# Abstracts for Talks at the TSIL 2021

Day One, September 16th

## Panel 1
### Modular, Transdiagnostic, and Technique-based Approaches

**Towards a mechanism-based personalized psychotherapy by moving beyond categorial classification systems and psychotherapy orientations**
*Eva-Lotta Brakemeier, University of Greifswald, Germany*

After first showing that personalization of psychotherapy is indeed beneficial, EL Brakemeier argues for mechanism-based personalization by outlining specific approaches from her lab. She concludes by discussing possible ways to overcome categorial classification systems and traditional psychotherapy orientations in order to select the optimal treatment for each patient.

**Title coming soon**
*Tim Dalgleish, University of Cambridge, UK*

Abstract coming soon

**An Overview of Research on the Unified Protocols for Transdiagnostic Treatment of Emotional Disorders in Children and Adolescents**
*Jill Ehrenreich-May, University of Miami, USA*

Instead of being tasked to treat disorders one-by-one, clinicians might utilize a transdiagnostic approach to robustly decrease internalizing symptoms in youth. This presentation will introduce attendees to current research on the efficacy, effectiveness and possible limitations of the Unified Protocols for Transdiagnostic Treatment of Emotional Disorders in Children and Adolescents

**Personalizing psychotherapy at the process level: Going beyond treatments and diagnoses.**
*Juan Martin Gomez Penedo, University of Zurich, CH*

In this presentation I'm going to discuss the possibility of personalizing psychotherapy based on individual predictions of process and mechanisms effects. As an example, I will present a recently published empirical study, using machine learning to predict problem coping effects on psychotherapy

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**Title coming soon**
*Stefan Hofmann, Boston University, USA; Philipps-Universität Marburg, Germany*

Abstract coming soon

**Title coming soon**
*Mei Yi Ng, Florida International University, USA*

Abstract coming soon

**Which module(s) for whom? Personalizing modular/technique-based approaches to psychotherapy**
*Julian Rubel, Justus-Liebig-University Gießen, Germany*

Modular transdiagnostic approaches are predestined to be applied in a personalized manner. Their toolkit structure provides a greater amount of flexibility for personalization than the nowadays much more common personalized selection of treatment packages. However, this greater flexibility also comes along with greater complexity. As such, empirically-based personalization of transdiagnostic modular treatments is faced with many challenges. In the present talk, Julian Rubel describes three key challenges and shows an exemplary approach trying to address two of them.

**Testing a "simple" personalised transdiagnostic digital intervention to promote mental health and well-being in young people –the ECoWeB project**
*Ed Watkins, University of Exeter, UK*

ECoWeB tests the efficacy of personalised emotional competence (EC) skill training via self- help app as scalable mental health promotion for young people. 3830 young people have been randomised to self-monitoring control, generic CBT self-help app or EC app with personalisation to 2 most needed EC skills, with 12-month follow-up.

**Not Just "Big" Data: Importance of Sample Size, Measurement Error, and Uninformative Predictors for Developing Prognostic Models for Digital Interventions**
*Chris Beevers, University of Texas, USA*

Our simulations suggest that machine learning methods capable of discovering complex interactions and nonlinear effects perform particularly well in large samples when the predictors and outcomes have virtually no measurement error. However, in the presence of moderate measurement error, these methods provide little or no benefit over regularized linear regression.

**The Complex Journey From Data-Informed to Data-Driven Personalization of Psychological Therapies: Learnings From the Development and Piloting of the RainFrog Digital Therapy Ecosystem**
*Zachary Cohen, University of California, Los Angeles, USA*

Abstract coming soon

**Scaling up treatment prediction research using online research methods**
*Claire Gillan, Trinity College Dublin, IRE*

We developed an internet-based protocol that allows us to gather rich datasets (>650 variables) in a large samples (N>700 to date) of individuals starting antidepressants or iCBT. Recruitment of participant is rapid and attrition is low. This design may dramatically speed up progress in developing models to assist clinical decision-making.

**Utilizing Passively Collected Data and Computational Models to Drive Scalable Personalized Interventions**
*Nick Jackson, Dartmouth College, USA*

Presenting results from approximately twenty studies from hundreds of thousands of participants across the globe, the current talk discusses the application of personal digital devices and machine learning to assess present and future changes passively and longitudinally in psychopathology symptoms, as well deliver personalized scalable interventions.

