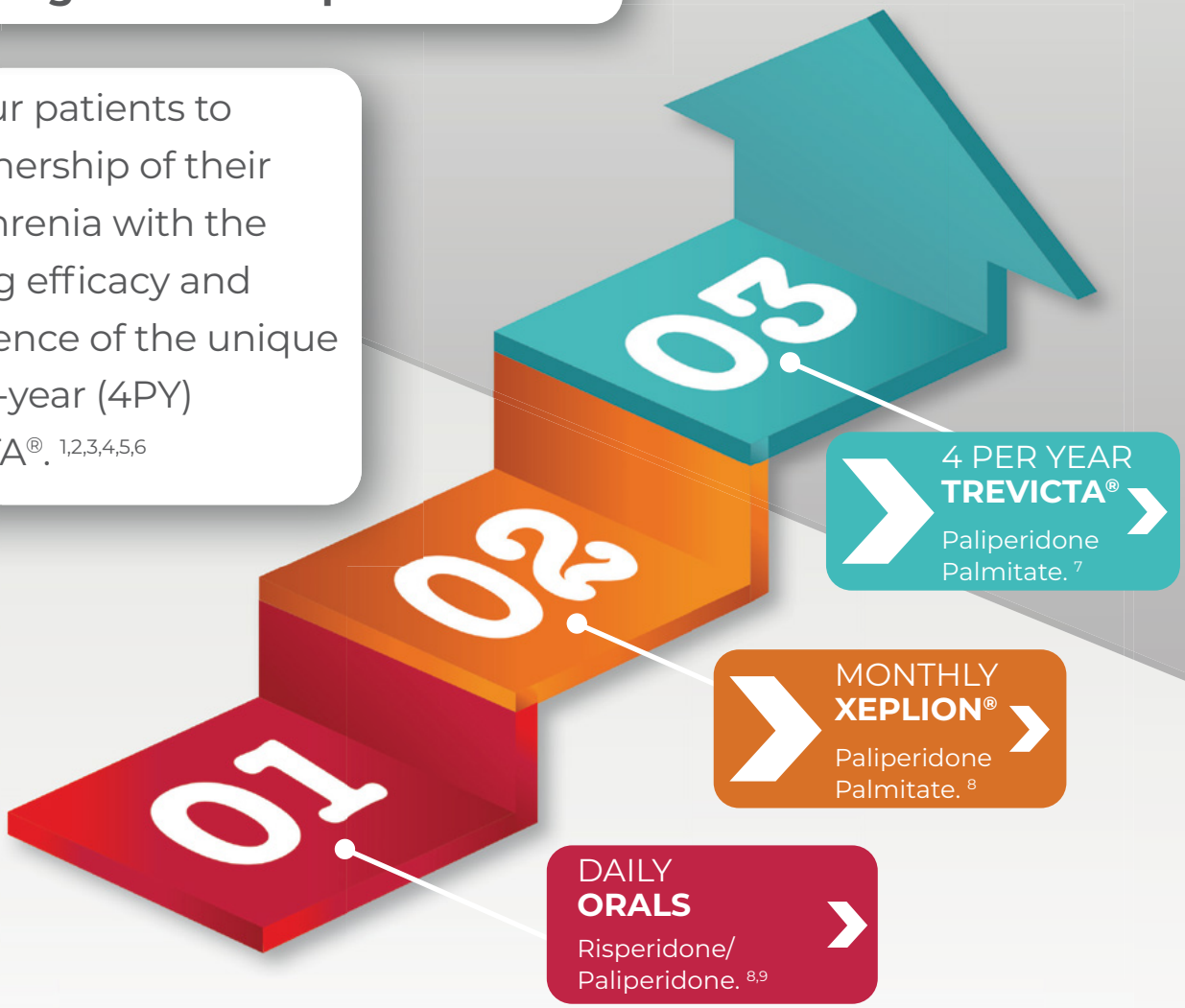

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positive for AUD had sought help. Reasons for not seeking care were thinking that the problem would get better by itself (55.0%), wanting to handle the problem alone (42.0%), or not being bothered by the problem (40.0%).

CONCLUSION:

While reported alcohol use, HED, and AUD are common among patients presenting to primary healthcare facilities in northern Tanzania, help-seeking behavior and detection are very low. Not screening for AUD in primary health care is a missed opportunity for early detection and management. There is an urgent need to develop interventions to increase the detection of AUD by health care providers while also addressing help-seeking behavior and barriers to seeking care.

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TITLE:

HIV prevalence and access to HIV testing and care among patients with recent onset psychosis.

BACKGROUND:

Background: HIV and psychosis share a complex bidirectional relationship, with people living with HIV being at increased risk of psychosis, and those with psychosis at increased risk of HIV. However, people living with severe mental illness often have limited/ reduced access to HIV testing and care.

OBJECTIVE:

To determine the prevalence of HIV and describe the access to HIV testing and care among adult patients with recent onset psychosis who were admitted to a psychiatric hospital in, KwaZulu-Natal Province, South Africa.

METHODOLOGY:

A retrospective chart review of 294 patients with recent onset psychosis admitted between May 2018 and November 2020.

RESULTS:

291 (99%) patients had access to HIV testing during the study period, with the HIV seroprevalence rate being 21.5% among the 294 patients.

HIV seropositivity was associated with the 25-49 age category (aOR=3.09, 95% CI 1.27-7.50), female gender (aOR=9.55, 95%CI 4.40-20.74), current alcohol and/or cannabis use (aOR 3.43, 95% CI 1.01-11.62), family history of psychosis (aOR 3.22, 95%CI 1.03-10.02) and no tertiary education (aOR 3.7, 95% CI 0,14-0,99).

All those living with HIV were on antiretroviral treatment.

CONCLUSION:

This study showed that while HIV testing and care was accessible, the prevalence of HIV in people living with recent onset psychosis remains high, indicating the need for further HIV prevention strategies in this population, specifically for young females with severe mental illness.

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TITLE:

The relationship between FKBP5 intron 7 methylation and posttraumatic stress disorder in rape-exposed women.

BACKGROUND:

Emotional distress and posttraumatic stress disorder (PTSD) are often reported following rape. Dysfunction of the hypothalamic-pituitary-adrenal (HPA) axis, a core regulator of the stress response, has been implicated in the aetiology and chronicity of PTSD.

FK506 binding protein (FKBP5) is a co-chaperone and functional regulator of the glucocorticoid receptor and the HPA-axis.

No studies to date have investigated longitudinal methylation changes in the FKBP5 gene in rape-exposed women.

METHODOLOGY:

The overarching aim was to investigate the relationship between FKBP5 intron 7 methylation and PTSD symptom scores over 6 months in a rape-exposed sample. We also investigated the interaction between childhood trauma, rs1360780 genotype and FKBP5 methylation in relation to PTSD scores over time.

RESULTS:

Rape-exposed women (n = 96) were recruited from rape clinics in KwaZulu Natal, South Africa. Total PTSD symptom scores, derived from the Davidson Trauma Scale, were assessed at baseline, 3-months and 6-months post-rape.

Methylation levels at five FKBP5 intron 7 CpG sites were determined using EpiTYPER Sequenom MassArray technology. Genotyping of rs1360980 was completed using the Agena MassArray genotyping system. Mixed linear regression models were used to analyse the data.

Results: Decreased FKBP5 methylation was a predictors of increased PTSD symptoms scores over time. Decreased FKBP5 methylation at 3- and 6-months post-rape was associated with increased PTSD scores at 3- and 6-months post-rape.

CONCLUSION:

This is the first study to investigate longitudinal changes in FKBP5 methylation in a demographically homogenous same-trauma sample. The findings implicate FKBP5 methylation in the etiology of PTSD in the aftermath of rape and may guide future therapeutic interventions.

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TITLE:

Risk and protective factors affecting the symptom trajectory of posttraumatic stress disorder post-rape.

BACKGROUND:

The prevalence of posttraumatic stress disorder (PTSD) in rape survivors is considerably higher than the prevalence in non-sexual trauma survivors. Few studies have investigated risk and protective factors in survivors early-after-rape in a prospective longitudinal design.

METHODOLOGY:

Baseline data from a sample of 639 rape-exposed women assessed within 20 days of rape were analysed as putative predictors of PTSD symptom severity scores up to 6-months post-rape.

RESULTS:

The incidence of PTSD at 3-months and at 6-months post-rape was 48.5% and 25.4%, respectively. Experience of rape stigma and depression were significant predictors of PTSD symptom scores in mixed linear regression models.
Higher levels of depression and rape stigma at baseline (measured in quartile ranges) were associated with higher PTSD scores at all timepoints.

CONCLUSION:

Addressing rape stigma and the misattributions of rape in women who present to rape clinics may reduce the long-term adverse effects on mental health outcomes, such as PTSD. Rape survivors who present with high levels of depression soon after a rape should be carefully monitored and appropriately treated in order to reduce PTSD severity.

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TITLE:

Are female bipolar patients of reproductive age aware of the teratogenic risk of sodium valproate? A qualitative study.

BACKGROUND:

Sodium valproate is considered the most teratogenic of all anticonvulsant drugs. Internationally, new regulations require women to sign risk assessment forms if initiated on it.

OBJECTIVE:

This study aimed to explore patients' awareness of the teratogenic risk of sodium valproate. Setting: Weskoppies Psychiatric Hospital, Tshwane, Gauteng.

METHODOLOGY:

We conducted a qualitative study comprising 23 semi-structured interviews with female bipolar patients of reproductive age at a tertiary psychiatric hospital in South Africa.

RESULTS:

Patient psychoeducation and self-education is improving as many patients were aware of the risk of teratogenicity of sodium valproate either by being educated or by searching online after developing an interest. Our study identified the need for female patients to be educated about contraceptive use when starting on sodium valproate to avoid pregnancy.

CONCLUSION:

Our study shows that patients are becoming more aware of the teratogenic risk of sodium valproate.

This suggests that consultations focusing on the issues of conception and the use of sodium valproate in women of childbearing potential has improved.

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TITLE:

Predictors of relapse other than treatment non-adherence in first-episode schizophrenia spectrum disorders: a 24-month follow-up study.

BACKGROUND:

Relapse rates are very high in schizophrenia. However, little is known about the predictors of relapse other than treatment non-adherence.

Here, we performed a comprehensive examination of neurodevelopmental, clinical, and biological factors associated with relapse in a sample of patients with first-episode schizophrenia spectrum disorders FES (n = 126) who received assured depot antipsychotic over 24 months.

METHODOLOGY:

The patients were assessed using socio-demographic questionnaires and validated clinical instruments. The putative neurodevelopmental markers of interest were cognition, neurological soft signs, premorbid adjustment, schizophrenia patient history, childhood trauma, obstetric complications, and substance use.

We also examined other clinical (e.g., duration of untreated psychosis, psychopathology, depressive symptoms), functional (e.g., quality of life) and metabolic (e.g., fasting glucose, lipid profiles) predictors of interest. Relapse was defined using the Csernansky criteria, a 25% increase from PANSS total baseline score, clinical deterioration with a change score of 6 ('much worse') or 7 (`very much worse') on the CGI scale; deliberate self-injury; clinically significant suicidal or homicidal ideation; or violent behaviour. Substance use was assessed based on collateral family interviews and urine toxicology. We used logistic regression analysis to identify predictors of relapse.

