

GLOBAL MENTAL HEALTH IN AN ERA OF SUSTAINABLE DEVELOPMENT: RESEARCH AND POLICY PRIORITIES



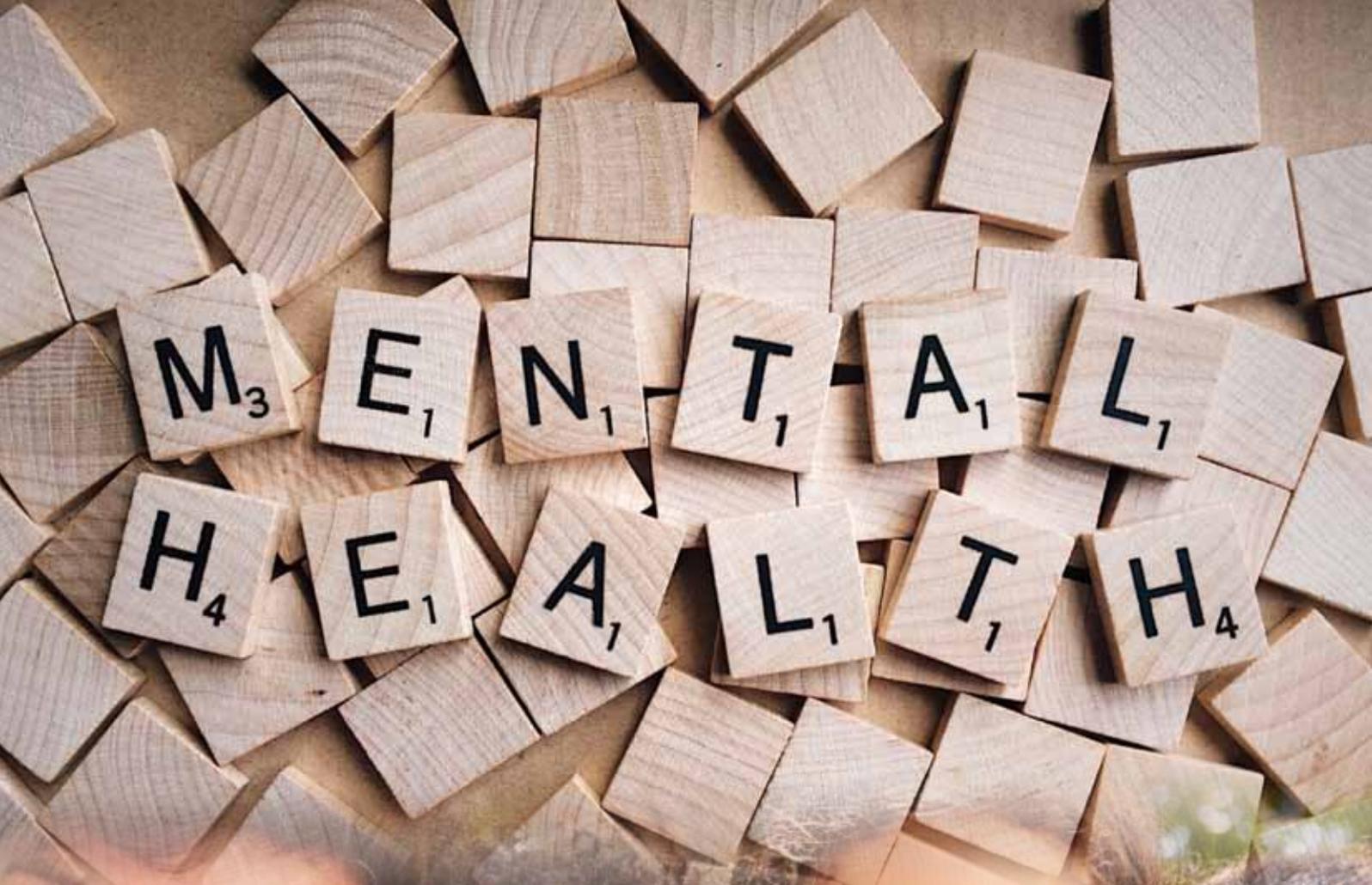
science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



