Towards a Holistic Understanding of Adaptive Social Functioning: Disentangling Empathy and Perspective-Taking Across Risk States and Manifest Affective Disorders

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Research Summary

Social functioning impairments pose a significant burden on our well-being and constitute a striking diagnostic feature of various psychopathological conditions. Among others, affective disorders—comprising unipolar depressive and bipolar disorders—are frequently accompanied by interpersonal difficulties. In the past decades, growing research efforts have been devoted to studying disorder-related alterations in empathy and perspective-taking as putative underlying mechanisms. However, previous study findings are limited in clinical validity as predominantly relying on binary comparisons between patients and healthy controls as well as self-report measures of empathy and perspective-taking. While binary comparisons neglect potential within-group heterogeneities across different risk and disorder states, self-report measures fall short in capturing implicit interindividual variations that might not be perceivable on an experiential level.

In this dissertation, I addressed these challenges through a multimodal investigation of empathy and perspective-taking in both healthy and clinical populations across modalities of behaviour, self-report, and neural activity. Based on original data analyses and empirical reviews, I examined how empathic distress, empathic concern, and perspective-taking vary across risk and manifest states of affective disorders and explored the underlying processes driving these variations.

The first and second research projects entail an exploration of neurobiological phenotypes of affective disorders at risk and manifest disorder states. In the first research project, I investigated behavioural and neural correlates of empathy and perspective-taking in association with hypomanic personality traits as risk markers of bipolar disorder (OSF preregistration: https://osf.io/kh2tv). Hypomanic personality traits were associated with elevated functional activity in the medial prefrontal cortex and anterior cingulate cortex at perspective-taking demands. These neural alterations were not accompanied by risk-related alterations in behavioural perspective-taking performance, suggesting stronger recruitment of task-relevant brain regions but unaffected behavioural outcomes.

In the second research project, I reviewed empirical findings on empathy-related neural activity in unipolar depression. Our data synthesis indicated state-dependent neural alterations in depression, comprising both elevated and lower empathy-related neural activity in the inferior frontal gyri, bilateral anterior insulae, and cingulate regions. Predominantly, lower empathy-related neural activity was

evident at remission or after antidepressant treatment, while elevated neural activity was associated with acute states of depression. I propose a preliminary model of empathy development throughout the course of depression, characterised by initially elevated levels of empathy and a subsequent shift to detached empathic responding after remission.

Taking up the endeavour to model socio-affective and -cognitive fluctuations throughout disorder trajectories, the third research project entails an original data analysis of empathic distress, empathic concern, and perspective-taking in association with familial depression risk, acute symptom severity, and cumulative depression severity (OSF preregistration: https://osf.io/k6mdh). Empathic distress emerged as a robust correlate of depression across risk states, acute disorder states, and longer-term disorder progression. Findings further indicated a generalised heightened emotional attunement during acute depression, entailing both empathic concern and empathic distress.

In the fourth and final research project, I aimed to advance prevailing unitary accounts of empathy and perspective-taking by decomposing their outwardly uniform manifestations into distinguishable underlying social information processes. In a systematic review, I proposed and empirically probed a theoretical framework on self-other processing—entailing spontaneous self-other salience and volitional self-other control—as underpinnings of empathy and perspective-taking (OSF preregistration: https://osf.io/bv8dt). Reviewed studies provided initial yet robust evidence for higher other- rather than self-salience, stronger altercentric rather than egocentric biases, and enhanced self-other control abilities to be positively associated with empathy and perspective-taking outcomes. Preliminary findings of altered self-other processing in patients with mental disorders compared to healthy controls indicate the added value of their joint consideration for more elaborated insights into disorder-related socio-affective and -cognitive alterations.

Overall, findings from this dissertation elucidate a nuanced profile of empathy and perspective-taking alterations throughout risk and manifest states of affective disorders and provide important indications of underlying self-other processing alterations of potential transdiagnostic relevance. The integration of self-reported, behavioural, and neuroimaging data has revealed substantial dissociations between explicit experiential and implicit alterations in empathy and perspective-taking, underscoring the need for their joint consideration in future multimodal investigations. Longitudinal studies are warranted to follow up on intraindividual fluctuations in empathy and perspective-taking across disorder trajectories and probe the prognostic value of putative socio-affective and -cognitive risk correlates for a subsequent conversion into manifest disorders. A multimodal characterisation of risk- and disorder-related alterations in empathy, perspective-taking, and malleable self-other processes is promising to considerably refine the indication and efficiency of current psychotherapeutic interventions and alleviate social burdens in affected individuals.