The predictors of time to relapse were examined using Cox regression analysis. The changes in the predictors of relapse over time were assessed using linear mixed effect models for continuous repeated measures.

RESULTS:

A higher number of positive urine toxicology tests was a significant predictor of relapse risk (Odds Ratio, 1.43; 95% Confidence Interval [CI]: 1.11–1.84; p = 0.006), adjusting for age, sex, highest level of education, and duration of untreated psychosis. We also found that poorer quality of social relationships was a significant predictor of a shorter time to relapse (Hazard Ratio, 0.85; 95% CI: 0.76–0.95; p = 0.003), adjusting for the same covariates.

CONCLUSION:

Increased cannabis use frequency might represent an independent risk factor for relapse in patients with FES, even when treated adherence is assured. The association of poor social relationships with a shorter time to relapse suggests that quality of life is an important determinant of prognosis in FES.

SESSION 2 (B)

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TITLE:

Clinical factors associated with longer admission in elderly patients with major neurocognitive disorder at Weskoppies psychiatric hospital between 2015 and 2019.

BACKGROUND:

Major neurocognitive disorder presents many challenges to patients, families, and healthcare systems, especially when a patient requires

admission to a psychiatric hospital.
The aim of this study was to identify characteristics of older patients with major neurocognitive disorder at risk of prolonged admission to a psychiatric hospital.

METHODOLOGY:

A retrospective review was conducted using the Weskoppies Hospital database and clinical files. Clinical and demographic data were collected from the files of 50 inpatients, 60 years and older with the diagnosis of a major neurocognitive disorder, admitted between 2015 and 2019. Deidentified data were captured and submitted for statistical analysis to investigate the relationship between patient characteristics and length of hospital admission.

RESULTS:

The average duration of admission was 18.29 months. Age, type of major neurocognitive disorder, and number of comorbidities showed no correlation with the dependent variable.

Involuntary admission status, level of assistance required, availability of social support, and the presence of behavioural/psychological problems showed significant correlation with longer admission. Using a stepwise regression model, the only significant variable associated with a shorter length of stay was the presence of social support.

CONCLUSION:

The findings of this study emphasize the important role that social support plays in the management of patients with major neurocognitive disorder. The study also draws attention to the need for adequate placement facilities in South Africa, for patients who have no other form of support.

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TITLE:

Using the Child Depression Screening Tool in Children at Risk of Depression: South African Findings.

BACKGROUND:

Despite the prevalence and long-lasting effects of child depression, few receive treatment. One of the significant barriers is the unavailability of reliable, easy-to-use depression screening tools adapted for sub-Saharan African children.

A brief screening test, that is free or affordable, is thus vital. We therefore aimed to adapt the Child Depression Screening Tool (CDST) to the South African context, as a tool that could effectively screen for depression in children suffering from chronic illnesses, trauma, and difficulties related to COVID-19, family, and community hardships.

METHODOLOGY:

The MINI Kid (diagnostic interview) and CDST (screening measure) were administered to 315 participants (age: 7-14 years, mean = 11.66 ±2.11 years; female: 52%). Descriptive statistics and univariate analysis were conducted to describe sample characteristics and scores on the CDST were compared to depression diagnoses on the MINI Kid to determine sensitivity and specificity of the measure.

RESULTS:

The prevalence of depression was 9.5% as determined by the MINI Kid. It was more prevalent in older children, children who disliked or considered dropping out of school, had lost their mothers, experienced a recent frightening event, had COVID-related trauma or a chronic illness, and in those who smoked cannabis.

The CDST mean score was 5.4 (±4.6). According to the Receiver Operator Characteristic analysis a CDST cut-point of 5.0 with an Area Under the Curve of 0.79, and sensitivity and specificity of 80% and 71% respectively, is optimal. At this cut-point 34% met criteria for probable depression.

CONCLUSION:

Given the fair performance of the CDST screener as compared to clinical interview, it may offer a clinically sound, sustainable path towards the diagnosis and treatment of child depression in South Africa.

Given the association between cannabis use and depression, as well as established links between cannabis use and poorer school performance and dropping out of school, these should be evaluated and a target of treatment by health care professionals and community health workers.

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TITLE:

Identifying genetic loci associated with a change in gene expression (eQTLs) in PTSD patients a South African cohort.

BACKGROUND:

The molecular mechanisms underlying the development of posttraumatic stress disorder (PTSD), following exposure to a traumatic event, are yet to be elucidated and understood.

One way to investigate these molecular mechanisms is to combine genomic and transcriptomic data to identify expression quantitative trait loci (eQTLs) associated with the disorder. eQTLs are DNA sequence variants that can influence gene expression, in a local (cis-) or distal (trans-) manner, and subsequently impact cellular and system physiology which may contribute to a disease phenotype.

This study aims to identify genetic loci associated with a change in gene expression in PTSD patients in a South African cohort in order to better understand the molecular mechanisms underlying PTSD.

METHODOLOGY:

Genome-wide genotyping (MEGA array) and RNAseq data were obtained from 32 trauma-exposed controls and 35 PTSD patients of self-reported mixed-ancestry, as part of the SHARED ROOTS project. These data were quality controlled using PLINK1.9 and DESeq2, respectively.

The resulting 145,030 SNPs (MAF > 5%) and 11,312 genes were used in conjunction with the R package, Matrix eQTL, to map potential eQTLs. Matrix eQTL constructs linear regression models between the expression level of each gene and all SNPs within (cis-eQTLs) and further than (trans-eQTLs) 1 Mb of that gene.

Based on the number of SNP-gene pairs tested, the significance threshold for cis-eQTLs and trans-eQTLs were p = 4.39x10-8 and p = 3.05x10-11 respectively (Bonferroni correction).

Age, sex, smoking, RIN, metabolic syndrome, cell type composition (CD16 positive monocytes and neutrophils) and the first 10 principal components were included as covariates.

RESULTS:

The preliminary analysis described has identified several putative cis- and trans-eQTLs. However, the findings need to be confirmed and contextualised within PTSD-related literature.

CONCLUSION:

Here we will describe potential eQTLs which may provide insight into the molecular mechanisms underlying the development of PTSD.

This analysis is the first of its kind in this study population and encourages further multi-omics approaches towards investigating psychiatric disorders in non-European samples.

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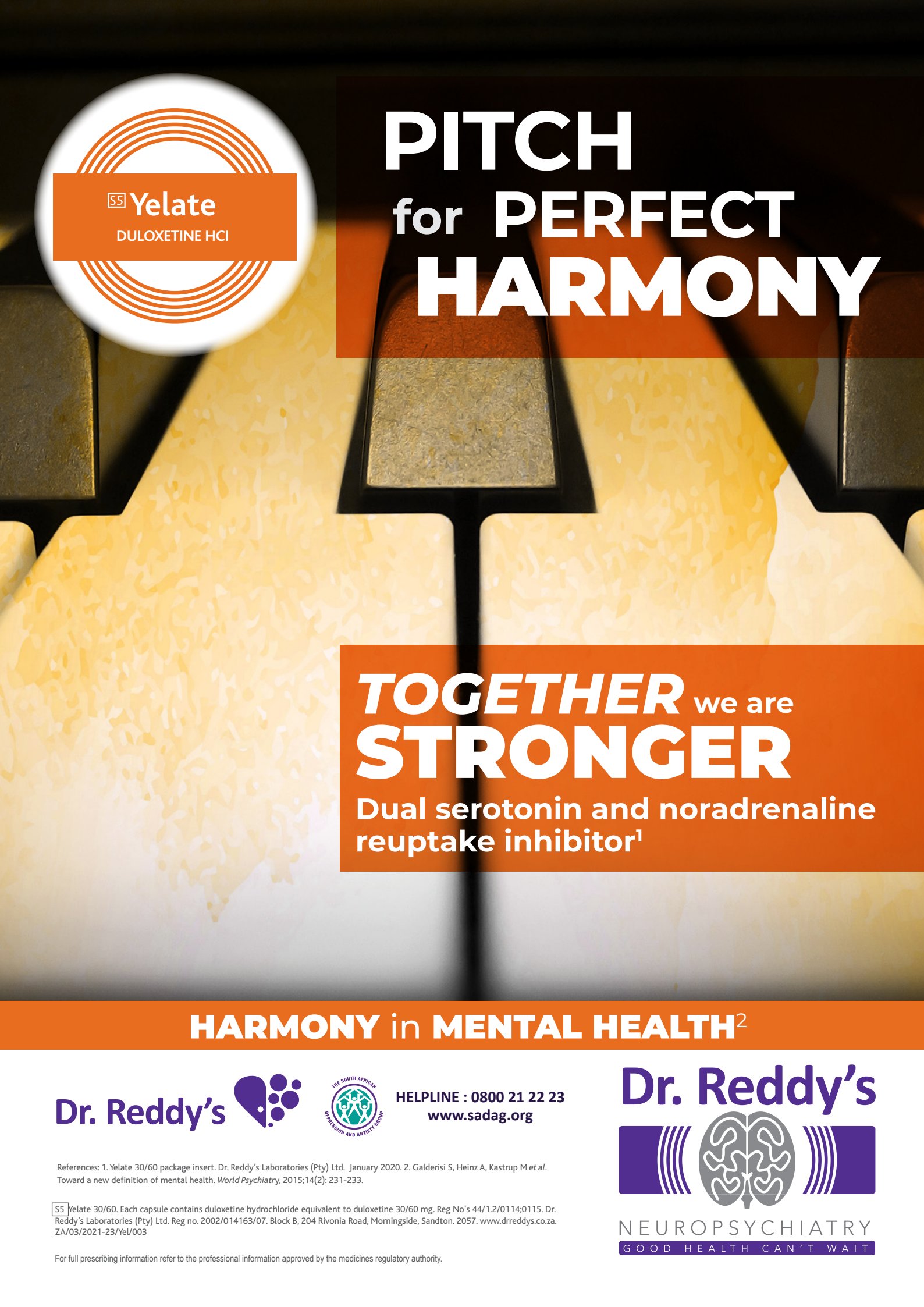

References: 1. Yelate 30/60 package insert. Dr. Reddy's Laboratories (Pty) Ltd. January 2020. 2. Galderisi S, Heinz A, Kastrup M *et al*. Toward a new definition of mental health. *World Psychiatry*, 2015;14(2): 231-233.

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TITLE:

The Point Prevalence of Co-Morbid Mental Ill-Health in Tuberculosis Patients under Treatment in a Rural Province of South Africa.

BACKGROUND:

Tuberculosis remains prevalent despite the availability of effective anti-TB medications. South Africa is among the top eight countries that account for two-thirds of the global TB infections. Evidence suggests a high rate of mental disorders in people with TB. Psychiatric disorders and tuberculosis share several risk factors, such as homelessness, HIV/AIDS, substance use, stigma, malnutrition, and poor socioeconomic status.

