



Institute of Psychology
Polish Academy of Sciences

Graduate School for Social Research
Institute of Psychology, Polish Academy of Sciences

**Communicative intentions processing in Autism
Spectrum Disorder: Behavioral and Neural
Correlates.**

[Behawioralne i neuronalne korelaty rozpoznawania intencji komunikacyjnych u
osób z zaburzeniami ze spektrum autyzmu.]

mgr Małgorzata Krawczyk

Doctoral dissertation prepared under the
supervision of dr hab. Łukasz Okruszek,
prof. IP PAN

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Abstract

Social cognition (SC) has been extensively studied with regard to both non-clinical and psychiatric populations. It was repeatedly presented that overlapping SC difficulties are part of the phenotype in autism, but also other neurodevelopmental disorders, including schizophrenia. However, less is known about difficulties in recognition of intentional communicative cues from the biological motion in the neurodevelopmental conditions, which is considered as a crucial prerequisite for other SC abilities, including theory of mind.

Hence, the presented research project was focused on investigating behavioral and neural correlates of intentional cues recognition from biological motion (BM) in people with autism and, in the broader context, of the neurodiversity spectrum. To address this issue, we used data from two projects on social cognitive functioning in autism [2018/31/N/HS6/03757] and schizophrenia [2016/23/D/HS6/02947]. Behavioral analysis included 29 participants with autism (ASD), 29 typically developing participants (TD), and 53 participants with schizophrenia (SCZ). Analysis of data from structural (sMRI) and functional (fMRI) magnetic resonance imaging included data from 42 matched head-to-head participants (21 ASD and 21 TD).

To investigate differences in communicative intention recognition, single-agent and dyadic point-light display paradigms were used along with two batteries of social cognitive and neurocognitive tasks. In **Chapters 1. to 3.**, a theoretical introduction into the main concepts discussed in the study and a rationale for the research programme were presented. **Chapter 1.** reviews general aspects of social cognition and communicative intention processing on the behavioral, and on the neural level. **In Chapter 2.**, a review of behavioral and neural aspects of social cognition and communicative intention recognition in autism is presented. The specificity of these difficulties is discussed in **Chapter 3.**, which compares

social cognitive abilities in autism and schizophrenia, with a main focus on communicative intention recognition. **Chapter 4.** includes an overview of main research goals and questions, along with hypotheses and a general overview of the research design and methodology. Analysis of the differences in communicative intention recognition from BM is presented in **Chapter 5.** Decreased performance on the point light walker (PLW) measures was observed in people with ASD, despite no differences in the social and neurocognition. **Chapter 6.** included the analysis of social cognitive bias in autism. Compared to the TD group, individuals with ASD presented a heightened level of social cognitive bias on self-report, but not vignette-based and performance-based measures. **Chapter 7.** presents the analysis of sMRI and fMRI data. No differences between ASD and TD groups were observed within the neural circuits engaged in social perception, emotional processing and mentalizing, with regard to communicative intention processing. Differences in communicative intention recognition between individuals with ASD and SCZ were analyzed in **Chapter 8.** Both groups presented a decreased performance in BM measures of intention recognition, although only SCZ individuals presented a lower level of overall social cognitive and neurocognitive functioning compared to the ASD group. Overview of the obtained results followed by a general discussion is included in **Chapter 9.**

With all things considered, our results point toward possible difficulties in communicative intention recognition in both autism and schizophrenia. Thus, while abnormalities of intention processing might be an important feature leading to social functioning difficulties across the neurodiversity spectrum, more research is needed to disentangle specific underlying mechanisms.