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DISCOURSE in Psychosis: introducing an international consortium for research on thought, language and communication

Language is the thread that weaves our thoughts with society. It is the primary medium for patients to share experiences and for clinicians to provide interventions. When this thread is untied, the essence of the self and its social presence is threatened. Nowhere is this more acutely observed than in psychotic disorders such as schizophrenia, where thought, language, speech and communication disturbances (TLSC) have been defining, yet persistently enigmatic, core phenomena[1].

From Wernicke's hypothesis that aphasia may be the starting point for understanding mental illnesses to Bleuler's influential description of "loosening of associations", TLSC have consistently been identified as crucial predictors of illness onset, persistent disability, poor treatment response, and significantly reduced quality of life[2]. Despite this, our understanding, measurement and treatment of these disruptions have lagged behind other aspects of psychopathology. For the past 50 years, psychiatry has primarily focused on the more obvious symptoms of delusions and hallucinations, leaving the profound complexities of thought and language to recede to the background.

We are now witnessing a historic confluence of opportunities to overcome this impasse. A revolution in computational linguistics, a move towards collaborative open data science, and advances in digital measurement-based care have created an unprecedented moment[3].

DISCOURSE in Psychosis is a coordinated, global response that began as a consortium in 2021 with three primary goals: a) to provide a global platform for researchers from mental health, linguistics, neuroscience, data science, and sociology to meet, collaborate and set shared priorities to reduce the burden of TLSC; b) to address foundational conceptual issues, phenomenology and measurement of TLSC in psychosis, and overcome barriers to understanding their cognitive/computational and neural implementational basis; c) to promote opportunities ensuring that knowledge growth translates into tangible clinical benefits for patients. Identifying strategies for methodological and transdiagnostic integration beyond psychosis has been integral to these goals. The consortium's work is organized around key thematic priorities, which are outlined below.

Reliably evaluating TLSC during routine clinical encounters is a challenge. Patients do not actively complain about being thought

disordered. The subtle nature of disorganized speech, poverty of thought, and pragmatic failures often evade clinician's notice, even with standardized scales, creating a collective blind spot. These measurement challenges also hinder our understanding of the developmental and epidemiological aspects of TLSC in psychosis. Our current understanding is biased, as it is almost exclusively based on patients with long-term illness assessed cross-sectionally in clinical settings. Yet, the most devastating functional deficits – social isolation, unemployment, relational breakdown – often unfold early in the illness course. The consortium's priority is to harmonize clinical measurements and collaboratively implement new quantitative methods (e.g., corpus-based speech tagging, distributional semantics, graph-theoretical analysis) to derive automated and scalable readouts of TLSC. These approaches show early promise as accessible markers for prediction and monitoring[4], and they also offer a means to refine psychiatric semiology, enriching clinical training and practice.

Antipsychotic medications, while effective for positive symptoms, have a minimal impact on persistent TLSC. Moreover, clinical trials often circularly focus on measuring only what current treatments can change, systematically excluding patients with significant thought disorder. This creates a vicious cycle in which the very symptoms most predictive of poor outcome are the least likely to be investigated as treatment targets. The success of cognitive remediation ushers a path for interventions targeting TLSC to be designed and evaluated in psychosis. However, the difficulties in recruiting people with thought disorder for interventional trials diminishes the probability of successful empirical evaluation of treatment effects on this core feature of psychosis. Therapeutic progress requires concerted efforts to select and validate linguistic treatment targets, facilitate inclusion of patients with language deficits in ongoing trials, and develop focused remediation approaches against key linguistic deficits with the most functional relevance for patients.

Without a mechanistic understanding of TLSC, we will continue to shoot in the dark for treatments to reverse them. Large-scale initiatives – from neuroimaging to molecular biology – are generating unprecedented data[5]. To bring this approach to study TLSC, we need deep phenotyping that cuts across levels of analysis, from genes to circuits to behavior. *In-silico* models already suggest specific neural computational failures underlying language deficits, offering testable parameters for imaging and electrophysiology. Integrating these detailed cognitive models from psycholinguistics with clinical measurements and experimental approaches (e.g., perturb-and-measure designs) can provide mechanistic understanding. The goal is to bridge the gap between microcircuit aberrations and the lived experience of disrupted thought. To this end, DISCOURSE aims to collate repeated measurements of biobehavioral data using multiple modalities in various contexts among transdiagnostic samples with a lifespan perspective.

Language is not merely a biomarker of intrinsic physiological disturbances; it is a biosocial marker. Early-life economic conditions, social class, ethnicity, and migration status indelibly shape our language use. Large-scale, cross-cultural linguistic analysis offers an unprecedented opportunity to investigate the social pathogenesis of psychosis. For instance, why does immigration increase psychosis risk 2-3 fold? Preliminary evidence suggests that the "linguistic distance" between one's native and host language may be a critical, and previously unappreciated, factor[6]. Testing such sociolinguistic theories will become feasible with ecological momentary assessment of spontaneous face-to-face conversations, data-pooling and collaboration among epidemiologists, anthropologists and comparative linguists with a shared interest in psychosis.

DISCOURSE has grown to a 360-member open network with five workgroups, including a Lived Experience panel. Several members have successfully raised grants to contribute to and/or utilize the collective effort of the network (totaling US$ 44.45M from a variety of funders, including the European Union, the US National Institutes of Health, and the Wellcome Trust). The appeal of speech assessment includes its relative inexpensiveness and non-invasiveness, and the high participant acceptability, enabling the expansion of efforts by forming several national chapters (e.g., India, Brazil, Italy).

We have developed a harmonized protocol (available in 16 languages) with a minimal set of contextual variables to collect speech data as a by-product of routine clinical care, and created an accessible psychosis speech bank (https://talkbank.org/psychosis) in conjunction with the TalkBank repository system[7]. This expanding resource currently contains 890 speech samples in four languages, filling the void in harmonized, culturally and linguistically diverse shared data for clinical computational linguistics, measurement science and sociological applications in psychosis.

The study of communication in psychosis is, by its nature, interdisciplinary. DISCOURSE acts as a hub for knowledge exchange and training. We host a regular webinar series (six times annually, with 26 global events completed to date) and annual in-person consortium meetings. With philanthropic support, we have established the DISCOURSE Early Career Awards, which have supported over 50 awardees to attend the annual events. The consortium also develops and disseminates teaching materials for clinicians interested in language science and researchers interested in psychosis and thought disorder.

Language and speech analysis stands as one of the most promising and accessible objective tools in the history of psychosis research and care. Its large-scale use has the power to transform our field by enriching phenomenology, improving cultural and economic inclusivity in big-data studies, and leveraging state-of-the-art informatics to map the lifetime trajectory of a core feature of severe mental illnesses.

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Further information on the DISCOURSE consortium can be found at https://discourseinpsychosis.org.

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