**Personalizing Eating Disorder Treatment**

*Cheri Levinson. University of Louisville, USA*

Eating disorders (ED) are extremely heterogeneous and treatments do not work for 50% of individuals. The current study (N=47) tested a personalized treatment for ED, using idiographic network analysis to inform treatment target selection (Network-Informed Personalized Treatment; NIPT-ED). NIPT-ED was highly feasible, rated as acceptable by patients, and decreased ED severity.

**Little Treatments, Big Effects: Building Brief Interventions to Reduce Youth Psychopathology at Scale**

*Jessica Schleider, Stony Brook University, USA*

Despite advancements in effective intervention development, most youths in need of mental health treatment cannot access support. In this talk, Dr. Jessica Schleider overviews her lab's work on building and testing online single-session interventions (SSIs) for youth depression and anxiety, highlighting how SSIs may help fill need-to-access gaps in mental healthcare.

## Panel 3
### Assessment (Idiographic Approaches and Intensive Longitudinal Assessment)

**Life after the hype: Implementing networks and complexity fruitfully for idiographic assessment**
*Laura Bringmann, University of Groningen, NL*

Networks and complexity approaches are increasingly used in clinical practice. However, although the theories sound plausible,translating them to a suitable model is less easy than originally thought. In this talk I will address some of the problems of VAR based networks and discuss ways forward.

**Using Unsupervised Learning to Generate Supervised Clinical Tool**
*Aaron Fisher, Berkeley University of California, USA*

The current talk presents an amalgam of methodological and statistical procedures which 1. Identify idiosyncratic states of experience in individuals, 2. Coalesce heterogeneous collections of states into a set of common, generalizable states, 3. Use this information to create predictionmodels which populate state markers into unseen data with fidelity.

**Title coming soon**
*Eiko Fried, Leiden University, NL*

Abstract coming soon

**Dynamic cognitive assessment in health and disease**
*Laura Germine, McLean Institute for Technology in Psychiatry; Harvard Medical School, US*

The translation of classic cognitive assessments to personal digital devices enables new approaches for understanding cognitive function and health. This includes better methods for developing cognitive measures that are sensitive, reliable, engaging, and accessible as well as shifting from a static and context-free understanding of cognition to one that is dynamic and context-rich. Different types of inferences that can be derived from dynamic measurement of cognition (using ecological momentary assessment) will be discussed.

**Working towards personalization: A series of effects using EMA**
*Marilyn Piccirillo, University of Washington, USA*

Ecological momentary assessment (EMA) offers a framework for studying dynamic processes on the individual-level. I present results from three studies examininggroup vs. individual level differences using EMA data. Results suggest a need for future research to define the boundaries ofgroup versus individual-level differences, with greater attention to psychometrics.

**Title coming soon**
*Brian Schwartz, University of Trier, Germany*

Abstract coming soon

**Predicting benefit from app-based mindfulness training for ruminating adolescents**
*Christian Webb, Harvard Medical School, USA*

Rumination prospectively predicts depression and anxiety, which surge during the adolescent years. Mindfulness training – with its emphasis on metacognitive awareness and present- moment attention – may be effective at reducing rumination. This presentation highlights some of our recent work on predicting which teens are most likely to benefit from app-based mindfulness training.

**Where are we going? Embracing the Complexity of Mental Health**
*Claudi Bockting, Amsterdam University Medical Centers, NL*

Where are we going in the field of clinical psychology? We are going to embrace the complexity of mental health and develop interdisciplinary mental health science that generates innovative more effective interventions on individual level as well as on societal

**Combining Digital Phenotyping and Genetics for Precision Mental Health**
*Nelson Freimer, University of California, LA, USA*

Large scale genetics has enabled clinical subtyping and trajectory-prediction throughout medicine. Genetic studies of mental disorders have yielded hundreds of replicated associations, but the lack of objective, scalable behavioral phenotypes has limited the clinical translation of such findings. Deployment of connected devices to obtain scalable, longitudinal behavioral phenotypes could transform the field.

**On DANTE Project (Digitally Augmented iNTerventions in Evolution)**
*Toshi Furukawa, Kyoto University, Japan*

We are currently designing a living RCT platform aiming at developing super-individualized treatments based on a modular iCBT smartphone app. It will involve first a fully factorial trial and next a SMART in conjunction with embedded A/B tests. We heartily welcome your feedback on our proposed project.

**Title coming soon**
*Dan Karlin, Tufts University, USA; Chief Medical Officer at MindMed*
Abstract coming soon

**Developing a consumer-driven platform based on healthcare's first RCT of a referral process**
*David Kraus; President and Chief Scientific Officer of Outcome Referrals*

For the past thirty years we have been using large-scale naturalistic outcomes to improve care. Our latest RCT shows that we can roughly double the effectiveness of care over previous client-therapist matching protocols. We will review the research and how we have created a consumer-driven platform.

