# What influences the neural correlates of social cognition? Studies from a microscopic and macroscopic perspective

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| Autor: | Zhimin Yan |
| Institut / Klinik: | Zentralinstitut für Seelische Gesundheit Mannheim (ZI) |
| Doktorvater: | Prof. Dr. P. Kirsch |

Social cognition, as of the fundament of social interaction, is central to our daily social life. Although the past two decades have witnessed a huge increase in academic interest in social cognition, knowledge of the neural correlates of social cognition is still limited. With a growing number of studies investigating social cognition with a neuroscientific approach, a well-framed structure based on systematic perspectives to understand social cognition is urgently needed. The present dissertation attempted to investigate social cognition from two domains based on the idea what influences social cognition, the so-called microscopic perspective on the individual and the macroscopic perspective on the culture.

From the microscopic perspective, the effects of schizophrenia risk factors (including schizotypy and rs1344706 SNP) on neural correlates of social cognition were investigated in a healthy German sample. The results show associations between schizotypy, as well as the risk allele of the rs1344706 SNP and posterior superior temporal sulcus (pSTS) activation in response to neutral facial stimuli, suggesting right pSTS dysfunction in response to neural social stimuli might present an endophenotype for schizophrenia. Furthermore, these findings give evidence on the microscopic perspective proposed above that neural correlates of social cognition can be influenced by risk factors for mental illnesses in healthy participants.

Regarding the macroscopic perspective, the cultural effects on neural responses to different facets of social categorization were investigated with participants from different ethnicities. During the ethnicity-based categorization, the Chinese group showed higher ventral medial prefrontal cortex (MFC) activation for categorizing in-ethnicity versus out-ethnicity faces than the German group, even in-ethnicity bias was not observed in the Chinese group on the behavioral level. Since ventral MFC is well-documented to be associated with representing the preference of stimuli even in an unconscious or automatic fashion, the increased ventral MFC activation in the Chinese group may indicate that they present higher in-ethnicity preference than the German group. Further, increased dorsal MFC activation in response to in-team versus out-team faces was found in both ethnic groups during team-based categorization, inferring that the dorsal MFC might be a generalized neural code for encoding in-team members across ethnicities. In addition, by comparing the contrasts of in-team versus in-ethnicity and out-team versus out-ethnicity, the results suggest that ethnicity-based and team-based categorization probably presenting different dimensions of social categorization (such as perceptual- and knowledge-based categorization).

To summarize, the present dissertation aimed to advance the understanding of social cognition from microscopic and macroscopic perspectives. Such an approach might transfer to the clinical and psychotherapeutic field for developing more generalized interventions and treatments across ethnicities to prevent people from mental disorders or to optimize interventions for people with mental illnesses.