Psychiatric comorbidities in tuberculosis patients are associated with poor treatment outcomes and treating comorbid psychiatric disorders can improve tuberculosis outcomes. This study explored psychiatric comorbidity and its clinical correlation in individuals receiving tuberculosis treatment.

METHODOLOGY:

A cross-sectional survey was conducted at two primary care clinics at King Sabata Dalindyebo District, Mthatha, Eastern Cape, South Africa.

Patients receiving TB treatment in these two clinics were interviewed between September 2020 and June 2021 by a trained interviewer using the Mini-International Neuropsychiatric Interview to screen for psychiatric disorders.

All descriptive and inferential statistics were performed with STATA/SE "(version 16.1 for Mac)," and the significance level was $p < 0.05$.

RESULTS:

In a sample of 197 participants, most patients were male (62%), had HIV diagnosis (65%), and screened positive for a mental disorder (82%) with anxiety (48%), depression (38%), and substance use disorders (43%) being the most common psychiatric conditions.

On average, individuals had 4 (SD 2) lifetime mental disorders, excluding substance use disorders. Females had higher rates of depression ($p = 0.005$) and nonadherence to tuberculosis treatment ($p = 0.003$). Alcohol use disorder was more common in males ($p< 0.001$) and those nonadherent to tuberculosis treatment.

Low education levels and unemployment were also associated with depressive and anxiety disorders ($p < 0.05$).

CONCLUSION:

There is a high burden of mental disorders in patients with tuberculosis, and mental health services must be integrated into the management of patients with tuberculosis.

Routine screening of common psychiatric disorders, including depression, anxiety, and substance use disorders, using already available easy-to-use screening tools amenable for use at the primary care level could aid the early detection, referral, and treatment of those with mental illness and tuberculosis.

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TITLE:

Unravelling the genetic risk associated with major depressive disorder among an ethnically diverse African ancestry population.

BACKGROUND:

Major depressive disorder (MDD), which is a significant contributor to the global health burden is characterised by a pervasive low mood and an inability to feel pleasure in normally pleasurable

activities. Most MDD genetic studies have been carried out mainly on European ancestry populations limiting the generalisability of findings to non-European populations like the highly diverse African population. This study aimed to investigate the common genetic variants and other risk factors (sociodemographic, psychosocial, biological) associated with MDD among general out-patient participants from an African ancestry population attending the NeuroGAP study.

METHODOLOGY:

A case-control study was carried out on 13,616 control participant data from the parent NeuroGAP study for whom phenotypic data was currently available and 653 of these participants also had genome wide association study (GWAS) data available. These participants were recategorised as MDD cases and MDD free controls using a Kessler psychological distress scale (K10) cut-off score of 13. The participant sample data was analysed using a GWAS pipeline generated using R software, a functional mapping and annotation tool (FUMA) and binomial regression for the phenotype analyses.

RESULTS:

The main GWAS findings in this study were the 107 significant single nucleotide polymorphisms (SNPs) (P =< 5X10-8) in 34 risk loci identified to be associated with MDD. The main findings from the phenotype analysis were that among these outpatient participants; increasing negative life events, the physical comorbidity of arthritis, and the psychosomatic problems of chronic neck or back pain and frequent or severe headaches were the strongest independent determinants of MDD.

CONCLUSION:

These results suggest that psychosocial factors, physical co-morbidities and psychosomatic complaints are major risk factors for MDD among an African ancestry population. The GWAS results suggest a possibility for novel MDD genetic risk loci discovery in African ancestry populations.

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TITLE:

Schizophrenia in black Africans: The influence of antipsychotics on psychiatric symptoms and tryptophan metabolism.

BACKGROUND:

Altered tryptophan metabolism in schizophrenia (SCZ) is well-established. However, the precise mechanism of influence of this altered metabolism on the presentation and severity of psychiatric symptoms remains unclear. Furthermore, the question of whether alleviation of SCZ symptoms is mediated by effects of antipsychotics on tryptophan metabolism, remains unanswered.

We investigated changes in tryptophan metabolism and psychiatric symptom severity of black African SCZ patients over a six-week treatment period with antipsychotics. Furthermore, we aimed to investigate whether any correlations exist between improvement in psychiatric symptoms and changes in tryptophan metabolism.

METHODOLOGY:

Newly diagnosed or relapsed black African individuals diagnosed with SCZ, according to DSM-V criteria, were recruited from the Dr Kenneth Kaunda District in the Northwest Province, South Africa.

Psychiatric symptoms scores (total, positive, negative and general) were obtained with the Positive and Negative Syndrome Scale (PANSS) and levels of tryptophan, kynurenine and 5-HT (serotonin) were measured in serum with liquid chromatography/ mass spectrometry (LCMS) at baseline and after the six-week follow-up period.

RESULTS:

A total of 15 patients, aged between 22 and 53 years, were included (mean age: 34 years, 80% male). Significant decreases ($p<0.001$) were observed for the PANSS positive, general, and total scores with no significant changes observed for the PANSS negative score, tryptophan, kynurenine or 5-HT.

An inverse correlation was observed for the baseline positive PANSS score with baseline tryptophan ($p=0.05$) while adjusting for confounders (age, weight and socio-economic status). Furthermore, decreases in the general PANSS score positively correlated with baseline levels of 5-HT ($p=0.02$) while adjusting for confounders.

CONCLUSION:

This study reveals significant improvement of psychiatric symptom severity over a six-week treatment period with antipsychotics. The abovementioned correlations between select PANSS score decreases with tryptophan and 5HT baseline levels, suggest that these biomarkers are associated with neuropathology, and that the baseline values may predict treatment response.

However, whether alleviation of symptoms was mediated by the effects of antipsychotics on tryptophan metabolism, is still unclear, warranting bigger study samples of which treatment is standardised to ascertain the influence of tryptophan metabolism on SCZ symptoms.

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Stellenbosch University
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TITLE:

Factors associated with distress following a romantic relationship breakup: The moderating role of attachment style among emerging adults.

BACKGROUND:

Romantic relationship breakups (RRBs) during emerging adulthood may lead to severe distress. Attachment styles influence emotion regulation and how individuals deal with stressful events; it is plausible that attachment style may serve as moderator of breakup distress.

We aimed to determine the associations between breakup distress and (i) the number of prior traumatic RRBs; (ii) relationship characteristics prior to the breakup; (iii) breakup characteristics; and (iv) whether attachment styles had a moderating effect on these associations.

METHODOLOGY:

Participants (n = 886; female = 70.1%; mean age = 20.52 years) completed a demographic and relationship questionnaire, an attachment style measure, and the Breakup Distress Scale (BDS).

Associations were calculated using Pearson's correlations and ANOVAs. To determine the potential moderating effect of attachment style, we used separate SEMs for each of the three attachment styles (i.e., secure, anxious-ambivalent, avoidant) with total BDS scores as the endogenous variable.

RESULTS:

Participants reported comparatively high BDS scores (mean = 33.73, SD = 15.610, range = 0 – 64). Various factors were significantly associated with BDS scores including number of prior traumatic RRBs, relationship characteristics prior to the breakup (e.g., perceived closeness), and breakup characteristics (e.g., initiator status and reason for the breakup).

Secure, avoidant, and anxious-ambivalent attachment styles played a moderating role in the relationship between these factors, respectively – sometimes in an unexpected manner.

CONCLUSION:

Non-marital RRBs are associated with significant distress in emerging adults. Interventions should consider breakup characteristics, reasons for the breakup, and attachment style.

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TITLE:

Autonomic Nervous System Functioning in Patients with Post Viral Syndrome: A Case-Series Study of a Healthy Control Subject, a Long Covid patient and a ME-CFS patient.

BACKGROUND:

It is suggested that Long COVID, or post-COVID syndrome (PCS), like CFS, may be related to a virus- or immune mediated disruption of the autonomic nervous system (ANS). Aims were to assess hypothalamic-pituitary axis stress response differences and sympathetic nervous system activation.

METHODOLOGY:

This case study series examined cardiovascular and neuromuscular systems functioning using Heart Rate Variability (HRV) analysis (in supine position) and Micro-vibrational System (MVS) analyses using The Nerve Express HRV System, Kubios HRV, and the Faros 180 Sensor and analyses software.

Low Frequency (LF) (0.04 Hz - 0.15 Hz) and very/ ultra-LF (VLF/ULF; 0.015 Hz - 0.04 Hz) correspond to a hypothalamic-pituitary axis stress response and sympathetic nervous system activation. ME_CFS and PCS diagnosis were established using a combination of clinical diagnosis, self-report measures and ICD-9 coding.

RESULTS:

The 3 participants were female (Age M= 50, sd= 5), measured at rest for a period of 30-45 minutes in supine position. HRV measurements of both the PCS and ME/CFS patients showed high sympathetic nervous system activation (LF and VLF/ ULF ranges), specifically, the LF bandwidths (Long Covid; 0.02 - 0.15 Hz; EDR <0.2, ME/CFS, LF= 0.02-0.23 Hz, EDR= 0.15-0.23), whilst the HC subject showed parasympathetic nervous system recruitment (0.25 Hz) after an 8-minute supine position.

Low Total power (TP) values in PCS (TP = 362 – 452, pulse = 70-74), ME/CFS patient (TP = 575 -280, pulse 79-89) and HC (TP = 1679 -348 , pulse= 55-57 Bpm. A noticeable phase shift of the MV in both patients PCS, MV = 14 Hz, ME/CFS MV = 13 Hz, HC MV = 6 Hz.

CONCLUSION:

In line with an emerging body of research, our comparisons of cardiovascular and musculoskeletal outcomes of the 2 patient subjects show comparable rates of ANS dysregulation, increased skeletal muscle tone as compared to a HC subject. Further research into ANS dysregulation in PCS and ME-CFS is warranted.

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TITLE:

Childhood trauma as a risk factor for a dysfunctional heart rate variability in patients with CFS/ME.

BACKGROUND:

Chronic fatigue syndrome, also known as Myalgic encephalomyelitis, is a severe and complex multisystemic disease with a heterogenous combination of symptoms. Studies have shown decreased heart rate variability (HRV) in this population. Moreover, there is a growing body of evidence showing high levels of childhood trauma (CHT) among CFS/ME patients.

Traumatic experiences in childhood are linked to a decreased HRV. Specially, emotional traumatization impacts HRV. The present study investigates HRV in the context of CHT in a CFS/ME population.

METHODOLOGY:

39 patients diagnosed with CFS/ME participated in this study. Demographic-, clinical data, the degree of disability, and the RMSSD parameter of HRV were extracted from patient records.

CHT was administered using the Childhood Trauma Questionnaire Short Form. Disability was assessed using the Bell Disability Scale.

Multiple regression analyses were conducted using the CHT total scores and emotional abuse and emotional neglect subscales in relation to HRV.

RESULTS:

No relationships between CHT total and subscales and HRV were found. A slight degree of correlation between CHT and disability was found. This was not significant.