Leopoldina
Nationale Akademie
der Wissenschaftler





BACKGROUND AND MOTIVATION

Mental health is described as a state of welfare in which individuals are conscious of their own abilities, can tolerate normal stress levels, function productively in the place of work and are able to contribute to their communities. Mental health disorders comprise a wide range of mental and behavioural disorders such as depression, bipolar affective disorder, schizophrenia, anxiety disorders, dementia, substance use disorders, and intellectual disabilities and developmental and behavioural disorders that generally arise from childhood through adolescence to adulthood. Problems associated with mental health are compounded by a lack of mental health policies and implementation challenges in many low and middle-income countries.

Globally, health, social systems and services are largely unprepared, insufficient or even do not exist, to respond to the mental health needs of the population. Systematic human rights violations and discrimination against people with mental health disorders and their families persist globally. The most affected individuals are unable to receive even basic and evidence-based care. There are concerted efforts by several global health organisations to encourage and support national governments in strengthening sustainable cost-effective and integrated health care systems through sound policy and research.

AIMS AND OBJECTIVES

Mental health and other related behavioural problems affect all nations and contribute significantly to the global burden of diseases. Despite the significant prevalence of mental health disorders and their global economic burden, the average proportion of national health budgets allocated to mental health care and research remains low.

Organised by the Academy of Science of South Africa (ASSAf) and the German National Academy of Sciences Leopoldina, supported by the South African Department of Science and Technology (DST) and the Janssen Pharmaceutica, the symposium aims to bring together experts from Brazil, China, Germany, India and South Africa to deliberate on global research patterns and domestic policies designed at addressing challenges pertaining to mental health.

CONFERENCE ORGANISING COMMITTEE

Dr Siyavuya Bulani (ASSAf, South Africa)

Prof Crick Lund (MASSAf*¹, South Africa)

Mr Stanley Maphosa (ASSAf, South Africa)

Dr Jan Nissen (Leopoldina, Germany)

Dr Khutso Phalane-Legoale (ASSAf, South Africa)

Prof Frank Rösler (Leopoldina*², Germany)

Contact

Dr Siyavuya Bulani

Academy of Science of South Africa (ASSAf)

International Liaison: Overseas Collaborations

T +27 12 349 6646

E siyavuya@assaf.org.za

*¹ MASSAf – Member of ASSAf;

*² Leopoldina – Member of Leopoldina

Addressing Mental Health Disorders in the African Region

Steven Shongwe, Non-communicable Diseases, World Health Organisation (WHO) Regional Office for Africa.

Email: shongwes@who.int

Abstract

Mental disorders include a range of mental and behavioural disorders such as depression, bipolar affective disorders, schizophrenia, anxiety disorders, dementia, substance use disorders, intellectual disabilities, and other disorders. Globally, 14% of the global burden of disease is attributed to these disorders. Seventy-five per cent of the people with these disorders in many low-income countries do not have access to the treatment they need. Determinants of mental health and mental disorders include social, cultural, economic, political and environmental factors. Certain individuals may be at higher risk of mental disorders – those with chronic conditions such as human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), cardiovascular diseases, cancer, people exposed to substance use, people experiencing discrimination and human rights violations, and those in conflict, natural disasters and humanitarian situations. The overall goal of the WHO Mental Health Action Plan 2013 – 2020 is to promote mental well-being, prevent mental disorders, provide care, enhance recovery, promote human rights and reduce mortality, morbidity and disability for persons with mental disorders. In line with this global action plan, WHO has advocated for prioritisation of mental health in countries, provided technical support for the development and implementation of mental health policies, plans and legislation. WHO has also provided technical support towards the implementation of the WHO Mental Health Gap Action Programme (mhGAP), and the provision of psychosocial support and care during disasters and humanitarian emergencies. Progress in implementing the WHO global action plan has been slow due to several challenges including inadequate funding for mental health, insufficient numbers of trained health workers, inadequate mental health facilities, stigma and discrimination against people with mental disorders. This presentation recommends that countries in the African region should mobilise financial, human and material resources to scale up mental health programmes, services and interventions and accelerate the development and implementation of mental health policies, plans and legislation. It also recommends scaling up the training of mental health workers and promoting task shifting and sharing among health workers and integrating mental health, alcohol and substance use disorders into primary health care.