## Panel 5
A Global Mental Health Lens and Personalization in Minoritized Populations

**Title coming soon**
*Jack Keefe, Weill Cornell, USA*

Abstract coming soon

**Title coming soon**
*Danilo Moggia, University of Trier, Germany*

Abstract coming soon

**Treatment selection in global mental health**
*Vikram Patel, Harvard Medical School, USA*

Abstract coming soon

**Examining what works for whom**
*Daisy Singla, Sinai Health, University of Toronto, CAN*

The current presentation will present the Scaling Up Maternal Mental healthcare by Increasing access to Treatment (SUMMIT) Trial and an effort to examine what works for whomamong perinatal women with depressive and anxiety symptoms receiving one brief, behavioural activation (BA) treatment. The SUMMIT trial (www.thesummittrial.com) is currently taking place in academic hospitals across three hubs—Toronto, Chapel Hill, and Chicago. This non-inferiority randomized controlled trial (N=1368) includes adult women with perinatal depressive and anxiety symptoms, where all participants receive an 8-session course of BA delivered by either 1) mental health specialist providers (psychiatrists, psychologists or social workers) or trained non-specialist providers providers (e.g. registered nurses, midwives, with experience in perinatal care but not perinatal mental health care) and 2) either using HIPPA/PHIPA-compliant telemedicine platforms or in-person. The primary outcome is EPDS scores at 3-months and a range of baseline measures are being collected including demographics (age, education, immigrant and race/ethnicity, martial status, pregnancy history and clinical history) along with clinical outcomes including depressive (EPDS and PHQ-9) and anxiety (GAD-7) symptom scores, trauma (PCL-6) scores, perceived social support, activation levels, and functioning levels.

**Personalization of mental health interventions:Leaving the therapist's office**

*Soo Jeong Youn, Massachusetts General Hospital, Harvard Medical School, USA*

Individuals from underserved communities have high mental health needs are more likely to seek care in community settings than through mental health specialists. Thus, "personalizing" treatment to their needs includes rethinking interventions, who is capable of delivering such interventions, where they are delivered, in a long-term sustainable manner.

**Using Artificial Intelligence to Advance Precision in the Treatment of Depression**
*Dana Atzil-Slonim, Bar-Ilan University, Israel*

Depression is a serious and at times devastating illness. Given the personal, societal, and economic impact of depression, there is an urgent need to optimize existing health care practices. The current presentation discusses the potential of harnessing artificial intelligence and automated text and audio analytic techniques to pinpoint important information that emerges from the interaction in psychotherapy sessions.

**Title coming soon**
*Kim De Jong, University of Leiden, NL*

Abstract coming soon

**Heterogeneity as an opportunity for precision medicine**
*Ann-Kathrin Deisenhofer, University of Trier, Germany*

To move average effective psychological treatments to a level where treatment works for every individual we need personalization. Using the example of PTSD, this talk gives an overview of treatment selection methods. It highlights the practical limits associated with this line of research and suggests future directions

**Title coming soon**
*Lorenzo Lorenzo-Luaces,*

Abstract coming soon

**Title coming soon**
*Eva Petkova, New York University; Grossman School of Medicine. USA*

Abstract coming soon

**Prediciton models for treatment selection in depression: the challenges of external validation**

*Suzanne van Bronswijk, Maastricht University, NL*

Optimizing treatment selection with prediction models may improve treatment outcomes in depressionby predictingthe optimal treatment for a given individual.Models need to be externally validated todetermine theirgeneralizability,which has rarely been done. This presentation is about (the challenges of) external validationof these prediction.

**The use of machine learning in psychotherapy research: The future of a hype in precision medicine?**
*Katie Aafjes-van Doorn, Ferkauf Graduate School of Psychology, USA*

Machine learning clinical prediction models have recently gained popularity in the broader mental health field. I will critically report on the current scope of machine learning methods in psychotherapy research (Aajfjes-van Doorn et al., 2020). Given its novelty and potential, the current proof-of-concept studies are limited but encouraging.

**Born-again trees for predicting treatment outcomes.**
*Marjolein Fokkema, University of Leiden, NL*

In the born again tree approach (Breiman & Shang, 1996), the predictive accuracy of a single decision tree is improved through the use of a black box method. I adjusted and applied the born again approach to predicting treatment outcomes, and results indicate that it provides an interpretable model with state of the art predictive accuracy.