Comparing prevalence rates of CHT of the investigated sample with general German population showed differences. CHT was more prevalent in the sample of the present study. Comparing subscale prevalence showed that all subscales of CHT were more prevalent with exception of physical neglect, which had a lower prevalence compared to a non CFS/ME German sample.

CONCLUSION:

In sum, the results of the study suggest that CHT is more prevalent in CFS/ME populations. However, an effect of childhood trauma on HRV function and disability could not be demonstrated in this sample.

The findings indicate that the underlying pathophysiologic mechanism of CHT in CFS/ME are more complex and not expressed in HRV. Future studies should include additional aspects and examine the impact of childhood trauma by looking at other biological systems affected in CFS/ME.

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TITLE:

A multiple case of perinatal women's experience of non-fatal suicidal behaviour in South Africa.

BACKGROUND:

The aim of this study was to identify and describe the socio-economic and cultural context in which perinatal women engage in non-fatal suicidal behaviour (NFSB).

METHODOLOGY:

A reflexive thematic analysis involving eight cases of women who had engaged in NFSB during the perinatal period and attributed their suicidality to some aspect of pregnancy or motherhood. Cases were selected from a larger study (n=80) of cases of medically serious NFSB admitted to a public urban hospital in Cape Town (South Africa).

RESULTS:

All women lived in resource-constrained environments and were receiving care in a public (state-funded) hospital at the time of the interviews. Analysis of interviews elicited four overarching themes, including: (1) living in resource constrained and dangerous communities; (2) disruption and loss; (3) stigma, shame and withdrawal; and (4) abandoned to assume the role of mother without support. These themes evidenced the hardships and distress of these women relative to their pregnancy and contributed to their NFSB.

CONCLUSION:

Interventions to reduce NFSB among young perinatal women in low-resource environments might be enhanced by considering how pregnancy disrupts the educational opportunities of young women. The injurious effect of poverty on women's maternal health highlights the fact that any society that is serious about maternal mental wellbeing, should also prioritise the financial empowerment of women

BIOLOGICAL PSYCHIATRY CONGRESS

SANS POSTER PRESENTATION AGENDA

SATURDAY 17 SEPTEMBER 2022

12:20 - 13:15 **Session 2 (C)**

1 Carlien Rust

Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa

Stress-related disorders, the gut microbiome and platelet-conveyed 5-hydroxytryptamine

2 Amalia Naita Awala

Division of Cell Biology, Department of Human Biology, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa, Neuroscience Institute, Faculty of Health Sciences, University of Cape Town, Groote Schuur Hospital, Cape Town, South Africa

Investigating cestode modulation of the neuroimmune response in neurocysticercosis

3 Sooraj Baijniath

School of Physiology, University of the Witwatersrand

Advances in spatial mass spectrometry enable in-depth neuropharmacodynamics and neurophysiology

4 Johann Burke

Centre of Excellence for Pharmaceutical Sciences, Department of Pharmacology, North-West University, Potchefstroom, South Africa

Chronic escitalopram exposure and behavioural restriction in deer mice presenting with low and high stereotypical behaviour: perspectives on behavioural persistence

5 Anja de Lange

Division of Cell Biology, Division of Physiology, Neuroscience Institute, and CMM AFRICA Medical Mycology Research Unit, Faculty of Health Sciences,
University of Cape Town

Taenia larvae modulate host immunity in a mouse hippocampal organotypic brain slice model of neurocysticercosis

6 Emily Ruth Higgitt

Division of Physiological Sciences, Department of Human Biology, Faculty of Health Science, University of Cape Town. Neuroscience Institute, Faculty of Health Sciences, University of Cape Town, Groote Schuur Hospital, Cape Town, South Africa

Verifying the utility of an in vivo mouse model of cryptococcal meningoencephalitis for the study of neuroimmune responses

7 Mariaan Jaftha

UCT, CPUT

Corpus callossum (CC) thickness is inversely associated with disability (EDSS) in patients with multiple sclerosis (MS).

SATURDAY 17 SEPTEMBER 2022

12:20 - 13:15 Session 2 (C) continued

8 Sahar Jamal
Division of Cell Biology, Department of Human Biology, University of Cape Town . Neuroscience Institute, University of Cape Town
Investigating gene regulation in the maturing human brain at single-nucleus resolution

9 Danielle Jansen van Rensburg
Division of Molecular Biology and Human Genetics, Department of Biomedical Science, Faculty of Medicine and Health Science, Stellenbosch University
Identifying microRNA species associated with anxiety proneness in South African adolescents

10 Maahir Kauchali
Neuroscience Institute, Faculty of Health Sciences, University of Cape Town, Groote Schuur Hospital, Cape Town, South Africa 3Division of Physiological Sciences, Department of Human Biology, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa 4CMM AFRICA Medical Mycology Research Unit, Institute of Infectious Disease and Molecular Medicine, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa
The inflammatory neuroimmune response to cryptococcal infection in mouse hippocampal slices

12:20 - 13:15 Session 2 (D)

1 Sagel Kundieko
University of Cape Town
Investigating the effects of neuroinflammation on network excitability in neurocysticercosis

2 Crystal Lubbe
NWU-Potchefstroom
A preclinical rodent model of capture myopathy in wildlife: Initial validation and metabolic signature

3 Lauren Martin
Division of Molecular Biology and Human Genetics, Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa
SAMRC Genomics of Brain Disorders Unit, Department of Psychiatry, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa
Species-level profiling of the maternal vaginal bacteriome using full-length 16S rRNA amplicon sequencing with application to Fetal Alcohol Spectrum Disorders

4 Zama Msibi
University of KwaZulu-Natal
Gold nanoparticle-mediated gene delivery combined with oleanolic acid treatment confers enhanced gene expression in 6-hydroxydopamine-exposed PC12 cells

5 Michaela O'Hare
Department of Biomedical Sciences, Division of Molecular Biology and Human Genetics, Faculty of Medicine & Health Sciences, Stellenbosch University, Cape Town, South Africa
Characterisation of the gut microbiome associated with neuropsychiatric disorders in South African participants

6 Leandrie Pienaar
University of the Witwatersrand
The molecular effects of acute ketamine administration in treatment resistant depression

7 Marelie Roets (presented by Dr Stephan Steyn)
Centre of Excellence for Pharmaceutical Sciences, Faculty of Health Sciences, North-West University, Potchefstroom, South Africa
Baby blues: The influence of pregnancy and maternal separation on the behavioural profile of FSL and FRL animals

8 Farhanah Sallie
NeuroCNS, Physiology
Chronic administration of ACTH in a rodent model of treatment resistant depression

9 Daniel van Rensburg
North-West University – Centre of Excellence for Pharmaceutical Sciences, Faculty of Health Sciences – South Africa
Reviewing the mitochondrial dysfunction paradigm in rodent models as platforms for neuropsychiatric disease research

10 Jacqueline Womersley
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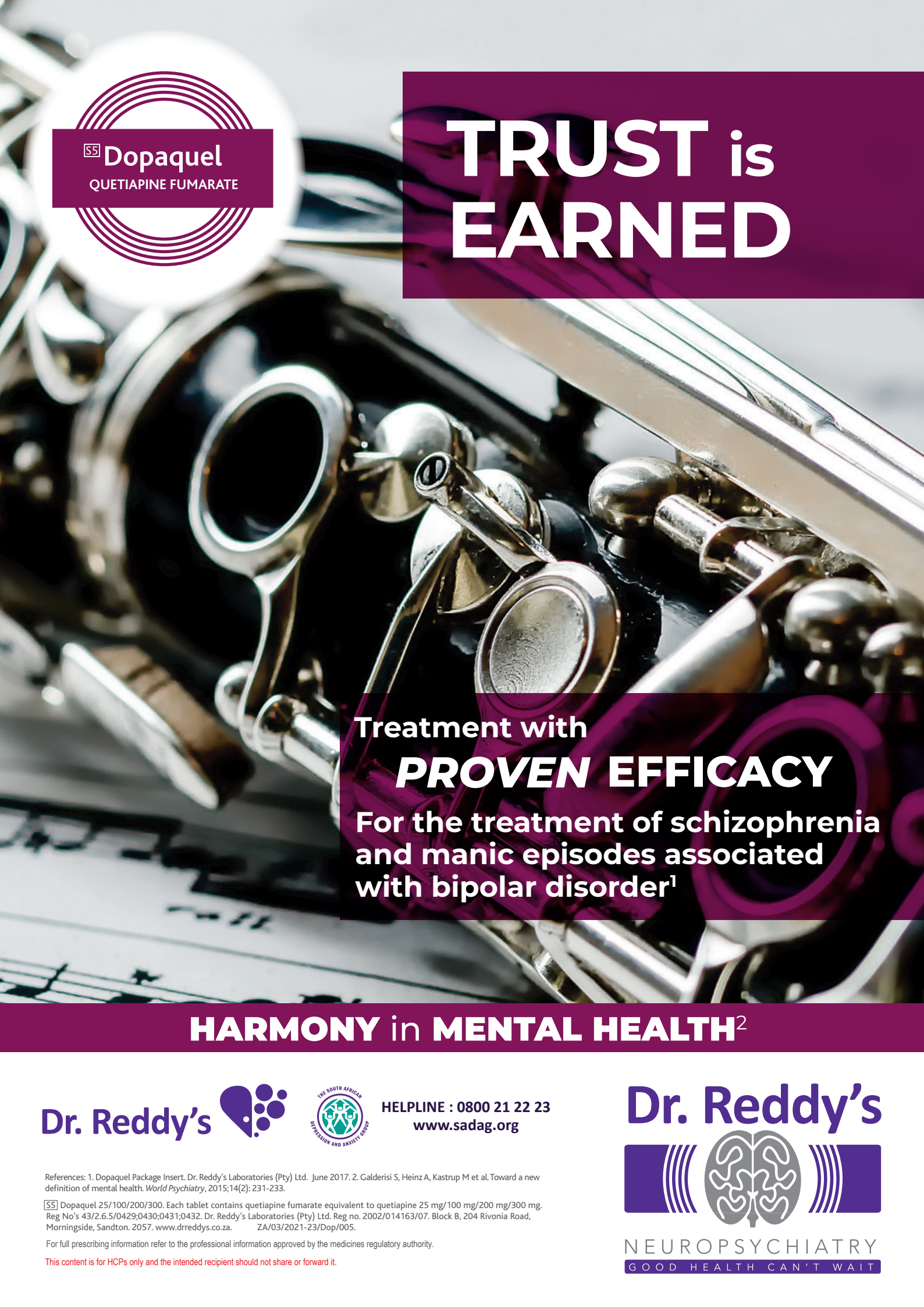
A proposal for a study of biological aging profiles of cognitive function and depression in South African women with HIV



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BIOLOGICAL PSYCHIATRY CONGRESS

POSTER PRESENTATION ABSTRACTS

SESSION 2 (C)

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TITLE:

Investigating cestode modulation of the neuroimmune response in neurocysticercosis.

