A persuasive example of the impact of perceptual and cognitive biases on our functioning is severe reality distortions observed in the the most prominent symptoms of psychosis, i.e., hallucinations and delusions. Yet, although these symptoms are often linked to clinical states, research on the continuum model has shown that they may represent a continuum of different psychic phenomena. Recent studies have confirmed that there is an extended phenotype of psychosis that may be observed in the population as a range of psychotic-like experiences (e.g., hallucination- and delusion-like experiences). Importantly, PLEs share not only phenomenological features with clinical psychosis but also share some mechanisms. Hence, investigation of the PLEs may serve as a model for better understanding the mechanisms of them as well as mechanisms of the risk for psychosis. Recently, cognitive models dominated understanding the PLEs providing a fruitful framework for empirical studies. A rich line of studies have confirmed that cognitive biases (i.e., information processing biases) underlie PLEs. On the other hand, there is a line of studies which suggest the role of environmental (trauma, negative life events, cannabis) and interpersonal factors (e.g., social rejection) in the development of the risk for psychosis and PLEs. Unfortunately, there is a lack of knowledge integration between these factors that may serve as empirical evidence for more complex and dynamic models of psychosis. Hence, our project aims to better understand the interactions between cognitive biases, social rejection and PLEs in non-clinical participants. We intended to provide data based on cutting edge methods, including network analysis, experience sampling methods in order to increase ecological validity. Finally, we will provide the very first longitudinal and experimental data on the interactions between these factors.

In the project, we plan to conduct a series of studies that respond to the most important research gaps in the area of cognitive mechanisms of PLEs. In particular, we want to take advantage of the network models currently under development, as well as tools based on new technologies that allow us to study the mental state in the environment of the subject and in his/her everyday life (experience sampling methods). To this end, we plan to prepare a battery of experimental tests (phase 0) and validate them for testing in online conditions. This will allow us to prepare reliable tools for testing the most important cognitive distortions based on well-controlled behavioral tasks. The tests thus prepared in Study 1 are being used to test the interrelationships/networks of connections between cognitive distortions and psychotic-like experiences (PLEs) in relation to social rejection manipulations. This will be the largest study of its kind to date (n= 4,500). In a later phase (2), we will conduct a three-month longitudinal study testing associations of cognitive distortions with PLEs in the subject's environment (ESM, a phone app asking questions about mental states and cognitive distortions). At the same time, we will combine data from behavioral tasks (also tested longitudinally for 3 months), which will allow us to build complex models that predict the dynamics of PLEs. Finally, in the last study, we will conduct an ESM assessment followed by a manipulation of social rejection in the subject's environment (imaginal techniques, ESM) to see how rejection sensitivity is related to cognitive distortions and how it predicts PLEs. Subjects will then undergo cognitive training (or not, condition 2) to attenuate the distortion. This will be the first experimental study in the ESM paradigm to test the temporal relationship between the study variables. Specifically, we will answer the question of whether a cognitive change allows for attenuation of rejection sensitivity and whether this change translates into attenuation of PLEs intensity.

The idea of our project is to provide new knowledge filling important research gaps in the complex mechanisms of PLEs. We hope that these data will contribute to the development of more complex theoretical models of the risk of psychoses, and thus, in further steps, to their better diagnosis and treatment. The findings will be published in leading scientific journals and at scientific conferences and congresses.