**Sample size calculations for clinical prediction model research**
*Richard Riley, Keele University, UK*

In terms of sample size for model development, current "rules of thumb" are based on having at least 10 events per predictor variable, but I will describe a more scientific approach based on minimising expected overfitting and ensuring precise parameter estimation. In terms of sample size for model validation, "rules of thumb" suggest at least 100 events and 100 non- events. Again, a more scientific approach is possible, which uses the distribution of the model's linear predictor, and targets precise estimation of calibration, discrimination and net- benefit. Real examples are used to illustrate the concepts.

**Implementation of prognostic models in clinical practice**
*Gonzalo Salazar de Pablo, King's College London, UK*

Abstract coming soon

**Title coming soon**
*Ewout Steyerberg, University of Leiden, NL*

Abstract coming soon


**Prediction models in the pandemic: Results and lessons learned from a living review**
*Laure Wynants, Maastricht University, NL*

Diagnostic and prognostic models for covid-19 could have helped strained health care systems. A living systematic review and standardized risk of bias assessment identified hundreds of models, but almost all were at high risk of bias. This talk is about what went wrong, and how we can do better.

**Panel 8**
Prospective Studies and Implementation

**Personalized care for depression and anxiety among college students**
*Michelle Craske, University of California, LA, USA*

The STAND program personalizes level of care, ranging from self-guided online prevention, to coach-guided online intervention, to clinical care, for depression and anxiety. Within digital interventions, embedded measurement-systems personalize content delivery and ongoing symptom measurement enables rapid adaptation across levels of care plus suicide risk management

**StratCare Trial: Multi-site randomised controlled trial of stratified care for depression**
*Jaime Delgadillo, University of Sheffield, UK*

This randomized controlled trial (N=951) evaluated the cost-effectiveness of stratified versus stepped care for depression. In stratified care, patients were matched to either low or high intensity psychological therapies, based on their characteristics, using a data-driven algorithm. Stratified care was more effective but more costly than stepped care.

**Evidence-Based and Personalized Recommendations in Clinical Practice –A Prospective Evaluation**
*Wolfgang Lutz, University of Trier, Germany*

A prospective trial (RCT) investigating a digital navigation system (Trier Treatment Navigator) is presented. Patients were randomized to the TTN (n = 335) or TAU (n=203) groups. Results showed an effect, when therapists followed recommendations. Usefulness was a significant moderator of effects. Results underscore the importance of implementation issues.

**Title coming soon**
*Greg Siegle, University of Pittsburgh, USA*

Abstract coming soon

**Designing trials for clinical implementation of prediction models**
*Rudolf Uher, Dalhousie University, CAN*

Predictive models are typically derived from existing datasets. Before a predictive model is applied in clinical settings, the clinical benefits of allocating treatments according to the prediction may need to be directly tested. I will review a published example and ongoing work on trials testing clinical benefits of prediction. I will illustrate key features of personalization trials, including randomized comparison of allocation to treatment with and without prediction, use of comparable active treatments in both arms, similarity of case mix and treatments to discovery sample and to the intended clinical setting, and acceptability to clinicians and patients. This contribution invites discussion about the level of evidence required for clinical application of prediction and complementary advantages of analytic and pragmatic personalization trial designs.

**Diagnostic and predictive neuroimaging biomarkers for posttraumatic stress disorder: a machine learning study**
*Sigal Zilcha-Mano, University of Haifa, Israel*

Comorbidity between posttraumatic stress disorder (PTSD) and major depressive disorder (MDD) was commonly overlooked by studies examining resting-state functional connectivity patterns in PTSD. The current study used a data-driven approach to identify biomarkers of PTSD and PTSD+MDD. Results demonstrate their clinical utility in predicting levels of symptomatology and treatment response.
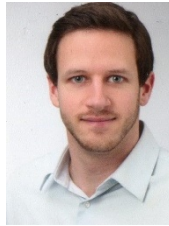
## Planning Committee



Zachary Cohen        Wolfgang Lutz        Brian Schwartz        Ann-Kathrin Deisenhofer        Jana Wasserheß

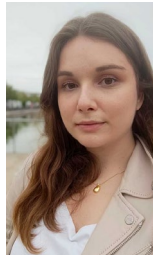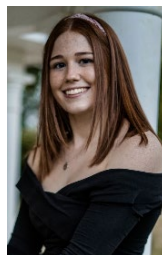### and the student assistants



Lisa        Vivien        Sandra        Verena        Abel        Sarah