BACKGROUND:

Neurocysticercosis (NCC) is a helminthic brain infection caused by the larvae of the tapeworm Taenia solium (T. solium). NCC is also leading cause of adult acquired epilepsy in the developing world. Surprisingly, viable larvae can exist in the brain for extended periods with no symptomatology but when they die clinical symptoms develop. The hallmark for symptomatic NCC is neuroinflammation however the neuroinflammatory mechanisms underlying the disease remain grossly understudied. Particularly unknown is the role that microglial cells, the primary immune cells in the brain, play during the neuroimmune response to T. solium infection.

OBJECTIVE:

The aim of this study is to characterize microglial activation and responses in neurocysticercosis.

METHODOLOGY:

To investigate the neuroinflammatory effects of the parasite, we stimulated cultured mouse organotypic brain slices (OBSs) with Taenia larvae homogenate for 24 hours. Treated slices were compared with untreated control slices, and slices stimulated with lipopolysaccharide (LPS), which is an established neuroimmune activator. The potential immunosuppressive effects of the Taenia larvae on microglial activation were assessed by concurrently treating OBSs with LPS and Taenia larvae homogenate. Inflammatory activation of microglial cells was measured by immunostaining for inflammatory transcription factor nuclear factor for interleukin-6 (NFIL6), a robust marker for cell activation, as well as by measuring the release of the proinflammatory cytokines Il-6 and TNF-a through immunoassays.

RESULTS:

We found that the co-application of LPS and Taenia larvae homogenate suppresses the microglial activation and the cytokine release that we observed in the LPS only treatment group, this constitutes an anti-inflammatory effect that could explain how Taenia larvae are able to suppress an inflammatory response whilst still viable in the brain. Microglial activation was not observed in untreated control slices or in slices treated with Taenia larvae homogenate only, these groups also had negligible levels of Il-6 and TNF-a production as compared to the LPS group.

CONCLUSION:

This data offers valuable contributions towards understanding the neuroinflammatory mechanisms underlying this infection, which could potentially aid in how we treat and manage the disease.

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TITLE:

Advances in spatial mass spectrometry enable in-depth neuropharmacodynamics and neurophysiology.

BACKGROUND:

Mass Spectrometry Imaging (MSI) is a powerful technique that combines microscopy's ability to provide spatial information about multiple molecular species with mass spectrometry's specificity for unlabeled mapping of analytes in diverse biological tissues. Initial pharmacological applications focused on drug distributions in different organs, including the compartmentalized brain. However, recent technological advances in instrumentation, software, and chemical tools have allowed its use in quantitative spatial omics. It now enables visualization of distributions of diverse molecules at high lateral resolution in studies of drugs' pharmacokinetic and neuropharmacodynamic effects on functional biomolecules.

OBJECTIVE:

The aim of this study is to characterize microglial activation and responses in neurocysticercosis.

METHODOLOGY:

High resolution matrix-assisted laser desorption ionization (MALDI)-MSI was used for the multiplexed visualization of the spatial tissue distribution of exogenous drug molecules, neurotransmitters, lipids and neuropeptides in a wide variety of mammalian tissues.

RESULTS:

Using MALDI-MSI a wide range of functional biological molecules were imaged in discrete compartments within the brain. When applied to pharmacokinetic studies MSI was able to follow the entry and distribution of drugs in the brain. While pharmacodynamic studies showed alterations in neurotransmitters, lipids and neuropeptides in experimental models of Parkinson's disease.

CONCLUSION:

MALDI-MSI has established itself as a versatile technique with a multitude of applications that have transformed neuropharmacological research and enabled research into brain physiology at unprecedented spatial resolution.

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TITLE:

Chronic escitalopram exposure and behavioural restriction in deer mice presenting with low- and high stereotypical behaviour: perspectives on behavioural persistence.

BACKGROUND:

Spontaneous stereotypical expression by

laboratory-housed deer mice (*Peromyscus maniculatus bairdii*) is a proposed model of compulsive-like behaviour. However, the relationship between said motor manifestations and altered neurocognitive constructs, remains unknown. Thus, we aimed to explore this theme in stereotypical (HS), as opposed to non-stereotypical (NS) behaviour, by 1) establishing how it would respond to sub-acute and chronic exposure to the selective serotonin reuptake inhibitor (SSRI), escitalopram, and 2) investigating whether such behaviours are modulated by sub-acute and chronic behavioural restriction.

METHODOLOGY:

80 deer mice (equally distributed between sexes; ethics approval number NWU-00424-21-A5) were divided into NS and HS cohorts (n = 40 each). Each cohort was further divided into four intervention groups (n = 10 per group), i.e. control (CTRL), escitalopram (ESC; 50 mg/kg/day), restriction (R; preventing the execution of running and jumping) and combined ESC and R. Stereotypical expression was measured by automated beam detection at three time points, i.e. at baseline, after 5 days of CTRL or ESC exposure (and where applicable during three nights of short-term behavioural restriction), and again after 4 weeks of ESC or R intervention. Each animal underwent three 12-hour long screening sessions during each testing phase.

RESULTS:

Our preliminary results indicate that both phenotype and drug exposure had a significant main effect on the expression of stereotypy across both parameters analysed, i.e. time spent engaging in HS behaviour (phenotype: $p < 0.0001$; drug exposure: $p = 0.006$) and the intensity of stereotypical expression (phenotype: $p < 0.0001$; drug exposure: $p = 0.037$). While the stereotypical expression of ESC-exposed HS, but not NS mice trended towards decreasing over time, statistically significant differences have not been shown, likely given that the project and additional behavioural analysis, must still be completed.

CONCLUSION:

The preliminary data obtained from this investigation indicate a robust effect of ESC on the expression of HS, but not NS behaviour. This finding is in line with our current understanding of serotonergic mechanisms in OCD. However, to what extent NS and HS behaviour may be differentially modulated by motor restriction, remains to be established, pending ongoing investigation.

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TITLE:

Taenia larvae modulate host immunity in a mouse hippocampal organotypic brain slice model of neurocysticercosis.

BACKGROUND:

Neurocysticercosis (NCC) is a disease in which larvae of the tapeworm Taenia solium infect the central nervous system of humans. The disease may be asymptomatic for several years, despite the presence of larval cysts in the central nervous system. Asymptomatic NCC is typically associated with a lack of an inflammatory host immune response, presumably due to larval modulation of host immunity. Contrastingly, symptomatic NCC (which most commonly involves seizures), has been closely tied to an intense pericystic inflammatory host response. The ways in which these larvae interact with the host immune system remains largely unknown.

METHODOLOGY:

To explore parasite-host immune interactions, we utilised a mouse hippocampal organotypic brain slice culture model of neurocysticercosis, in which brain slices were exposed to larval products of a model parasite, Taenia crassiceps. The effect of the larval products on innate host immunity was assessed by the measurement of inflammatory cytokines (interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α)) in culture medium using ELISAs.

RESULTS:

Our results illustrate that none of an array of

larval extracts elicited an increase in IL-6 or TNF-α. Contrastingly, larval extracts were able to strongly suppress the production of IL-6 or TNF-α when applied to brain slices in combination with known immunogenic agents (LPS, Zymosan-A, and Poly(I:C)). Fractionation of whole cyst homogenate by ammonium-sulfate precipitation revealed that the immune modulating element is a highly hydrophilic molecule and crude size fractionation revealed that it is a molecule that is larger than 100 kDa in size.

CONCLUSION:

These results, along with some exploratory snRNAseq data, shed light on the ways in which viable Taenia larvae modulate the host immune response.

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TITLE:

Verifying the utility of an in vivo mouse model of cryptococcal meningoencephalitis for the study of neuroimmune responses.

BACKGROUND:

Cryptococcal meningoencephalitis (CM) is a neglected fungal brain infection which kills approximately 136 000 people in Sub-Saharan Africa annually.

Some studies suggest that the fatal neurological damage accompanying Cryptococcus neoformans infection of the brain is mediated by a potent neuroinflammatory response. However, other studies report a lack of neuroinflammation associated with mortality.

Thus, whether the neuroinflammatory response to CM is detrimental or protective is currently unclear. To investigate neuroimmune responses to CM, reliable experimental animal models of this disease are required. Thus, this study aimed to verify the utility of one in vivo mouse model of CM to study the neuroimmune response.

METHODOLOGY:

Twelve-week-old male C57BL/6 mice were intravenously injected with either $5x10^5$ CFU C. neoformans, lipopolysaccharide (positive control), or phosphate-buffered saline (negative control).

Three days post-infection, the mice were euthanised for brain and blood sample collection for fungal load determination, histology, and immunofluorescence. Neuroinflammatory activation was determined by fluorescent immunohistochemical staining for inflammatory biomarkers, nuclear factor for interleukin 6 (NF-IL6) and cyclooxygenase-2 (COX-2).

Circulating pro-inflammatory cytokines (IL6 and tumour necrosis factor-alpha (TNFα)) were measured using enzyme-linked immunosorbent assays.

RESULTS:

Histological staining of brain slices from C. neoformans-infected mice showed successful fungal infiltration of the cortex and cerebellum three days post-infection. Interestingly, C. neoformans did not activate inflammatory signalling, as demonstrated by low levels of NF-IL6 and COX-2 activation within infected brain slices.

Peripheral pro-inflammatory cytokines levels (IL-6; TNF-α) were raised in LPS-treated mice but not in C. neoformans-infected mice.

CONCLUSION:

This study's results validate this model's use in studying the pathogenesis of CM. The results suggest that C. neoformans does not induce a robust neuroinflammatory response in mice.

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TITLE:

Corpus callossum (CC) thickness is inversely associated with with disability (EDSS) in patients with multiple sclerosis (MS).

BACKGROUND:

Multiple sclerosis (MS) is an immune-mediated, chronic inflammatory disorder affecting the central nervous system (CNS) and which may result in disability. MS primarily affects young adults between the ages 20-40 years, especially women. The disorder is associated with demyelination and axonal loss. Magnetic resonance imaging (MRI) is an important tool aiding the diagnosis as well as the temporal and spatial distribution of lesions.

More refined MRI sequences have vastly improved the characterisation of brain volume and focal white matter lesions. Previous studies have found a correlation between brain volume loss and thinning of the corpus callosum (CC). The corpus callosum index (CCI) is a normalized measurement that reflects these changes in brain volume.

METHODOLOGY:

MRI scans of the brains of 25 adult females diagnosed with relapsing-remitting MS and 25 control subjects without MS were evaluated. Three different regions of the CC were measured: the genu, the midbody and the splenium.

In the MS patients measurements of the CCI and the number of lesions in the CC were compared with their Expanded Disability Status Scale (EDSS) assessments, which is the gold standard to measure MS disability. The EDSS ranges from 0 (no disability) to 10 (death due to MS).

RESULTS:

The CCI was significantly lower in the MS patients than the controls ($p=0.03$). Splenium thickness was also significantly lower in the MS patients than in the controls ($p=0.01$). The EDSS values of the patients did not correlate with the number of lesions in the CC. In contrast, a significant inverse association ($p<0.01$) was found between the CCI and the EDSS, and the EDSS and the thickness of the genu, midbody and splenium ($p<0.01$).