Global Mental Health and the Sustainable Development Goals: Aligning the Research and Policy Agendas

Crick Lund, Alan J Flisher Centre for Public Mental Health, Department of Psychiatry, University of Cape Town.

Email: crick.lund@uct.ac.za

Abstract

The past 20 years have seen an unprecedented growth in the field of global mental health. Beginning with early research efforts in the 1990s, we have seen key policy commitments from the WHO, national governments and the United Nations Sustainable Development Goals (SDGs). There have also been large new investments in research funding, generating substantial evidence regarding the global burden of mental illness, and cost-effective interventions. Yet the SDG era challenges us, as mental health researchers and practitioners, to think differently about mental health: to understand mental health from a life-course perspective, to develop a more dimensional approach to the construct of mental illness in diverse cultures, and to protect and promote the human rights of people living with mental illness. This talk will present a framework for the social determinants of mental health and the SDGs and propose an agenda for future research and policy priorities in the SDG era.

Mental Health Research Priorities in South Africa: Should We Include Neurogenetics?

Dan Stein, Department of Psychiatry and Mental Health, University of Cape Town, South Africa.

Email: dan.stein@uct.ac.za

Abstract

Several mental health research priority exercises have taken place, both locally and globally. Epidemiological and implementation research has been viewed as particularly important for low and middle-income countries. More recently, attention has been paid to the relevance of discovery research in these contexts. Given advances in neurogenetics and possible clinical implications, there are good reasons for including genetics research as part of such discovery efforts. Still, to maximise potential, an integration of neuroscience with global mental health research is needed.

Breakthrough in Understanding the Molecular Causes of Psychiatric Disorders

Markus Nöthen, Institute of Human Genetics, University Hospital of Bonn, Germany.

Email: markus.noethen@ukbonn.de

Abstract

A long-established hypothesis is that genetic factors contribute to the development of psychiatric diseases, including common illnesses such as schizophrenia and the affective disorders. However, reliable molecular identification of these factors represents a far more recent innovation. This has been rendered possible by technological advances in the individual characterisation of the human genome, and the combining of large genetic datasets at the international level. For the first time, the results of genome-wide analyses provide researchers with systematic insights into disease-relevant biological mechanisms. Here, the integrated analysis of different omics-level data generates important insights in terms of the interpretation of the genetic findings (e.g. the national IntegraMent consortium). The results of genetic studies also demonstrate the degree of etiological overlap between differing psychiatric disorders, with the greatest commonality having been observed to date between schizophrenia and bipolar affective disorder. Although the translation of genetic findings into routine clinical practice is being pursued at various levels, elaborate follow-up studies are typically necessary. The diagnostic investigation of rare genomic deletions/duplications (so-called copy number variants) in patients with schizophrenia is likely to represent one of the first examples of routine clinical application. The necessary prerequisites for this are currently being defined, for example at the European level within the COST action EnGagE.

China Brain Project and Macaque Models for Biomedical Research

Mu-ming Poo, Institute of Neuroscience, Chinese Academy of Sciences.

Email: guyixi@ion.ac.cn

Abstract

After years of discussion and planning, China Brain Project (on Brain Science and Brain-inspired Technology) is officially initiated this year. This project consists of basic research on the neural circuit basis of cognition, as well as the development of new diagnostic and therapeutic approaches in treating brain disorders and brain-inspired machine learning methods and computing devices. Non-human primates will play a prominent role as the animal model for both basic and applied research in the China Brain Project. In particular, the project proposes the mapping of mesoscopic connectome of the macaque monkey, a long-term project that requires extensive international collaboration. The project also calls for the generation of macaque models of brain disorders and the development of intervention and therapeutic approaches using these models. For preclinical animal studies, it is desirable to have monkeys with a relatively uniform genetic background. I will summarize our recent efforts in cloning macaque monkeys using somatic cell nuclear transfer (SCNT) and showed that this approach could be used in generating macaque monkey clones carrying identical gene-editing. As an example, we first performed CRISPR/Cas9 editing on *in vitro*