CONCLUSION:

Measurement of the CC could be a useful tool as an indicator of disease progression. The findings of this study confirm previous results that indicated brain volume loss as the primary cause of MS disability progression and may help to develop therapy methods that will preserve brain volume to prevent progressive neurological decline associated with some MS cases.

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TITLE:

Investigating gene regulation in the maturing human brain at single-nucleus resolution.

BACKGROUND:

The human brain is a highly complex and dynamic organ that undergoes continuous change in processes such as neurogenesis, synaptogenesis and immune response. Robust evidence exists for the critical role of gene regulatory mechanisms in brain development, cognition, and disease. However, no studies have been conducted that investigate these mechanisms at the single-cell level, across age groups spanning the full human lifespan. The Hockman Lab, through collaboration with Cape Town Neurosurgeons, has assembled a biobank of ante-mortem brain tissue samples. Access tissue has been obtained through elective epilepsy surgery, from a wide variety of age groups.

This research will serve to bridge a gap in the study of brain maturation as it will include samples representative of the paediatric stage. As the brain comprises a diverse array of cell types, further stratified into functionally significant subtypes, there is imperative to unravel the cell type-specific gene regulatory mechanisms responsible for these specifications and the dynamic intercellular interactions enabling the complex organisation and function of the human brain across the course of maturation.

METHODOLOGY:

An analysis of chromatin accessibility utilising single-nucleus Assay for Transposase Accessible Chromatin sequencing (snATAC-seq), corroborated with single nucleus RNA sequencing (snRNA-seq) data will allow for a robust interrogation of key gene regulatory mechanisms influencing gene expression within the maturing human brain.

RESULTS:

Chromatin accessibility data will be computationally dissected to reveal cell-type specific putative cis-regulatory regions that display differential activity across different age groups.

In addition, these regions of the genome may be used as input for in-silico transcription factor binding motif assays to evaluate putative functionality.

CONCLUSION:

Therefore, this investigation will allow for insight into both cis- and trans- regulatory elements, their interactions, and the contribution of these to the modulation of gene expression in the maturing human brain.

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TITLE:

Identifying microRNA species associated with anxiety proneness in South African adolescents.

BACKGROUND:

Anxiety proneness (AP) is the tendency to react fearfully to stressors due to the belief that these stressors have harmful consequences. AP is an intermediate phenotype common to individuals who develop anxiety disorders. The underlying biological mechanisms of AP remain unclear, although it is a trait with both genetic and environmental aetiology.

Epigenetic mechanisms, such as microRNAs (small, non-coding RNAs of 19-20 nucleotides), may explain how the combination of genetic variation and environmental risk factors, such as childhood trauma (CT), can increase risk for the development of anxiety disorders. This cross-sectional study aims to investigate differential microRNA expression associated with AP using whole blood obtained from South African adolescents with variable exposure to CT.

METHODOLOGY:

AP was determined using the State-Trait Anxiety Inventory and Childhood Anxiety Sensitivity Index, to create a composite score reflecting trait anxiety and anxiety sensitivity, respectively. CT exposure was determined using the Childhood Trauma Questionnaire.

Total RNA was extracted from whole blood samples, using the PreAnalytix PAXgene Blood miRNA kit. High quality total RNA samples (n=87) were sent for microRNA-sequencing. DESeq2 will be used to identify differentially expressed microRNAs between high- and low-AP groups. We will determine the effect of CT exposure on microRNA expression between the high-/low-AP using factorial analysis of variance.

RESULTS:

The majority of adolescents were female (75.86%) with an average age of 15 (± 1.19) years. There were no significant differences in age, sex, education, body mass index, smoking or use of medication for stress, anxiety and/or depression between high/low AP or CT groups.

The proportion of participants by self-reported ancestry group differed significantly between the high-/low-AP and high-/low-CT groups (p=0.013), which will be statistically corrected for during differential expression analysis. microRNA expression results will be presented.

CONCLUSION:

We hypothesize that adolescents with high AP scores will have differentially expressed microRNAs, when compared to the adolescents with low-AP scores. Also, that AP-associated microRNAs will differ according to CT experience. This research will help to elucidate the molecular mechanisms underlying AP in adolescence, a critical developmental period during which anxiety disorders are most likely to arise.

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TITLE:

The inflammatory neuroimmune response to Cryptococcal infection in mouse hippocampal slices.

BACKGROUND:

Cryptococcal meningitis (CM) is a fungal infection of the brain that proves fatal for 70 – 100% of infected individuals. This equates to almost 200 000 people per year in sub-Saharan Africa alone. Considering its considerable impact, very little is known about the pathogenesis of CM, including the potential contribution of innate immune responses elicited by the fungus. The aim of this study was to explore inflammatory neuroimmune responses to a fluorescent strain of H99 Cryptococcus Neoformans, which is the major species of fungus that causes CM.

METHODOLOGY:

To achieve this, mouse hippocampal organotypic brain slices (HOBSs) were stimulated with 1 x 108 CFU of fluorescent H99 for 24 hours. HOBs treated with 100 ng/ml lipopolysaccharide (LPS), a strong inflammatory agent, served as positive controls. Dual fluorescent immunohistochemical staining of Iba1 and the inflammatory nuclear factor for interleukin – 6 (NF-IL6), was utilised to visualize the activation of microglia to a pro-inflammatory state.

The stained slices were imaged using confocal microscopy and image analysis was performed in ImageJ. HOBS culture medium was assessed for the presence of interleukin-6 (IL-6) and tumor necrosis factor (TNF) using enzyme-linked immunosorbent assays (ELISAs).

RESULTS:

Confocal images revealed large clusters of encapsulated fluorescent H99, many of which were engulfed by microglia.

However, fluorescent H99 treated slices showed a significantly lower level of NF-IL6 positive microglial cells as compared to LPS treated slices. The levels of IL-6 and TNF in the culture medium of HOBS treated with fluorescent H99 were also much lower than those treated with LPS.

CONCLUSION:

These results demonstrate that the fluorescent H99 strain successfully infected HOBSs, but suggest that the presence of Cryptococcus Neoformans cells does not elicit an inflammatory microglial response in the brain.

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TITLE:

Stress-related disorders, the gut microbiome and platelet-conveyed 5-hydroxytryptamine.

BACKGROUND:

Stress-related disorders, including major depressive and anxiety disorders, are associated with endothelial dysfunction, increased inflammation, and platelet reactivation related to serotonin. Serotonin (5-HT) functions as a neurotransmitter in the central nervous system, whereas in the periphery, it acts as a ubiquitous hormone involved in platelet function. Interestingly, 95% of serotonin is produced by microbiota in the gut and conveyed by platelets through the circulation system.

Platelets are suggested to be the link between the inflammatory response and stress-related disorders. However, to our knowledge, the link between stress-related disorders, the human microbiome, and the role of platelets has not been reviewed.

METHODOLOGY:

This study aimed to critically review published articles using PubMed and Google Scholar searches to elucidate a proposed pathway between stress-related disorders, gut microbiome, and the role of platelets.

We used the following terms as criteria for searches: "Stress-related disorders" OR "Depression" OR "PTSD" OR "Anxiety"; AND "Gut microbiome"; AND "Serotonin" OR "5-HT" OR "Tryptophan"; AND "Platelets" OR "Platelet indices".

RESULTS:

We identified 103 publications using the aforementioned search terms. Of these, 30 publications were found not to be suitable for review, as they themselves were reviews, however, they did broaden the publication search. Research articles excluded from the review did not fall within the scope of this review.

CONCLUSION:

Alteration in microbial composition due to stress increases intestinal permeability which allows the translocation of microbial products known to trigger the release of pro-inflammatory cytokines, causing platelets to become hyperactive and secreting serotonin into the plasma. Consequently, increased circulation levels of serotonin induce the activation of indoleamine-2,3-dioxygenase (IDO1). IDO1 is involved in the tryptophan/kynurenine pathway, which subsequently reduces 5-HT levels in the brain. Moreover, higher levels of pro-inflammatory cytokine levels, possibly due to increased intestinal permeability, increase blood-brain-barrier permeability, allowing inflammatory mediators to enter the brain to cause inflammation. Inflammation is suggested as a key causative factor for stress-related disorders. Hence, microbiota-dependent effects significantly impact platelet function and consequently affect several downstream pathways, altering serotonin levels to contribute to inflammation. Platelets can thus be a link between gut dysbiosis, inflammation, and stress-related disorders.

SESSION 2 (D)

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TITLE:

Investigating the effects of neuroinflammation on network excitability in neurocysticercosis.

BACKGROUND:

Acute and chronic epileptic seizures have been shown to induce significant levels of pro-inflammatory cytokine release in rodents. On the other hand, experimental models that induce inflammation have also shown changes in network excitability that resulted in seizures. Hence, it is unclear whether inflammation causes seizures or if the association between these two events is causal in both directions. This is important to understand in the context of neurological conditions that are characterized by inflammation and seizures, such as Neurocysticercosis (NCC). NCC is caused by an infection of the brain by the tapeworm Taenia solium and has a high prevalence in developing countries. It is widely assumed that the tapeworm could be altering seizure susceptibility in this disease. However, this remains to be demonstrated experimentally. This study aims to investigate the relationship between inflammation and neuroexcitability in organotypic brain slice cultures.

METHODOLOGY:

Hippocampal organotypic brain slices of 7-day-old C57BL/6 mice were prepared. Slices were left (a) untreated or treated with (b) lipopolysaccharide (LPS) – to induce inflammation, (c) Taenia crassiceps homogenate (Hom) – a model for Taenia solium, or (d) a combination of the two. After 3 days in culture, slices were placed in an interface chamber and local field potential recordings were used to record neuronal network activity. Magnesium was omitted from the artificial cerebrospinal fluid to induce seizure-like events (SLEs). The media that contained the brain slices was collected for Enzyme-linked immunosorbent assays, which were used to measure the pro-inflammatory cytokine release.

RESULTS:

LPS induced inflammation through the significant release of the pro-inflammatory cytokines interleukin-6 and tumor necrosis factor-α. I report that Hom was able to significantly attenuate this inflammatory response. However, the established inflammatory milieu did not influence the network excitability of the slices when looking at the time to the first SLE and the intensity (power) of the SLEs.

CONCLUSION:

These results suggest that inflammation alone may not drive changes in excitability, as has been hypothesized. This means that the susceptibility to seizures observed in NCC may be caused by other factors.

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TITLE:

A preclinical rodent model of capture myopathy in wildlife: Initial validation and metabolic signature.

BACKGROUND:

Capture myopathy (CM) is a potentially fatal wildlife metabolic disorder that can result from mass boma capture (MBC). The causal biology of the condition is speculative, while the condition responds poorly to current therapeutic interventions.

Preclinical rodent models may be useful to expand our understanding of the condition. Here, we aimed to develop, characterize and validate a novel rodent model of wildlife capture in Sprague-Dawley (SD) rats, i.e. simulated MBC (SMBC), that will emulate the biobehavioural responses of CM as closely as possible.

METHODOLOGY:

One hundred and twenty (120) SD rats (12 per sex; Ethical Approval Nr: NWU-00576-19-S5) were first subjected to forced treadmill habituation. Rats were then run at 125% of the theoretical VO2MAX (30m/min) until a point of exhaustion while being exposed to an aversive sound. Core temperatures were measured before and after running.

Rats were then spatially restricted for 10 min in groups of 3 same-sex animals in black compartments to simulate confined transport, also while exposed to the aversive noise.

Animals were then subjected to light-dark box (LDB) assessment, which was followed by sociability assessment. Last, urine was collected over 1 hour, and various markers of skeletal muscle metabolism measured.

RESULTS:

SMBC resulted in a significant acute, but not delayed increase in LDH concentration ($p < 0.028$) compared to control groups.

Creatine kinase (CK) remained unaltered in acute and delayed groups with lactic acid showing a significant delayed ($p < 0.045$) but not acute increase in lactic acid between SMBC and control groups. With further analysis underway to establish translational relevance, this model will allow for testing of known and novel capture drugs.

CONCLUSION:

With further analysis underway to establish translational relevance, this model will allow for testing of known and novel capture drugs.

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TITLE:

Species-level profiling of the maternal vaginal bacteriome using full-length 16S rRNA amplicon sequencing with application to Fetal Alcohol Spectrum Disorders.

BACKGROUND:

Affecting approximately 16-31% of children in the Western Cape of South Africa, Fetal Alcohol Spectrum Disorders (FASD) is a term describing varying severities of physical, neurodevelopmental, and behavioural deficits associated with prenatal alcohol exposure.

Exposure to vaginal microbes during delivery results in the acquisition of intestinal bacteria which, via the microbiome-gut-brain axis, have been found to play a significant role in neurodevelopment. Alcohol-associated vaginal microbial alterations may therefore increase FASD risk in infants. Species-level classifications provide greater insight into bacterial dynamics in the microbiome. However,

attainment of species-level resolution using on hand hypervariable sequencing is challenging as information is limited to single regions of the 16S rRNA gene.

OBJECTIVE:

This study aims to perform species-level profiling of the maternal vaginal bacteriome of women who gave birth to infants with and without FASD through long- and short-read sequencing of the full-length 16S rRNA amplicon using the PacBio sequel II and the Illumina iSeq100 instrument, respectively.

METHODOLOGY:

Pregnant women were recruited from antenatal clinics in the Western Cape Province of South Africa. A subset of these women (n=28) provided vaginal swab samples on the day of birth. Alcohol use was assessed via self-reported AUDIT and FASD diagnoses in their infants were made by triangulating data from dysmorphology examinations, neurodevelopmental assessments, and maternal interviews.

Microbial composition was assessed through long- and short-read sequencing of full-length 16S rRNA amplicons.

Following short-read sequencing (150 bp reads) on the iSeq100, libraries were assembled using a custom pipeline to form full-length sequences. PacBio sequencing of the same samples was performed to provide a reference to which the short-read assembly could be compared.

Taxonomy was assigned using the SILVA reference database. Microbiome-related bioinformatic, composition, and diversity analyses were performed using R packages, dada2, vegan and PhyloSeq.

RESULTS:

We anticipate that long- and short-read sequencing of full-length 16S rRNA amplicons will improve the taxonomic resolution of bacteria within the vaginal swab samples and expand our understanding of the effects of alcohol consumption on the maternal vaginal bacteriome composition.

CONCLUSION:

Results will determine if associations between the maternal vaginal bacteriome and FASD exist, and may inform intervention and therapeutic strategies.

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TITLE:

Gold nanoparticle-mediated gene delivery combined with oleanolic acid treatment confers enhanced gene expression in 6-hydroxydopamine-exposed PC12 cells.

BACKGROUND:

The use of gold nanoparticles (AuNPs) as gene delivery vectors is rapidly emerging as an effective alternative to traditional vectors.

With safer, more effective vectors, the potential for gene therapy to provide a disease-modifying alternative has offered promise as an effective treatment for Parkinson's disease (PD), an incapacitating neurodegenerative disorder.

Combination of gene therapy and effective neuroprotective agents such as oleanolic acid (OA), a biologically active compound that has been shown to ameliorate early stage PD symptoms in cell cultures and animal models, may offer enhanced effects of non-viral vector mediated gene therapy.

OBJECTIVE:

The aim of this research was to investigate the therapeutic effect of AuNP-mediated human gene delivery, in combination with OA treatment on PC12 cells exposed to the neurotoxin 6-hydroxydopamine.

METHODOLOGY:

N-Hydroxysuccinimide-functionalized AuNPs, with poly(ethylene glycol) spacer molecule were separately ligated to human amino acid decarboxylase and GTP Cyclohydrolase 1 genes.

A combination of gene therapy and OA treatment was performed on 6-hydroxydopamine exposed PC12 cells.

We made use of the MTT assay in assessment of cell viability; gene expression studies for transgene uptake by the host genome; dopamine ELISA essay for dopamine production assessment; and Transmission Electron Microscope for analysis of AuNP uptake by PC12.

RESULTS:

Our AuNP-gene constructs successfully transduced PC12 cells with no significant cytotoxicity observed, as evidenced by the expression of both human genes, enhanced dopamine production and cell viability analyses, with observed endocytosis of AuNPs.

CONCLUSION:

Gene therapy and OA co-treatment provides an enhanced effect on dopamine production and cell viability, which may potentially provide an improved effect of Parkinsonian symptom relief.

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TITLE:

Characterisation of the gut microbiome associated with neuropsychiatric disorders in South African participants.

BACKGROUND:

Neuropsychiatric disorders (NPDs) are chronic disorders that are among the most prevalent causes of global years lived with disability and global disability-adjusted life years. In South Africa, only a small proportion of patients who are diagnosed with NPDs have access to affordable and effective treatments.

Understanding the underlying mechanisms of NPDs may aid in developing novel treatments. Recent research suggests that the gut microbiome plays a role in the development of NPDs, including depression, anxiety and trauma-related disorders. Furthermore, the gut microbiome can be altered by traumatic experiences and stress, through the release of stress hormones or neurotransmitters that influence the microbiome. However, most of this research has been conducted in either animal models, or North American or European human populations. Therefore, as part of the saNeuroGut study, we aim to characterise the composition of the gut microbiome of South African individuals with self-reported symptoms of depression, anxiety and post-traumatic stress disorder (PTSD) compared to healthy controls.

METHODOLOGY:

Participants completed online self-report questionnaires (CES-D, Spielberger STAI and PCL-5) to assess current symptoms of depression, anxiety and PTSD. Stool samples were self-collected using the OMNIgene GUT OMR-200 collection device, after which DNA extraction was performed using the QIAamp PowerFecal DNA kit. Microbial DNA from 87 participants (65 females, 22 males) between 18 and 68 years of age underwent sequencing of the hypervariable V4 region of the 16S ribosomal RNA gene using Illumina MiSeq over 500 cycles (2x250 paired-end reads).

Bioinformatic and statistical analyses using the DADA2 pipeline and PhyloSeq package in R will be performed to determine differences in gut microbial composition between cases and controls.

RESULTS:

Sixty-three of eighty-seven participants (72%) had mental health cut-off scores indicative of at least one NPD, namely fifty, sixty-nine and twenty-four percent of participants scoring above the cut-off for depression, anxiety and PTSD, respectively. Remaining results are still undergoing analyses.

CONCLUSION:

This study is the first of its kind in South Africa; results will provide insight into the relationship between the human gut microbiome and NPDs in a South African population, which may lay the foundation for studies on the gut microbiome as a future therapeutic target.

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TITLE:

The molecular effects of acute ketamine administration in treatment resistant depression.

BACKGROUND:

A single dose of ketamine produces a rapid antidepressant response in patients suffering from treatment resistant depression (TRD). The transcription factor cyclic AMP response element binding protein (CREB) and brain-derived neurotrophic factor (BDNF) are hypothesized to be involved in the pathogenesis of depression and are targets of multiple antidepressants, including ketamine. However, the exact relationship between ketamine administration and the regional expression of BDNF and CREB in the brain is unknown.

OBJECTIVE:

The aim of this study is to determine the antidepressant mechanism of action of acute ketamine administration in TRD in relation to regional BDNF and CREB expression in the brain.

METHODOLOGY:

A state of TRD was induced in male Sprague- Dawley (SD) rats (n=30) via the chronic administration of adrenocorticotropic hormone (ACTH). On day fourteen rodents received ketamine (n=10), imipramine (n=10) and saline (n=10). One-hour post-treatment rodents were terminated, and their brains were dissected and stored at -80˚C. Regional changes in the expression of CREB and BDNF in the different brain regions were determined using qPCR analysis.

RESULTS:

In the ketamine treatment group (n=10) significantly increased expression of BDNF and CREB is expected in the prefrontal cortex and hippocampus, when compared to the imipramine groups (n=10) and the saline group (n=10). No significant changes are anticipated in the expression of BDNF and CREB in the imipramine group compared to the saline group.

CONCLUSION:

We hope to conclude that ketamine administration significantly increases the expression of BDNF and CREB expression in the prefrontal cortex and hippocampus. This may be the mechanism by which ketamine induces its antidepressant effects.

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TITLE:

Chronic administration of ACTH as a Rodent Model of Treatment Resistant Depression

BACKGROUND:

Clinical outcomes have shown that over one third of major depressive disorder (MDD) patients are either resistant or only partially responsive to common anti-depressant regimens.

Resistance to common anti-depressants has been noted particularly in MDD patients with Cushing's disease implicating hypothalamic-pituitary-adrenal axis dysregulation and chronically raised levels of adrenocorticotropic hormone (ACTH) in the pathogenesis of treatment resistant depression (TRD). Therefore, the aim of this study was to establish a rat model of TRD via the chronic administration of ACTH.

METHODOLOGY:

Rats were divided into a healthy group and a TRD group. Rats in the TRD group were administered ACTH for 4 weeks to develop a treatment-resistant depressive phenotype. Concurrently with the ACTH, all rats were treated with either saline or imipramine daily, and ketamine once a week for 4 weeks.

Experimental animals were subjected to the forced swim test (FST) and sucrose preference test (SPT) on three occasions: firstly following the acclimatisation period, secondly after ACTH/ saline administration and again at the end of the intervention+ACTH period. All data were analysed using GraphPad prism. Appropriate statistical tests were performed based on data distribution as determined by the Shapiro-Wilk test.

RESULTS:

Rats treated with ACTH are expected to display immobility behaviour in the FST. Immobility has been defined as rats floating still, with the exception of one or two hind-leg kicks, with their noses just above water enough to breathe. These same animals are expected to show no preference for sucrose in the SPT. Treating the rats with either saline or imipramine did not change the behaviour of the ACTH-treated animals in the FST and SPT. However, ketamine-treated rats were mobile in the FST and showed sucrose preference in the SPT. Immobility in the FST and lack of sucrose preference in the SPT indicated that ACTH-treated animals displayed signs of despair and anhedonia. These behaviours suggested that the animals exhibited depressive behaviours. The inability of imipramine to reverse these behavioural changes, while ketamine was able to do so, suggested that the rats were likely to display properties of TRD.