fertilised macaque embryos to knockout *Bmal1*, gene encoding a core transcription factor for circadian rhythm, and obtained a group of monkeys with either complete or mosaic knockout of *BMAL1* expression. To varying extent, these monkeys showed circadian disorders in locomotive activity, sleep pattern and circulating hormones, as well as anxiety/depression and schizophrenia-like psychosis phenotypes. We then took the skin fibroblasts of one young male monkey that showed a complete *BMAL1* knockout and most severe circadian disorder phenotypes for SCNT and generated five monkey clones with identical *BMAL1* knockout genotype. Thus, gene-edited macaque monkeys with uniform genetic background will soon be available for studying primate neurobiology and for developing therapeutics for human diseases.

Family Studies from Endogamous Groups Enable the Elucidation of Distinct Predisposing Pathways in Dyslexia

Subrata Sinha, All India Institute of Medical Sciences, New Delhi, India.

E-mail: sub_sinha@hotmail.com

Abstract

Dyslexia is a specific learning disability that manifests as difficulty in reading despite adequate intelligence or opportunity. It is a complex disorder, which has a strong heritable component. While there are several genes that have been implicated in the pathogenesis of dyslexia, none of these account for a significant proportion of the disability across populations.

We have studied three extended families with from distinct endogamous groups who had a high proportion of dyslexia. All these families had distinct patterns of inheritance. One of these had an autosomal dominant pattern of inheritance. A set of 17 polymorphisms on Chromosome 5p31.3 that encompassed a 1.9 Mb region comprising mainly the Protocadherin G (*PCDHG*) cluster, was strongly associated with dyslexia in this family. Seven of the risk-associated variants are ancestral variants preponderant Neanderthal and Denisovan sequences, while the non-risk associated variants are preponderant in modern humans. The other families had different inheritance patterns; one was autosomal recessive, while the third had an association with Attention Deficit Hyperactive Disorder (ADHD), a known co-morbidity condition of dyslexia.

Endogamous groups are common in the developing world and are of great help in identifying disease pathogenesis and the molecular sub-classification of disease phenotypes. Because of genetic similarities, especially during family studies, they provide a better opportunity to identify pre-disposing mutations and pathways. While the exact pathways thus identified may not be generalised to the population at large, they provide vital clues for endophenotyping and pathogenesis. However, it is important that such studies have to be pursued with sensitivity and within clear ethical guidelines, so that they do not increase the vulnerability of the populations being studied.

An important component of this work was done at the National Brain Research Centre, Manesar, India.

Common Mental Disorders Among Individuals Seeking HIV Testing

Ashraf Kagee, Centre for Public Mental Health, University of Stellenbosch, South Africa.

Email: skagee@sun.ac.za

Abstract

The presentation will have two parts. In the first part, the prevalence of mental health conditions among persons seeking an HIV test will be discussed. In the second part, the utility of screening for common mental health disorders will be examined.

Much of the literature assumes that the receipt of an HIV-positive test results precipitates a mental health condition, such as depression, anxiety or posttraumatic stress. I will present data on the prevalence of common mental disorders among persons seeking an HIV test, i.e. prior to receipt of their test results. Using the Structured Clinical Interview for the DSM (SCID) among 500 persons seeking HIV testing, my studies found the following prevalence of 14.2% for major depressive disorder; 5.0% for generalised anxiety disorder.

der; 4.9% for posttraumatic stress disorder; and 19.8% for alcohol use disorder. These findings imply the need to integrate mental health assessment and referral trajectories in the context of voluntary HIV counselling and testing.

Considerable literature has also indicated that screening for common mental disorders will assist in case detection and consequent treatment. We administered a battery of self-report screening instruments to test their accuracy in determining caseness for the disorders mentioned above. Receiver operating characteristic curve analysis was used to determine the ability of these measures to discriminate between caseness and non-caseness as determined by the SCID. We found the ability of screening instruments to predict caseness for common mental disorders was limited. Persons screening positive for a common mental disorder may still require evaluation with a clinical interview by a trained professional to be diagnosed with a common mental disorder, which raises questions about the resource utilisation in the public health system.

Addressing the Challenge of Mental Disorders: Genetic Approaches to Nosology, Etiology, and Treatment

Marcella Rietschel, Department of Genetic Epidemiology in Psychiatry, Central Institute of Mental Health, Germany.

Email: Marcella.Rietschel@zi-mannheim.de

Abstract

Genetic factors are implicated in the etiology of all mental disorders. Unravelling these factors on the molecular level will generate insights into biological mechanisms and the interplay between genetics and environment. This in turn will guide future intervention and prevention strategies on both the individual and population level. An ever-increasing number of genetic variants are being identified via high-throughput genome-wide association analyses (GWAS). The majority of these variants are common and make only a limited contribution to the respective mental disorders. However, such variants can shed light on genes and pathways of etiological significance. Furthermore, joint analyses generate insights into the genetic architecture of mental disorders, as well as overlap with (co-morbid) diseases and traits. GWAS data on different mental and somatic disorders can be compared using approaches such as polygenic risk score and linkage-disequilibrium score regression analyses. To date, important findings from such analyses include a wide-spread cross-disorder sharing of common risk variants. Future steps in mental disorder research will include a disentangling of the communalities and specificities of the different mental disorders, elucidation of the impact of environmental factors on mental disorder risk, and the establishment of biologically guided diagnoses. This is a challenging undertaking, since no objective measure or biological marker – comparable to blood pressure monitoring in hypertension, or glucose measurement in diabetes – is yet available to assist the diagnostic process or predict the course of mental disorder and disease risk. This endeavour will require new approaches, including novel methods of phenotyping. Use of new cost-efficient devices, such as smartphones and actigraphs, will allow active and passive real-time assessment of many phenotypes of interest. These phenotypes will include: psychological parameters (e.g. emotion, cognition, volition, craving); physiological parameters (e.g. heart rate variability, locomotor activity, breathing rate); behaviour (e.g. fluid intake, social interaction); and environmental conditions (e.g. geolocation, surroundings). Longitudinal monitoring of these phenotypes can be performed over extended time periods in both patients and subjects from the general population. Combining these data with the results of parallel neuroimaging and multi-omics analyses will generate information concerning the biological mechanisms of traits underlying the development and course of the various mental disorders. The clinical utility of these ecological assessments in terms of predicting and preventing mental disorder relapse has already been demonstrated.

Priorities of Mental Health Public Policy in Portuguese-speaking Countries of Africa and South America: How to Build Nationwide Care Systems in Contexts of Social Inequalities, Vulnerability and Scarcity

Pedro Gabriel Delgado, Institute of Psychiatry, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.

Email: p.g.godinhodelgado@gmail.com

Abstract

The sustainable development agenda (United Nations (UN) 20/30) recommends that middle and low-income countries face barriers to access to mental health care in order to achieve adequate health care coverage by 2030. In addition to the general guidelines and measures, such countries should develop innovations that address and include local peculiarities, especially in contexts of socioeconomic inequity, vulnerability and scarcity of resources. The present study analyses the experience of expanding access to treatment in Brazil, in the period of 2001 – 2015, and presents and discusses the strategy developed, i.e., replacing hospital-centred care for the internalisation of community-based services and mental health actions in the primary care level. We describe the model change, and the results obtained in the expansion of access. In order to dialogue with the recommendations of Agenda 20/30, the strategies for expanding coverage in mental health of two Portuguese-speaking African countries, equally marked by inequity, vulnerability and scarcity, in very diverse socio-cultural and economic contexts, are summarily discussed. The aim is to identify strategies that constitute local innovations and can be effective ways to address the mental health gap in countries of an international community, the Community of Portuguese Speaking Countries (CPLP).

Adolescent Substance Abuse Trends: The Need for Early Identification

Arvin Bhana, Health Systems Research Unit, South African Medical Research Council, South Africa.