CONCLUSION:

Chronic ACTH administration to rats may be a suitable model to study treatment resistant depression.

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TITLE:

Baby blues: The influence of pregnancy and maternal separation on the behavioural profile of FSL and FRL animals.

BACKGROUND:

During pregnancy, and for a short while thereafter, women are at an increased risk to develop perinatal distress that presents as depression and/or anxiety. As much as a third of families are affected by perinatal distress, which translates to approximately 50 000 of South African women. Although the exact aetiology remains unknown, a history of depression and peripartum stressors are considered significant risk factors. Still, available preclinical models generally only focus on the peripartum stressors. Therefore, we investigated the interaction between a predisposition to develop depression and an external insult on postpartum behaviour in an animal model of depression.

METHODOLOGY:

Postpartum Flinders sensitive (FSL) and resistant line (FRL) dams (n=± 8/group) were subjected to the open field (OFT), forced swim (FST) and elevated plus maze (EPM) tests (investigating depressive- and anxiety-like behaviours) and compared to age-matched, non-pregnant counterparts. An additional group of postpartum animals (FSL and FRL) were separated from their pups for three hours/day, from postpartum day (PPD) 2 to 17, with their pups weaned on PPD17, instead of PPD21. These dams were also subjected to the same behavioural tests.

RESULTS:

Overall, pregnancy significantly affected behavioural parameters in both strains. Postpartum animals specifically displayed increased immobility ($p = 0.02$) and decreased swimming ($p = 0.02$) behaviours in the FST. They also spent more time in the closed arms of the EPM ($p = 0.03$), compared to non-pregnant controls. Interestingly, these effects were only significant in the FRL and not FSL dams. Maternal separation and early weaning (MSEW) reduced time spent immobile ($p \leq 0.0001$) in the FST. In the EPM, MSEW animals also spent less time in the closed arm of the maze ($p = 0.01$). These effects were again more prominent in the FRLs.

CONCLUSION:

Pregnancy had a significant effect on the behaviour of the animals, regardless of their stress-sensitive nature. Interestingly, both pregnancy and the maternal separation regime had a more robust effect in the non-stress sensitive strain. Contrary to what we expected,

the maternal separation regime actually decreased the depressive- and anxiety-like behaviours, indicating that a chronic, predictable stressor may not necessarily worsen postpartum behaviour.

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TITLE:

Reviewing the mitochondrial dysfunction paradigm in rodent models as platforms for neuropsychiatric disease research.

BACKGROUND:

To evaluate the bio-behavioural profiles of available rodent models with mitochondrial dysfunction, for their potential suitability as novel models of psychiatric diseases. In short, we considered available literature relating to these models, to describe the face and predictive validity aspects of each model from a psychopathology perspective. Mitochondrial dysfunction and its suspected role within psychiatric diseases have been gaining interest in recent years. The first sign and arguably largest body of evidence for the involvement of the mitochondria within these pathologies are the well documented increases in oxidative stress markers observed in psychiatric pathologies. Correlative evidence is abundant when considering mitochondrial dysfunction together with typical presentations of psychiatric pathologies.

METHODOLOGY:

Literature searches focussed on mitochondrial (dys)function and its role in neurodegenerative diseases, known mechanistic associations between mitochondrial dysfunctions and psychopathologies, and bio-behavioural profiles of various rodent models of mitochondrial dysfunction, relevant to psychiatric conditions.

RESULTS:

We identified seven models with mitochondrial dysfunction as primary construct i.e., the Rotenone and, MPTP-induced models, and the Ndufs3, Ndufs4, Harlequin, ANT1, and Mitopark models. The strengths and shortcomings of each model was summarized and discussed.

CONCLUSION:

Animal models are often used to investigate the complex pathophysiological constructs and novel treatment strategies of neuropsychiatric disorders. That being said, a strong and promising correlation between mitochondrial dysfunction and psychopathologies are gaining more interest. Yet, although present in some animal models of psychiatric conditions (such as depression, bipolar disorder and anxiety), mitochondrial dysfunction is not considered a primary construct in these models. Therefore, using a dysfunctional bioenergetic system as primary construct within a preclinical model, would help explain to which extent mitochondrial dysfunction might be involved in the psychopathologies of these disorders, and even identify novel treatment targets and strategies. Specifically, the "mito-models" that we identified had, for the most part, behavioural and neurochemical profiles relevant to psychiatric research. Despite the limited data supporting the predictive validity of these models, these "mito-models" show promise as bioenergetic deficient models in preclinical neuropsychiatric research.

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TITLE:

A proposal for a study of biological aging profiles of cognitive function and depression in South African women with HIV.

BACKGROUND:

South Africa is burdened by the neuropsychiatric sequelae of HIV infection, including neurocognitive impairment (NI) and depression. Biological aging refers to the progressive decline in function that occurs over and above that due to chronological age and can be investigated in relation to specific phenotypes.

OBJECTIVE:

This study aims to identify the relative utility of different biological aging markers as predictors of NI and depression in the context of HIV and childhood maltreatment (CM), a known risk factor for adverse neuropsychiatric outcomes.

METHODOLOGY:

We will use data and biospecimens collected for an ongoing investigation of biological endophenotypes of HIV in South African women. Briefly, participants completed the HIV Neurobehavioral Research Center Neuropsychological battery, Center for Epidemiologic Studies Depression Scale and Childhood Trauma Questionnaire to provide measures of cognitive function, depressive symptomology, and CM, respectively. Participants also provided blood and underwent structural magnetic resonance imaging (sMRI). This study will assess four measures of biological aging in participants with clinical, neuropsychological and sMRI data at baseline (NTotal = 152, NHIV = 76), one (NTotal = 136, NHIV = 68) and five (NTotal = 80, NHIV = 40) years. Absolute telomere length and mitochondrial DNA copy number will be determined using quantitative polymerase chain reaction. Genome-wide methylation data will be submitted to an online portal for calculation of Horvath, Hannum and DNAm PhenoAge epigenetic clock estimates. Machine learning will be used to generate a brain-predicted age by comparing participant grey matter volumes to those in an independent training dataset. The association of biological aging metrics, alone and in combination with CM, with baseline and follow-up cognitive and depression data will be assessed using regression and linear mixed models.

RESULTS:

The study is in progress and results are not yet available.

CONCLUSION:

This research will investigate the role of absolute telomere length, mitochondrial DNA copy number, epigenetic clock estimates and brain-predicted age in the double burden of HIV and CM and determine how these relate to cognitive function and depression. The results will provide insight into underlying pathophysiological mechanisms and determine the longitudinal predictive value of these biological correlates for NI and depression ■

SOUTH AFRICAN SOCIETY
OF PSYCHIATRISTS

NOTICE OF ANNUAL GENERAL MEETING

16 SEPTEMBER 2022 | 15:30 TO 16:30

Notice is hereby given that the Annual General Meeting will be held on Friday, 16 September 2022, at the Century City Conference Centre, Century City, Western Cape.

FOR THE FOLLOWING PURPOSES:

1. To approve the minutes of the previous Annual General Meeting that took place on 20 October 2020.
2. To receive and consider the financial statements for the period ended 31 December 2020.
3. To appoint Messrs Integritas Auditors, as Auditors of the Company.
4. To transact any other business which may be transacted at an Annual General Meeting.

Any member entitled to attend and vote at the abovementioned meeting is entitled to appoint one or more proxies to attend and speak out and, on a poll, vote in his/her stead. A proxy need not be a member.

Proxy forms must be delivered by email as a legible scanned document to: voting@sasop.co.za or porter.sasop@gmail.com or info@healthman.co.za by no later than Friday, 9 September 2022.

BY ORDER OF THE BOARD

Dr Anusha Lachman

Honorary Secretary

16 August 2022

INSTRUCTIONS TO AUTHORS

South African Psychiatry publishes original contributions that relate to South African Psychiatry. The aim of the publication is to inform the discipline about the discipline and in so doing, connect and promote cohesion.

The following types of content are published, noting that the list is not prescriptive or limited and potential contributors are welcome to submit content that they think might be relevant but does not broadly conform to the categories noted:

LETTERS TO THE EDITOR

* Novel experiences
* Response to published content
* Issues

FEATURES

* Related to a specific area of interest
* Related to service development
* Related to a specific project
* A detailed opinion piece

REPORTS

* Related to events e.g. conferences, symposia, workshops

PERSPECTIVES

* Personal opinions written by non-medical contributors

NEWS

* Departments of Psychiatry e.g. graduations, promotions, appointments, events, publications

ANNOUNCEMENTS

* Congresses, symposia, workshops
* Publications, especially books

The format of the abovementioned contributions does not need to conform to typical scientific papers. Contributors are encouraged to write in a style that is best suited to the content. There is no required word count and authors are not restricted, but content will be subject to editing for publication. Referencing - if included - should conform to the Vancouver style i.e. superscript numeral in text (outside the full stop with the following illustration for the reference section: *Other AN, Person CD. Title of article. Name of Journal, Year of publication; Volume (Issue): page number/s. doi number (if available)*. **Where referencing is not included, it will be noted that references will be available from the author/authors.** All content should be accompanied by a relevant photo (preferably high resolution – to ensure quality reproduction) of the author/authors as well as the event or with the necessary graphic content. A brief biography of the author/authors should accompany content, including discipline, current position, notable/relevant interests and an email address. Contributions are encouraged and welcome from the broader mental health professional community i.e. all related professionals, including industry. All submitted content will be subject to review by the editor-in-chief, and where necessary the advisory board.

REVIEW / ORIGINAL ARTICLES

Such content will specifically comprise the literature review or data of the final version of a research report towards the MMed - or equivalent degree - as a 5000 word article

* A 300 word abstract that succinctly summarizes the content will be required.
* Referencing should preferably conform to the Vancouver style i.e. superscript numeral in text (outside the full stop with the following illustration for the reference section: *Other AN, Person CD. Title of article. Name of Journal, Year of publication; Volume (Issue): page number/s. doi number (if available);* Harvard style or variations of either will also be acceptable
* The submission should be accompanied by the University/Faculty letter noting successful completion of the research report.

Acceptance of submitted material will be subject to editorial discretion

All submitted content will be subject to review by the editor-in-chief, and where necessary the advisory board. All content should be forwarded to the editor-in-chief, Christopher P. Szabo - Christopher.szabo@wits.ac.za

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References: **1**. Deslafore XR 50 and 100, extended-release tablets Professional Information, December 2020. **2**. Osuch E, Marais A. The Pharmacological management of Depression - Update 2017. *S Afr Fam Pract* 2017;59(1):6-16. **3**. Colvard MD. Key differences between Venlafaxine XR and Desvenlafaxine: An analysis of pharmacokinetic and clinical data. *Mental Health Clin* 2014;4(1):35-39. **4**. Database of Medicine Prices, 24 December 2021. Department of Health. Available from: http://www.mpr.gov.za. [Accessed 10 January 2022].

For full prescribing information please refer to the Professional Information approved by SAHPRA (South African Health Products Regulatory Authority).

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