Email: Arvin.Bhana@mrc.ac.za

Abstract

The presentation focuses on adolescent substance abuse trends using data collected over a five-year period from treatment facilities in South Africa through the South African Community Epidemiology Network (SACENDU). The spotlight is falls on a number of individuals in treatment in the country, key demographic characteristics and the major substances abused by adolescents. Implications of these trends are discussed in relation to mental health in general and in relation to neurobiological vulnerabilities. Suggestions for future research are discussed in advocating for early identification and treatment.

Epigenetics in Psychiatry and Psychotherapy – At the Crossroads between Risk and Resilience

Katharina Domschke, Department of Psychiatry and Psychotherapy, University of Freiburg, Germany.

Email: katharina.domschke@uniklinik-freiburg.de

Abstract

After identification of the genetic architecture of complex genetic mental disorders, there is burgeoning evidence for epigenetic mechanisms such as DNA methylation or histone modifications to crucially shape risk and resilience towards mental disorders at the crossroads between the genetic and the environmental level. Epigenetic patterns might furthermore govern treatment response and/or constitute temporally dynamic biological correlates of treatment success. Finally, pharmacological targeting of epigenetic mechanisms carries promising potential to augment treatment efficacy in mental disorders. The present talk will focus on recent advance in epigenetic research from basic mechanisms to treatment options exemplarily

for anxiety, affective and stress-related disorders and will provide a forum to discuss future developments as well as limitations in the field. Despite some pitfalls, such as a variety of confounders, the difficulty to translate peripheral findings to central processes in humans and open questions relating to stability and transgenerational transmissibility of epigenetic marks, progress and perspectives in the field of epigenetics carry great promise to take us closer to clinical application comprising resilience-increasing indicated preventive measures in high-risk groups, as well as more targeted, personalised and innovative treatment options for mental disorders.

Using Intervention Research to Drive Evidence-based Integration of Mental Health into Primary Health Care Settings in South Africa

Inge Petersen, Centre for Rural Health, University of KwaZulu-Natal, South Africa.

Email: PETERSENI@ukzn.ac.za

Abstract

While there is research evidence on the effectiveness of integrating mental health into primary health care using task sharing in low and middle-income countries; there is a paucity of knowledge of how to scale up such models in real-world settings. Using the Medical Research Council framework for complex interventions, this presentation will track the development, implementation, evaluation and scale up of a collaborative care model for the integration of care for common mental disorders into the chronic primary health care platform in South Africa in real-world settings. Through the Programme for Improving Mental Health Care (PRIME), an initial programme theory for integrated mental health care for adults with common mental disorders was co-developed with local stakeholders in one district in the North West province, using Theory of Change workshops. The resulting collaborative care model was piloted, refined and then initially evaluated using a quasi-experimental design comprising a repeat facility detection survey to assess changes in detection, a cohort study to assess individual-level changes in symptoms and functioning, and a case study to examine the process of implementing the plans. This implementation study was followed by a pragmatic cluster randomised control trial of patients with comorbid hypertension depression and hypertension. Process indicators, collected alongside the trial, were analysed using qualitative comparative analysis to understand the configurational effects of these indicators on trial outcomes across the cascade of care. Through the Mental Health Integration (MhINT) project, this collaborative model has been scaled up in the KwaZulu-Natal province starting with the Amajuba district using continuous quality improvement as the vehicle of implementation, resulting in differentiated refined scale-up packages for different contexts. This scaled-up package is being evaluated using implementation science methods by the Southern African research consortium for Mental Health Integration (SMhINT). Findings from these various studies will be reported.

Providing Screening, Brief Interventions and Referral to Treatment (SBIRT) for Substance Use Disorders into South Africa's Primary Health Care Services: Lessons from Local Research

Bronwyn Myers, Alcohol, Tobacco and Other Drug Research Unit, South African Medical Research Council, South Africa.

Email: Bronwyn.Myers@mrc.ac.za

Abstract

In recent years, the South African Department of Health has expressed commitment to scaling up the provision of screening, brief intervention, and referral to more intensive treatment (SBIRT) for harmful substance use within primary health care services. To ensure that the provision of SBIRT for harmful substance use moves from a service plan to successful implementation requires evidence-based tools for SBIRT to be identified and questions related to the process of delivering SBIRT within current health services to be addressed. This presentation will describe findings from studies of SBIRT for harmful substance use conducted within emergency departments, HIV, and chronic disease services. First, we will present findings related

to screening tools and brief intervention materials. Next, patient, health system, and contextual barriers to SBIRT implementation that require consideration when developing a national implementation strategy will be reviewed. Finally, provider and patient recommendations for how to enhance the acceptability of SBIRT, feasibility of implementation, SBIRT adoption, and the fidelity with which SBIRT is implemented will be presented. If used, lessons from these local studies could support the successful implementation of SBIRT within primary health care services.

Overcoming Trauma and Violence – From Individual Trauma Narratives to Community-based Intervention in War-torn Regions

Thomas Elbert, Sabine Schmitt, Katy Robjant, Maggie Schauer, & Anke Köbach, University of Konstanz, Germany.

Email: Thomas.Elbert@uni-konstanz.de

Abstract

Experiences of adversities and stressors are stored in an associative memory. With regard to social and physical threats for life and integrity, this trauma network becomes enlarged, with ever more cues being able to trigger alarm or dissociative responses. Ultimately this will lead to forms of trauma-related suffering, including post-traumatic stress disorder (PTSD) and depression. Narrative Exposure Therapy (NET)¹, an evidence-based psychotherapy², assists survivors to reorganise their memory and thus initiates a healing process. In NET, the client, with the assistance of the counsellor, constructs a chronological narrative of her/his life story with a focus on the traumatic experiences. Within a predefined number, usually about 4 – 12, of 90 – 120 min sessions, the fragmented reports of the traumatic experiences will be transformed into a coherent narrative. Empathic understanding, active listening, congruency, and unconditional positive regard are key components of the therapist's behavior and attitude. For traumatic stress experiences the therapist explores sensory information, resulting cognitions, affective and physiological responding in detail and probes for respective observations. The patient is encouraged to relive these experiences while narrating, while consciously contrasting them to the "here and now". Using permanent reminders that the feelings and physiological responses result from activation of (hot) memories, the therapist links these mnemonic representations to episodic facts, that is, *time* and *place* (cold memory)³. For survivors of violence, the testimony can be recorded and used for documentary purposes.

While this treatment has helped thousands of survivors in war and crisis regions to find ways back to a life with social relations and occupational functioning, individual therapy can only be one component for healing. Another one is acceptance and support by the social group. Therefore, we have developed NETfacts, a feasible intervention on the community level. NETfacts combines ongoing provision of trauma therapy with delivery of a 3 to 4-week trauma-informed community intervention. It includes the development of a *community lifeline* symbolising shared highly affective experiences. It is constructed in a meeting with community members followed by a 2-week period in which traumatic events of traumatised individuals (with subclinical symptom severity) are recorded in single exposure sessions according to the NET logic. The narratives of traumatic experiences that are found critical for the continuation of violence will be presented to community members during the next two session. In the fourth and last community session, an anti-violent action schemes is developed by the community. All members of a community/village are encouraged to actively participate.

We have first tested the feasibility and then demonstrated the efficacy of NET facts in villages of the war-stricken Kivu regions of Eastern Democratic Republic of the Congo (DRC). An example of a *community lifeline* is presented in Figure 1. It is our hope that this approach can be scaled up to support larger numbers of survivors of war and violence, and even contribute to a sustainable peace-building process.

¹ Schauer M, Neuner F, Elbert T (2005, 2nd ed. 2011). **Narrative Exposure Therapy**. Göttingen, Germany: Hogrefe & Huber.

² Schnyder U, Ehlers A, Elbert T, Foa E, Gersons B, Resick P, Shapiro F, Cloitre M (2015). Psychotherapies for PTSD: what do they have in common? *European Journal of Psychotraumatology*, 6. doi:http://dx.doi.org/10.3402/ejpt.v6.28186

³ Elbert T, Schauer M (2002). Psychological trauma: Burnt into memory. *Nature*, 419, 883.

